



Euro-Asian Journal of Surgery and Medicine

13th Annual Meeting of the Euro-Asian Bridge Society for Cardiovascular Surgery

joint with

The 3rd Symposium of Pediatric Cardiology & Cardiac Surgery

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*Esteemed guests and collaborators,
Dearest friends and colleagues,
Ladies and gentlemen,*

It brings me great honor and joy to offer you a warm welcome at the 13th edition of the Euro Asian Bridge Society's annual congress taking place here, in the lovely capital of the province of Moldova, the city of Iasi.

My friends, we are meeting now during worrying times, in a world troubled by complex international relations, and a redefining of the socio-economic and political state of mind.

It is a time defined by globalization, that has given rise to societies governed by increasing demands of excellency in all quarters of life. It is also a time in which clear dialogue between social partners - (such as) Health Ministries, Governments, Universities and medical societies- has become not only a necessity but also our greatest asset in the struggle for improving healthcare and thusly the quality of life. And I speak not only of those fortunate to live in secular, democratic states, but of all people worldwide, people who deserve our help, both as doctors and as fellow human beings.

We are all well aware that in this great big family of cardiothoracic and cardiovascular surgeons, there are a number of perhaps divergent theories and methods, but the objectives of our societies converge, remaining crystal clear.

What we strive for are superior scientific markers in terms of diagnosis, surgical approach and method chosen, markers that we must follow and integrate into the teachings of the medical schools we have graduated from, meanwhile protecting our professional and personal integrity for our patients, for this career we have chosen and, lastly, for ourselves.

As we have become accustomed to, the Euro Asian Bridge Society Congresses are annual gatherings in which we can put into perspective what each of us has or has not managed to achieve, we can unify and streamline the breakthroughs in cardiac surgery, and we can bring back home the conclusions, for the betterment of our patients.

Through our debates we try to sketch a vision, a dynamic and complex perspective that encompasses anticipation, prevention, analysis and reaction; and this vision we must impart upon the generations to come, in the hope that they will further improve on it, and make it their own.

But for this we need logistics, support, creative thinking, respect, honor and also a significant amount of resources.

Unfortunately, the medicine of today is shrouded in paradoxes, a state which makes proper medical practice more and more difficult.

In Romania, for example, we have an elite medical society, recognized worldwide, but a glaring lack of proper infrastructure. I am loath to say but this situation is of our own doing, because we have chosen to turn our heads, to blindly shelter ourselves from the truths of this society, truths which myself and my compatriots know intimately, and in doing so, we have permitted destabilizing factors to slowly erode what was once solid. And these fractures carry a heavy weight, especially when it involves practicing elite medical specialties under inauspicious laws concerning malpractice and under constant pressure from both the media and the population in general.

I believe that the time has come for us to set aside our egos and do our best to change this murky state which brings nothing but dishonor to Romanian medicine. But for this, my friends, we need cohesion and force of will in promoting and upholding Romanian medical culture in all its forms; we need to create a long-term projection that encompasses both human and material resources, a strategy marked by responsible decision-making and continuity.

On the other hand, it is my strong belief that accomplished medical healthcare cannot be resolved without first investing into education. The potential of our young colleagues will not be achieved if we chose not to involve ourselves fully in creating a medical school based on performance, merit and on the promotion of true talent. The system of education and research in Romania must be made to function under the principles of integrity and quality.

From this perspective, the Congress that begins today will constitute a bridge between not only medical and surgical domains but also between generations, for grooming the future cardiothoracic and cardiovascular surgeons is an essential step in the progress of medicine.

Your presence and participation assures the premise of fruitful scientific meetings and discussions. We need your ideas and your involvement in order to create and implement better therapeutic and surgical procedures, therefore I am truly grateful to you for actively taking part in this Congress.

Because we are well aware of the high standards that the previous editions held under the banner of the cardiovascular society have imposed, the organizers have strived to fully acknowledge and achieve them, both in terms of intrinsic value and in the name of promoting surgical furtherance.

A heartfelt thank you to those involved in the organizing of this Congress, to our sponsors, our partners, to the University of Medicine and Pharmacy Iasi, to all my colleagues and to those which constitute the basis of our activity, thank you to the patients.

In these current conditions governed by social and political instability, in this lack of proper funding and resources, I am grateful to you all for your efforts, and I can assure you that you will always find a stable and dependable partner in our school of surgery.

Regardless though of the context, I will always personally endeavor to provide a staunch basis on which common bridges can be built.

We all wish, I believe, to live in a better, more educated, more decent world. But in order to live in such a world, we must all work towards it, we must create it ourselves each and every day.

Quo vadis? the road is being built now.

I invite you to help me define it, and walk on it, together.

Welcome to Iasi!

*Professor Grigore Timica M.D., Ph.D.
President of the Euro-Asian Bridge Society*

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MEETING PROGRAMME

Thursday, 21 September 2017

Conference Hall 2

08:30 - 10:30 SYMPOSIUM FOR NURSES OF CARDIOVASCULAR SURGERY, ICU AND CARDIO-PULMONARY BYPASS: SESSION I

Chairpersons:

Nadia Fetcu (Iași, Romania)

Mihaela Pleșcan (Iași, Romania)

08:30 - 08:50

Medical nurses' role in pediatric cardiac surgery ward

Mariana Pricop, Alexandra Ciornei

"Prof. Dr. George Georgescu" Institute of Cardiovascular Diseases, Iași, Romania

08:50 - 09:10

Physical training and psychological therapy of children before cardiac surgery

Nadia Fetcu, Mirela Gârbaciu

"Prof. Dr. George Georgescu" Institute of Cardiovascular Diseases, Iași, Romania

09:10 - 09:30

Cardiac surgery nurses' role in the management of cardiac anxiety

Antonela Mușțianu

"Prof. Dr. George Georgescu" Institute of Cardiovascular Diseases, Iași, Romania

09:30 - 09:50

Patient preparation for coronary computed tomography angiography

Liliana Nechita, Gabriela Sandu, Gheorghe Vasilache

"Prof. Dr. George Georgescu" Institute of Cardiovascular Diseases, Iași, Romania

09:50 - 10:10

The role of the medical nurse and specific postoperative care in cardiac surgery patients

Emanuel Urecheanu, Emanuela Urecheanu

"Prof. Dr. George Georgescu" Institute of Cardiovascular Diseases, Iași, Romania

10:10 - 10:30 Discussions

10:30 - 11:00 Coffee break & exhibition visiting

11:00 - 13:40 SYMPOSIUM FOR NURSES OF CARDIOVASCULAR SURGERY, ICU AND CARDIO-PULMONARY BYPASS: SESSION II

Chairpersons:

Mariana Dumbravă (Iași, Romania)

Andreea Neamțu (Iași, Romania)

11:00 - 11:20

The attributions of medical staff in preventing and combating health care associated infections

Mihaela Trincă

"Prof. Dr. George Georgescu" Institute of Cardiovascular Diseases, Iași, Romania

11:20 - 11:40

Patient safety optimization through standard precautions, isolation and prevention barriers

Mariana Dumbravă

"Prof. Dr. George Georgescu" Institute of Cardiovascular Diseases, Iași, Romania

11:40 - 12:00

Nursing care of patients with severe infection

Irina Nicolau, Carmen Dorobăț

“Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

12:00 - 12:20

Asepsis and antisepsis. Prevention of nosocomial infections in cardiovascular surgery

Andreea Neamțu

“Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

12:20 - 12:40

Prevention of central venous catheter infections

Dan Alex

“Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

12:40 - 13:00

Blood transfusion - distinctive features in cardiovascular surgery - pre- and post-surgical follow-up

Gabriela Jalencu

“Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

13:00 - 13:20

Rules and principles for a healthy life after cardiac surgery

Petronica Bejan

“Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

13:20 - 13:40 Discussions

Thursday, 21 September 2017

“Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Amphitheatre, 6th floor

**10:00 - 12:30 SURGERY SUMMER SCHOOL - FOR STUDENTS AND YOUNG DOCTORS: WET LAB -
CARDIAC SURGERY TECHNIQUES - VASCULAR SUTURES AND VALVULAR REPLACEMENT**

Speakers:

Diana Anghel (Iași, Romania)

Mihail Enache (Iași, Romania)

Thursday, 21 September 2017

Conference Hall 1

13:30 - 15:00 SESSION I - SOLVING EVERYDAY ISSUES IN CARDIOVASCULAR MEDICINE: CONFERENCES AND LIVE TRANSMISSION FROM CARDIOVASCULAR DISEASES INSTITUTE OPERATING ROOM - PART I

Chairmen:

Marko Turina (Zurich, Switzerland)
Vadim Popov (Moscow, Russia)
Levan Karazanishvili (Tbilisi, Georgia)
Viorel Goleanu (Bucharest, Romania)
Adrian Covic (Iași, Romania)
Michael Grimm (Innsbruck, Austria)

13:30 - 13:40

Correlations between temporomandibular disorder and cardiac involvement in Marfan syndrome

Paloma Manea (1), Radu Andreica (2), Răzvan Constantin Anghel (1)
(1) "Grigore T. Popa" University of Medicine and Pharmacy, Iași, Romania
(2) "Dr. Radu Andreica" Dental Office, Iași, Romania

13:40 - 13:50

Severe aortic valvular stenosis - therapeutic options

Radu Andy Sascău, Cristian Stătescu
"Prof. Dr. George Georgescu" Institute of Cardiovascular Diseases, Iași, Romania

13:50 - 14:00

Comparative medial changes in aortic aneurysms and dissections related by common risk factors

Doina Butcovan, Diana Anghel, Grigore Tinică
"Prof. Dr. George Georgescu" Institute of Cardiovascular Diseases, Iași, Romania

14:00 - 14:10

Issues in management of multisite artery disease - a critical reading of ESC Guidelines

Alexandru Burlacu, Igor Nedelciuc, Adrian Covic, Grigore Tinică
"Grigore T. Popa" University of Medicine and Pharmacy, Iași, Romania

14:10 - 14:20

Retrograde cardioplegia with warm blood - method of first-choice for myocardial protection in patients with severe coronary artery lesions totally revascularized arterially

Victor Cornel Raicea (1), Liviu Moraru (1), Bogdan Manole (1), Andrei Raicea (2), Horațiu Suci (1)
(1) Emergency Institute for Cardiovascular Diseases and Transplant, Târgu Mureș, Romania
(2) University of Medicine and Pharmacy, Târgu Mureș, Romania

14:20 - 14:30 Discussions

14:30 -15:00

Live transmission - Minimally invasive aortic valve surgery (Case 1)

Mauro Cassese (Italy)
Grigore Tinică (Romania)
Igor Nedelciuc (Romania)
Flavia Corciovă (Romania)
Daniel Dăscălescu (Romania)

15:00 - 15:10

Functional tricuspid regurgitation

Viorel Goleanu
"Prof. Dr. Agrippa Ionescu" Clinical Emergency Hospital, Bucharest, Romania

15:10 - 15:20

Syntax and derived scores - valuable tools of the Heart Team: evolution and utility

Alexandru Burlacu, Igor Nedelciuc, Adrian Covic, Grigore Tinică
"Grigore T. Popa" University of Medicine and Pharmacy, Iași, Romania

15:20 - 15:30 Discussions

15:30 - 15:45 Coffee break & exhibition visiting

15:45 - 19:00 SESSION II - SOLVING EVERYDAY ISSUES IN CARDIOVASCULAR MEDICINE: CONFERENCES AND LIVE TRANSMISSION FROM CARDIOVASCULAR DISEASES INSTITUTE OPERATING ROOM - PART II

Chairmen:

Marko Turina (Zurich, Switzerland)
Vadim Popov (Moscow, Russia)
Levan Karazanishvili (Tbilisi, Georgia)
Viorel Goleanu (Bucharest, Romania)
Michael Grimm (Innsbruck, Austria)
Adrian Covic (Iași, Romania)

15:45 - 16:15

LIVE TRANSMISSION II - HYBRID OPERATING ROOM (Case 2)

Mauro Cassese (Italy)
Grigore Tinică (Romania)
Igor Nedelciuc (Romania)
Flavia Corciovă (Romania)
Daniel Dăscălescu (Romania)

16:15 - 16:25

Occlusion of the trunk of the left coronary artery caused by giant ascending aortic pseudoaneurysm after replacement of ascending aorta and aortic valve - case report

Victor Cornel Raicea (1), Liviu Moraru (1), Bogdan Manole (1), Andrei Raicea (2), Horațiu Suciu (1)
(1) Emergency Institute for Cardiovascular Diseases and Transplant, Târgu Mureș, Romania
(2) University of Medicine and Pharmacy, Târgu Mureș, Romania

16:25 - 16:35

Rare cause of acute heart failure in the adult - ruptured sinus of valsalva aneurysm unmasking coexisting perimembranous ventricular septal defect

Cătălina Andreea Parasca, Irina Maria Mărgărint, Roxana Carmen Geană, Ovidiu Știru, Ovidiu Chioncel, Șerban Bubenek, Daniela Filipescu, Vlad Anton Iliescu
“Prof. Dr. C.C. Iliescu” Institute of Emergency of Cardiovascular Disease, Bucharest, Romania

16:35 - 16:45

Left ventricular rupture following mitral valve replacement - classification, risk factors, technique of repair

Vitalie Moscalu (1), Aureliu Bătrînac (2), Gheorghe Manolache (3), Andrei Ureche (2), Iurie Guzman (3), Oleg Repin (3)
(1) Institute of Cardiology, Chișinău, Republic of Moldova
(2) Medpark International Hospital, Chișinău, Republic of Moldova
(3) Republican Clinical Hospital, Chișinău, Republic of Moldova

16:45 - 16:55

Flow-endothelial cell interaction in every day cardiac surgery

Alexandru Ciucu (1), Iosif Bartha (2), Doina Butcovan (1)
(1) “Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania
(2) “Gheorghe Asachi” Technical University, Iași, Romania

16:55 - 17:00 Discussions

16:55 - 17:00 Discussions

17:00 - 17:15 Coffee break & exhibition visiting

17:15 - 17:25

Ventricular septal defect percutaneous closure in a young patient stabbed in the heart

Igor Nedelciuc
“Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

17:25 - 17:40

Minimally invasive valve surgery as team approach

Michael Grimm

St. George and Sutherland Clinical School, Innsbruck, Austria

17:40 - 17:50

Aortic valve replacement via anterior right mini-thoracotomy

Levan Karazanishvili

Tbilisi, Georgia

17:50 - 18:00

Utilization of multi-arterial grafting with sequential grafts: one year institutional experience

Lucian Stoica, Alexandru Ciucu, Eugen Bitere, Mihail Enache, Diana Anghel, Victor Prisăcari, Grigore Tiniță
“Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

18:00 - 18:10

Right ventricular dysfunction - assessment and prognostic implications in cardiac surgery

Flavia Corciovă (1), Mihaela Moscalu (2), Călin Corciovă (2), Diana Anghel (1), Grigore Tiniță (1)

(1) “Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

(2) "Grigore T. Popa" University of Medicine and Pharmacy, Iași, Romania

18:10 - 18:20

Mitral regurgitation - modern therapeutic methods

Radu Andy Sascău, Cristian Stătescu

“Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

18:20 - 18:50

Aortic valve replacement: „think outside the box”

Mauro Cassese

Bari, Italy

18:50 - 19:00 Discussions

Friday, 22 September 2017

Conference Hall 1

08:00 - 09:10 SESSION III - EXTRACORPOREAL CIRCULATION, ASSIST DEVICES AND NEW TRENDS IN CARDIOVASCULAR SURGERY

Chairmen:

Jacob Lavee (Tel Aviv, Israel)
Kosmas Tsakiridis (Athens, Greece)
Eugen Săndică (Bad Oeynhausen, Germany)
Fessatidis Ioannis (Thessaloniki, Greece)

08:00 - 08:20

The use of ECMO in non-cardiac surgery

Kosmas Tsakiridis
Kyanous Stavros Hospital, St. Luke's Hospital, Athens, Greece

08:20 - 08:40

Mechanical circulatory support in challenging patients

Eugen Săndică
Heart and Diabetes Centre NRW, Bad Oeynhausen, Germany

08:40 - 09:00

The HeartMate 3 fully magnetically levitated ventricular assist device - A new era in cardiac support devices

Jacob Lavee
Heart Transplantation Unit, Leviev Heart Center, Sheba Medical Center, Faculty of Medicine, Tel Aviv, Israel

09:00 - 09:10 Discussions

09:10 - 10:00 MAIN LECTURES

Chairmen:

Sotirios Prapas (Athens, Greece)
Belhan Akpınar (Istanbul, Turkey)

09:10 - 09:35

Critical approach to medical literature

Marko Turina
University of Zurich, Zurich, Switzerland

09:35 - 10:00

Cardiovascular surgery in modern society - presidential address

Grigore Tiniță
"Prof. Dr. George Georgescu" Institute of Cardiovascular Diseases, Iași, Romania

10:00 - 10:15 Coffee break & exhibition visiting

10:15 - 12:10 SESSION V - BICUSPID AORTIC VALVE AND SPARING SURGERY: FROM ECHO TO OPERATING ROOM - LIVE SURGERY AND LIVE ECHOCARDIOGRAPHY SESSION

Chairmen:

Gheorghe Cerin (Novarra, Italy)
Marko Turina (Zurich, Switzerland)
Hans-Joachim Schäfers (Homburg, Germany)
Horia Mureșian (Bucharest, Romania)

10:15 - 10:30

Introduction of the live session (Congress Hall, Iași)

Gheorghe Cerin
San Gaudenzio Clinic, Novarra, Italy

10:30 - 10:45 Case presentation - streaming from Bucharest

Hans-Joachim Schäfers (1), Theodor Cebotaru (2)
(1) Saarland University Medical Center, Homburg, Germany
(2) Monza Hospital, Bucharest, Romania

10:45 - 11:00

Intraoperative echocardiography - streaming from Bucharest

Dana Constantinescu
Floreasca Emergency Hospital, Bucharest, Romania

11:00 - 11:15

Live surgery from the operating room - streaming from Bucharest

Hans-Joachim Schäfers
Saarland University Medical Center, Homburg, Germany

11:15 - 11:30

The surgical anatomy of the aortic valve and root (Congress Hall, Iași)

Horia Mureșian
University Hospital, Bucharest, Romania

11:30 - 11:45

Perioperative echocardiography (Congress Hall, Iași)

Gheorghe Cerin
San Gaudenzio Clinic, Novarra, Italy

11:45 - 12:00

Aortic valve sparing surgery - streaming from Bucharest

Hans-Joachim Schäfers
Saarland University Medical Center, Homburg, Germany

12:00 - 12:10

Panel discussion with the surgical team from Iași & Bucharest

Hans-Joachim Schäfers
Saarland University Medical Center, Homburg, Germany

12:10 - 12:15 Coffee break & exhibition visiting

12:15 - 14:00 SESSION VII - CORONARY SURGERY - PART I

Chairmen:

Hirofumi Takemura (Kanazawa, Japan)
Guo-Wei He (Tianjin, China)
Vadim Popov (Moscow, Russia)
Marco Diena (Turin, Italy)

12:15 - 12:30

Total arterial myocardial revascularization up to 4300 cases

Marco Diena (1), Gian Luca Martinelli (2), Gabriele Musica (1), M. Bobbio (2), E. Novelli (1), E. Stelian (2), A. Romano (2)
(1) Cardioteam Foundation Onlus, Turin, Italy
(2) San Gaudenzio Clinic, Novarra, Italy

12:30 - 12:40

The benefits of off-pump coronary artery bypass grafting procedure in our patients older than 75 years of age

Vladimir Kornovski, Plamen Panayotov, Cvetan Gradinarov, Milen Slavov, Yavor Peychev, Georgi Bachvarov
"St. Marina" University Hospital, Varna, Bulgaria

12:40 - 12:55

Impact of intraoperative imaging during cardiac surgery using high frequency epicardial ultrasound

Hirokuni Arai
Tokyo Medical & Dental University, Tokyo, Japan

12:55 - 13:10

Biological characteristics and non-ending search for pharmacological antispastic methods in coronary artery bypass grafting surgery

Guo-Wei He

TEDA International Cardiovascular Hospital, Tianjin, China

13:10 - 13:25

Revival of coronary thrombendarterectomy in endstage coronary artery disease

Heinz Günther Jakob

West-German Heart and Vascular Center Essen, University Hospital Essen, Essen, Germany

13:25 - 13:35

Intraoperative assessment of sequential coronary artery bypass graft

Boris Todurov, Max Rotari, Vitaly Demyanchuk, O. Zelenchuk, A. Bitsadze, V. Studnikova

Heart Institute, Kiev, Ukraine

13:35 - 13:45

Coronary and carotid artery occlusive disease: changed approach to operative tactics?

Pavle Kovačević (1), Marijan Majin (2), Lazar Velicki (1), Aleksandar Milosavljevic (1), Ilija Bjeljac (1)

(1) University of Novi Sad, Novi Sad, Serbia

(2) Institute for Cardiovascular Diseases of Vojvodina, Sremska Kamenica, Serbia

13:45 - 13:55

Hybrid coronary revascularization in 2017

Vadim Popov, Egor Malysenko, Madina Kadyrova, Amiran Revishvili

A.V. Vishnevsky Institute of Surgery, Moscow, Russia

13:55-14:00 Discussions

14:00 - 15:00 Lunch break & exhibition visiting

15:00 - 17:00 SESSION IX - AORTIC VALVE

Chairmen:

Toshimi Ujiie (Osaka, Japan)

Magued Zikri (Cairo, Egypt)

Boris Todurov (Kiev, Ukraine)

Slobodan Mićović (Belgrade, Serbia)

15:00 - 15:15

Difficult issues in aortic valve surgery: management of asymptomatic severe A.S.

Magued Zikri

Cairo University, Cairo, Egypt

15:15 - 15:30

The strategies for AAE or aortic valve disease with enlarged aortic root

Toshimi Ujiie

Iseikai General Hospital, Osaka, Japan

15:30 - 15:40

Valve sparing aortic root replacement - single center experience

Slobodan Mićović, Predrag Milojević, Željko Bojović

Institute for Cardiovascular Diseases "Dedinje", Belgrade, Serbia

15:40 - 15:50

Immediate results of aortic valve neocuspidization (Ozaki procedure)

Boris Todurov, Igor Mokryk, Vitaly Demyanchuk, Natalia Ponich, Chrystyna Monastyrska, Igor Kuzmich, Olena Fedorenko

Heart Institute, Kiev, Ukraine

15:50 - 16:00

Isolated aortic valve repair. Baku experience

Kamran Musayev

Central Clinical Hospital, Baku, Azerbaijan

16:00 - 16:10

Right mini-thoracotomy for aortic valve surgery: evolution of myocardial protections strategies

Atiq Rehman, Jane Cichelli, Arthur Martella

Our Lady of Lourdes Medical Center, Camden, New Jersey, USA

16:10 - 16:20

Frequency of aortic aneurysm forming and dissection in patients with bicuspid aortic valve (BAV)

Ivan Kravchenko, Vitalii Kravchenko, Olga Pantas, Volodymyr Vayda

Amosov National Institute of Cardiovascular Surgery, Kiev, Ukraine

16:20 - 16:30

Aortic valve ultrasonic decalcification as an alternative approach to replacement for aortic valve stenosis with small annulus

Boris Todurov, Andrii Markovets, Vadim Sakalov

Heart Institute, Kiev, Ukraine

16:30 - 16:40

The age of 80 or higher is not a risk factor for midterm survival after aortic valve replacement

Konstantinos Katsavrias, I. Panagiotopoulos, I. Linardakis, F. Ntanou, P. Stratigi, V. Prapa, Sotirios Prapas

Henry Dunant Hospital Center, Athens, Greece

16:40 - 16:50

Aortic valve replacement in geriatric patients with small aortic root and low body surface area; improved effective orifice area following Perceval S valve implantation

Efstathia Prappa, Michail Argyriou, Constantina Romana, Anna Panagiotou, Ilias Samiotis, Vasileios Patris,

Nikolaos Papakonstantinou, Michalis Tsamatsoulis, Christos Charitos, Panagiotis Dedeilias

Evangelismos General Hospital, Athens, Greece

16:50 - 17:00 Discussions

17:00 - 17:15 Coffee break & exhibition visiting

17:15 - 19:00 SESSION XI - MINIMALLY INVASIVE & TMVR

Chairmen:

Frank Van Praet (Aalst, Belgium)

Marco Diena (Turin, Italy)

Bernhard Voss (Munich, Germany)

Horațiu Suci (Târgu Mureș, Romania)

17:15 - 17:30

Minimally invasive mitral valve repair, technique and results

Marco Diena

Cardioteam Foundation Onlus, Turin, Italy

17:30 - 17:45

Strategies in minimally invasive mitral valve repair

Bernhard Voss

German Heart Centre, Munich, Germany

17:45 - 18:00

Minimally invasive aortic valve surgery - between fashion and routine technique

Marian Gașpar

Emergency Institute for Cardiovascular Diseases and Transplant, Timișoara, Romania

18:00 - 18:15

Transcatheter mitral valve replacement: from Eureka to bench to market

Lucian Lozonschi

University of Wisconsin School of Medicine and Public Health, Madison, USA

18:15 - 18:30

Various techniques of operations of left ventricular post-infarction aneurysm

Anatoliy Rudenko, Vasiliy Lazorishinec, Sergii Rudenko
Amosov National Institute of Cardiovascular Surgery, Kiev, Ukraine

18:30 - 18:45

Endoscopic minimally invasive mitral and tricuspid valve surgery: 20 years' experience in almost 3000 patients

Frank Van Praet, Filip P. Casselman, Bernard Stockman, Ivan Degrieck
OLV Clinic, Aalst, Belgium

18:45 - 19:00

Technical tips and tricks for the heart valve surgery through a mini-sternotomy approach

Pavle Kovačević (1), Lazar Velicki (1), Aleksandar Redzek (1), Marijan Majin (2), Miklos Fabri (2), Stamenko Susak (1), Dragan Nikolic (2), Mirko Todić (2)

(1) University of Novi Sad, Novi Sad, Serbia

(2) Institute for Cardiovascular Diseases of Vojvodina, Sremska Kamenica, Serbia

Friday, 22 September 2017

Conference Hall 2

08:00 - 09:10 SESSION IV - MITRAL VALVE

Chairmen:

Lorenzo Menicanti (San Donato, Italy)

Radu Deac (Bucharest, Romania)

Bojan Biočina (Zagreb, Croatia)

08:00 - 08:10

Fifty cases of anterolateral mini-thoracotomy for surgery of the mitral and tricuspid valves: the way we evolved

S. Kazakov, A. Keltchev, S. Markov, H. Zaharinov, D. Nikolov

Medical University Plovdiv, Plovdiv, Bulgaria

08:10 - 08:20

Heart failure and mitral valve

Bojan Biočina

University Hospital Centre Rebro, Zagreb, Croatia

08:20 - 08:30

Plication technique for posterior leaflet prolapse: potentials and limitations

Hirofumi Takemura, Kenji Iino, Hiroki Kato, Shintaro Takago, Yoshiko Shintani, Hironari No, Hideyasu Ueda

Kanazawa University, Kanazawa, Japan

08:30 - 08:45

Papillary muscle relocation for functional mitral regurgitation

Hirokuni Arai

Tokyo Medical & Dental University, Tokyo, Japan

08:45 - 09:00

Ischemic and functional mitral regurgitation

Lorenzo Menicanti

Policlinico San Donato, San Donato, Italy

09:00 - 09:10 Discussions

09:10 - 10:00 MAIN LECTURES

CONFERENCE HALL 1

Chairmen:

Sotirios Prapas (Athens, Greece)

Belhan Akpınar (Istanbul, Turkey)

09:10 - 09:35

Critical approach to medical literature

Marko Turina

University of Zurich, Zurich, Switzerland

09:35 - 10:00

Cardiovascular surgery in modern society - presidential address

Grigore Tinică

“Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

10:15 - 12:00 SESSION VI - IMAGING IN CARDIOVASCULAR MEDICINE

Chairmen:

Massimo Lombardi (San Donato, Italy)

Hirofumi Takemura (Kanazawa, Japan)

Grațian Dragoslav Miclăuș (Timișoara, Romania)

10:15 - 10:35

Transcatheter treatment of mitral regurgitation

Francesco Bedogni

Policlinico San Donato, San Donato, Italy

10:35 - 10:50

Cardiac MRI - experience of the NEUROMED Diagnostic Imaging Center

Grațian Dragoslav Miclăuș

SCM NEUROMED, Timișoara, Romania

10:50 - 11:05

Post-acute myocardial infarction assessment of regional and global myocardial function by CMR

Massimo Lombardi

Policlinico San Donato, San Donato, Italy

11:05 - 11:15

CT evaluation of congenital heart diseases - advantages and pitfalls

Raluca Ozana Chistol (1), Cristina Furnică (2,3), Grigore Tinică (1,2), Diana Bulgaru-Iliescu (2,3)

(1) "Prof. Dr. George Georgescu" Institute of Cardiovascular Diseases, Iași, Romania

(2) "Grigore T. Popa" University of Medicine and Pharmacy, Iași, Romania

(3) Institute of Forensic Medicine, Iasi, Romania

11:15 - 11:25

Identification and characterization of congenital heart malformations using CTA

Grațian Dragoslav Miclăuș

SCM NEUROMED, Timișoara, Romania

11:25 - 11:40

Efficacy of epicardial echo imaging for diffusely diseased and narrowed coronary artery during coronary artery bypass grafting

Hirofumi Takemura, Kenji Iino, Hiroki Kato, Shintaro Takago, Yoshiko Shintani, Hironari No, Hideyasu Ueda
Kanazawa University, Kanazawa, Japan

11:40 - 11:50

Medical imaging in TAVI planning

Raluca Ozana Chistol (1), Cristina Furnică (2,3), Grigore Tinică (1,2)

(1) "Prof. Dr. George Georgescu" Institute of Cardiovascular Diseases, Iași, Romania

(2) "Grigore T. Popa" University of Medicine and Pharmacy, Iași, Romania

(3) Institute of Forensic Medicine, Iasi, Romania

11:50 - 12:00 Discussions

12:00 - 12:15 Coffee break & exhibition visiting

12:15 - 14:00 SESSION VIII - ARRHYTHMIAS

Chairmen:

Carlo Pappone (San Donato, Italy)

Alexander Mărmureanu (Los Angeles, USA)

Plamen Panayotov (Varna, Bulgaria)

Tammam Youssef (San Donato, Italy)

12:15 - 12:45

Brugada syndrome: past, present, future

Carlo Pappone

Policlinico San Donato, San Donato, Italy

12:45 - 13:00

CABG combined with surgical ablation of atrial fibrillation

Vadim Popov, Egor Malysenko, Madina Kadyrova, Amiran Revishvili

A.V. Vishnevsky Institute of Surgery, Moscow, Russia

13:00 - 13:20

Cardiac sympathetic denervation in patients with refractory ventricular arrhythmias or electrical storm

Alexander Mărmureanu

St. Vincent Medical Center, Los Angeles, USA

13:20 - 13:35

Minimally invasive treatment of atrial fibrillation

Belhan Akpinar

Grup Florence Nightingale, Istanbul, Turkey

13:35 - 13:45

Predicting postoperative atrial fibrillation after aortic valve replacement

Alina Iliescu

“Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

13:45 - 13:55

Atrial fibrillation - guideline new frontiers

Cristian Stătescu, Radu Andy Sascău

“Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

13:55 - 14:00 Discussions

14:00 - 15:00 Lunch break & exhibition visiting

15:00 - 17:00 SESSION X - CONGENITAL HEART DISEASE SURGERY:

THE THIRD INTERNATIONAL SYMPOSIUM OF CARDIOVASCULAR SURGERY AND PEDIATRIC CARDIOLOGY - PART I

Chairmen:

Alessandro Frigiola (San Donato, Italy)

Randas Vilela Batista (Curitiba, Brazil)

Jacek Moll (Lodz, Poland)

Giuseppe Isgrò (San Donato, Italy)

15:00 - 15:15

Promising outcome of anatomical correction of corrected transposition of the great arteries

Viktor Hraska (1), Mathieu Vergnat (2), Peter Zartner (2), Chris Hart (2), Phillip Suchowerskyj (2), Benjamin Bierbach (2), Ehrenfried Schindler (2), Martin Schneider (2), Boulos Asfour (2)

(1) Children’s Hospital of Wisconsin, Wisconsin, USA

(2) German Pediatric Cardiac Center, Sankt Augustin, Germany

15:15 - 15:30

Surgical treatment of mitral valve in children

Alessandro Frigiola

Policlinico San Donato, San Donato, Italy

15:30 - 15:45

Postoperative heart failure in congenital heart surgery: how to treat it?

Giuseppe Isgrò

Policlinico San Donato, San Donato, Italy

15:45 - 16:00

Surgical treatment of Eisenmenger syndrome

Randas Vilela Batista

Hospital Universitário Evangélico de Curitiba, Curitiba, Brazil

16:00 - 16:15

Correction of truncus arteriosus using the truncal cusp (aortic) in pulmonary position

Tammam Youssef

Gruppo Ospedaliero San Donato, San Donato, Italy

16:15 - 16:30

Ross operation as a procedure of choice in complex aortic valve disease in infants and small children

Marek Kopala, Katarzyna Mludzik, Jadwiga Moll, Krzysztof Michalak, Maciej Moll, Jacek Moll

Polish Mothers Health Centre, Lodz, Poland

16:30 - 16:45

The Ross procedure in young and middle aged adults - a lost opportunity?

Șerban Stoica

University Hospitals Bristol, NHS Foundation Trust, Bristol, UK

16:45 - 17:00

Percutaneous pulmonary valve replacement. State of the art and future perspectives

Mario Carminati

Policlinico San Donato, San Donato, Italy

17:00 - 17:15 Coffee break & exhibition visiting

17:15 - 19:15 SESSION XII - CONGENITAL HEART DISEASE SURGERY:

THE THIRD INTERNATIONAL SYMPOSIUM OF CARDIOVASCULAR SURGERY AND PEDIATRIC CARDIOLOGY - PART II

(10 minutes presentation, 5 minutes discussions)

Chairmen:

Alessandro Frigiola (San Donato, Italy)

Tammam Youssef (San Donato, Italy)

Marek Kopala (Lodz, Poland)

Ion Socoteanu (Bucharest, Romania)

17:15 - 17:30

The arterial switch operation in new pediatric cardiac surgery centers is a big challenge

Tammam Youssef

Gruppo Ospedaliero San Donato, San Donato, Italy

17:30 - 17:45

Atriovenous congenital fistulae

Vasilii N. Dan

Institute of Surgery, Russian Academy of Medical Sciences, Moscow, Russia

17:45 - 18:00

Total reconstruction of pulmonary valve using biological bioscaffold - own institutional experience

Marek Kopala, Katarzyna Ostrowska, Jadwiga Moll, Jacek Moll

Polish Mothers Health Centre, Lodz, Poland

18:00 - 18:15

Surgery for complex coarctation and re-coarctation in the adult

Daryl Shore

National Heart and Lung Institute, Imperial College London, London, UK

18:15 - 18:30

The challenge of opening pediatric cardiac surgery centers

Alessandro Frigiola

Policlinico San Donato, San Donato, Italy

18:30 - 18:45

Own modification of Norwood-Sano procedure for HLHS surgery in newborns with small ascending aorta

Jacek Moll, Marek Kopala, Anna Mazurek-Kula, Maciej Moll, Jadwiga Moll

Polish Mother's Health Centre-Research Institute, Lodz, Poland

18:45 - 19:00

Persistent left superior vena cava. Prenatal ultrasound diagnosis. Prenatal and postnatal clinical implications

Gheorghe Iliev (1), Maria Stamatina (2), Daniela Scripcaru (1), Eusebiu Vlad Gorduza (2)

(1) Cuza Vodă Maternity Hospital, Iași, Romania

(2) "Grigore T. Popa" University of Medicine and Pharmacy, Iași, Romania

19:00 - 19:15

Hemofiltration in newborns

Cătălin Cîrstoveanu

Marie Curie Children's Hospital, Bucharest, Romania

Saturday, 23 September 2017

Conference Hall 1

08:00 - 10:00 SESSION XIII - CORONARY SURGERY - PART II

(10 minutes presentation, 5 minutes discussions)

Chairmen:

Hirokuni Arai (Tokyo, Japan)
Georges B. Tedy (Beirut, Lebanon)
Guo-Wei He (Tianjin, China)
James Tatoulis (Melbourne, Australia)
Domenico Palombo (Genoa, Italy)

08:00 - 08:15

OPCAB technique using multi-suction heart positioner “TENTACLES™”

Hirokuni Arai
Tokyo Medical & Dental University, Tokyo, Japan

08:15 - 08:30

Multi-Omics studies in cardiovascular diseases - our experience

Guo-Wei He
TEDA International Cardiovascular Hospital, Tianjin, China

08:30 - 08:45

CABG with the use of double internal mammary arteries in the elderly patient above 80 years old

Georges B. Tedy
La Clinique du Levant, Beirut, Lebanon

08:45 - 09:00

The strategies for surgical coronary revascularization

Toshimi Ujii
Iseikai General Hospital, Osaka, Japan

09:00 - 09:15

The role and importance of biological research in vascular surgery centers. Personal experience: the theoretical research and engineering application in vascular surgery

Domenico Palombo (1), Patrizia Perego (2)
(1) University of Genoa, Ospedale Policlinico San Martino, Unit of Vascular and Endovascular Surgery, Genoa, Italy
(2) BELONG, Biological inspired Engineering for longevity and Medicine, University of Genoa, Genoa, Italy

09:15 - 09:30

Total arterial revascularization: the case for the radial artery

James Tatoulis
University of Melbourne, Melbourne, Australia

09:30 - 09:45

CABG after previous stenting, elective or urgent

Shervin Ziabakhsh Tabary
Mazandaran University of Medical Sciences, Sari, Iran

09:45 - 10:00

Analysis of computational fluid dynamics and particle image velocimetry models of distal side-to-side and end-to-side anastomosis for CABG in a pulsatile flow

Yoshiko Shintani, Kenji Iino, Hideyasu Ueda, Hironari No, Youji Nishida, Shintaro Takago, Yoshitaka Yamamoto, Hiroki Kato, Keichi Kimura, Hirofumi Takemura
Kanazawa University, Kanazawa, Japan

10:00 - 10:15 Coffee break & exhibition visiting

10:15 - 13:00 SESSION XVI - SURGERY OF THE AORTA

Chairmen:

Gencho Nachev (Sofia, Bulgaria)

Jeko Madjarov (Charlotte, USA)

Heinz Günther Jakob (Essen, Germany)

Marian Gaşpar (Timișoara, Romania)

10:15 - 10:25

Total aortic arch replacement for Stanford type A acute aortic dissection with carotid arteries involvement

Ovidiu Ştiru, Roxana Carmen Geană, Anca Drăgan, Şerban Bubenek, Daniela Filipescu, Vlad Anton Iliescu

"Prof. Dr. C.C. Iliescu" Institute of Emergency of Cardiovascular Disease, Bucharest, Romania

10:25 - 10:35

Future of complex thoracic aortic surgery

Heinz Günther Jakob

West-German Heart and Vascular Center Essen, University Hospital Essen, Essen, Germany

10:35 - 10:50

Aortic dissection, "Hibernating Kidney" and the role of IVUS in the acute perioperative period

Jeko Madjarov, Michael Katz, Svetozar Madzharov, Francis Robicsek

Sanger Heart and Vascular Institute, Heineman Foundation for Research, Educational, Charitable and Scientific Purposes Inc., Charlotte, USA

10:50 - 11:00

Tactics and results in type A aortic dissection and TEVAR - program

Ivan Kravchenko

Amosov National Institute of Cardiovascular Surgery, Kiev, Ukraine

11:00 - 11:10

Surgical treatment of aortic dissections - 30 years experience, from nightmare to satisfaction

Gencho Nachev

St. Ekaterina Hospital, Sofia, Bulgaria

11:10 - 11:35

The International E-vita Open Registry: more than 1000 patients in follow-up

Heinz Günther Jakob

West-German Heart and Vascular Center Essen, University Hospital Essen, Essen, Germany

11:35 - 11:50

Deep hypothermia with retrograde cerebral perfusion as method of brain protection in ascending aorta and arch aneurysms surgery

Vitalii Kravchenko, Iryna Osadovskaya, Ahmet Maari, Oleksandr Tretyak, Kyryl Khizhnyak, Yurii Tarasenko, Vasylii Lazoryshynets, Ivan Kravchenko

Amosov National Institute of Cardiovascular Surgery, Kiev, Ukraine

11:50 - 12:00

Surgical solutions for thoracic aortic pathology

Ionel Droc (1), Liviu Stan (1), Ştefan Deaconu (1), Vasile Murgu (1), Rolf Dammrau (2)

(1) "Dr. Carol Davila" Central Military Emergency University Hospital, Bucharest, Romania

(2) Helios Klinikum Siegburg, Merzenich, Germany

12:00 - 12:10

Surgery and the results of treatment of dissecting aortic aneurysms type A: new approaches

Ivan Kravchenko, Vitalii Kravchenko, Iryna Osadovskaya, Oleksandr Tretyak, Elena Larionova, Kyryl Khizhnyak,

Olga Pantas, Diana Gorban, Volodymyr Vayda, Vasily Lazoryshynets

Amosov National Institute of Cardiovascular Surgery, Kiev, Ukraine

12:10 - 12:20

Aortic arch debranching, complementary surgical technique in endovascular treatment of descending aorta disease

Horațiu Moldovan (1), Rodica Niculescu (1), Șerban Bălănescu (2), Cristina Spânu (1), Daniela Popescu (1), Mihaela Crăciun (1), Stanislav Rurac (1), Gabriel Vasile (1), Antonia Ionescu (1), Theodor Cebotaru (2), Călin Popa (2), Marius Militaru (3), Adrian Molnar (4), Victor Costache (5)

(1) Sanador Hospital, Bucharest, Romania

(2) Monza Hospital, Bucharest, Romania

(3) Clinical County Emergency Hospital, Constanța, Romania

(4) Nicolae Stăncioiu Heart Institute, Cluj-Napoca, Romania

(5) Polisano Hospital, Sibiu, Romania

12:20 - 12:30

Migration of aortic prosthesis after wrapping of the moderately dilated ascending aorta - myth or fact?

Zaprin Vazhev (1), Asen Ivanov (1), Hristo Stoev (1), Hristo Rahman (1), Todor Gonovski (1), Gencho Nachev (2)

(1) "St. George" University General Hospital; Medical University, Plovdiv, Bulgaria

(2) St. Ekaterina Hospital, Sofia, Bulgaria

12:30 - 12:40

Retrospective study of early postoperative results in patients with thoracic aortic aneurysms and dissections

Zaprin Vazhev (1), Hristo Rahman (1), Hristo Stoev (1), Asen Ivanov (1), Gencho Nachev (2)

(1) "St. George" University General Hospital; Medical University, Plovdiv, Bulgaria

(2) St. Ekaterina Hospital, Sofia, Bulgaria

12:40 - 12:50

Controversies and challenges in coronary and carotid artery occlusive disease treatment

Pavle Kovačević (1), Lazar Velicki (1), Aleksandar Redzek (1), Marijan Majin (2), Miklos Fabri (2), Stamenko Susak (1), Dragan Nikolic (2), Mirko Todić (2)

(1) University of Novi Sad, Novi Sad, Serbia

(2) Institute for Cardiovascular Diseases of Vojvodina, Sremska Kamenica, Serbia

12:50 - 13:00 Discussions

13:00 - 13:15 Coffee break & exhibition visiting

13:15 - 14:30 SESSION XIX - INFECTIONS IN CARDIOVASCULAR SURGERY: INDUSTRY SYMPOSIUM

Chairpersons:

Adrian Streinu-Cercel (Bucharest, Romania)

Carmen Dorobăț (Iași, Romania)

Vadim Popov (Moscow, Russia)

Pham Van Duyet (Hai Phong, Vietnam)

13:15 - 13:25

Best practices for prevention and treatment of cardiovascular infections

Adrian Streinu-Cercel

"Prof. Dr. Matei Balș" National Institute of Infectious Diseases, Bucharest, Romania

13:25 - 13:35

Strategy of treatment endograft infection after TEVAR

Vadim Popov, Egor Malysenko, Amiran Revishvili

A.V. Vishnevsky Institute of Surgery, Moscow, Russia

13:35 - 13:45

Infective endocarditis - risk factors, etiology, diagnosis, therapy and results. A 16-years single centre experience

Adrian Molnar, Diana Săcui, Lorand Barabas, Ștefan Maximencu, Cătălin Trifan

Nicolae Stăncioiu Heart Institute, Cluj-Napoca, Romania

13:45 - 13:55

Clinical, microbiological and therapeutic considerations in infective endocarditis

Carmen Dorobăț (1), Mihnea Hurmuzache (2), Isabela Loghin (2)

(1) “Saint Parascheva” Clinical Hospital of Infectious Diseases, Iași, Romania

(2) “Saint Parascheva” Clinical Hospital of Infectious Diseases, “Grigore T. Popa” University of Medicine and Pharmacy, Iași, Romania

13:55 - 14:05

Surgical treatment of native and prosthetic infective endocarditis early and late results (our experience)

H. Ivanov, V. Kolarov, A. Nesheva, M. Daskalov, L. Boyadzhiev, V. Vasileva, L. Bakalivanov

National Heart Hospital, Sofia, Bulgaria

14:05 - 14:15

Cardiac infections in HIV patients

Carmen Dorobăț (1), Cristina Nicolau (1), Isabela Loghin (2), Codrina Bejan (2)

(1) “Saint Parascheva” Clinical Hospital of Infectious Diseases, Iași, Romania

(2) “Saint Parascheva” Clinical Hospital of Infectious Diseases, “Grigore T. Popa” University of Medicine and Pharmacy, Iași, Romania

14:15 - 14:30 Closing remarks and discussions

Adrian Streinu-Cercel

Bucharest, Romania

14:30 - 15:30 Lunch break & exhibition visiting

15:30 - 17:00 SESSION XXI - CORONARY SURGERY - PART III

(10 minutes presentation, 5 minutes discussions)

Chairmen:

Georges B. Tedy (Beirut, Lebanon)

Sotirios Prapas (Athens, Greece)

Plamen Panayotov (Varna, Bulgaria)

Kosmas Tsakiridis (Athens, Greece)

15:30 - 15:45

Surgical remodelling of the left ventricle

Plamen Panayotov, Milen Slavov, Vladimir Kornovski, Daniela Panayotova, Yavor Peychev

St. Marina University Hospital, Varna, Bulgaria

15:45 - 16:00

Off-pump bypass in octogenarians: a group with special characteristics

Kosmas Tsakiridis

Kyanous Stavros Hospital, St. Luke’s Hospital, Athens, Greece

16:00 - 16:15

The role of coronary artery bypass grafting in the treatment of intrastent restenosis

Ionel Droc (1), D. Wendt (2), Ștefan Deaconu (1), Vasile Murgu (1), Liviu Stan (1)

(1) “Dr. Carol Davila” Central Military Emergency University Hospital, Bucharest, Romania

(2) Essen, Germany

16:15 - 16:30

Anaortic surgical myocardial revascularization using the II-Circuit improves brain protection

Konstantinos Katsavrias, I. Panagiotopoulos, I. Linardakis, F. Ntanou, P. Stratigi, V. Prapa, Sotirios Prapas

Evangelismos General Hospital, Athens, Greece

16:30 - 16:45

The association between clopidogrel cessation, platelet function, and bleeding in coronary surgery

Mate Petricevic (1), Bojan Biočina (1), Mislav Mikus (1), Lucija Konosic (2), Mario Rasic (1), Ante Rotim (3),

Marija Mestrovic (1), Hrvoje Gasparovic (1), Klaus Goerlinger (4)

(1) University Hospital Center, Zagreb, Croatia

(2) University of Zagreb School of Medicine, Zagreb, Croatia

(3) School of Medicine University of Rijeka, Zagreb, Croatia

(4) Universitat Duisburg-Essen, Universitatklinikum Essen, and TEM International GmbH, Munich, Germany

16:45 - 17:00

Transit-time flowmetry for assessment of coronary artery bypass graft flow after off- and on-pump revascularization procedures

Vladimir Kornovski, Plamen Panayotov, Milen Slavov, Cvetan Gradinarov, Georgi Bachvarov
"St. Marina" University Hospital, Varna, Bulgaria

17:00 - 17:15 Coffee break & exhibition visiting

17:15 - 17:30 Industry Symposium: Self-assembly peptides for hemostasis in cardiac surgery

Speaker:

Kate O'Neill (London, UK)

17:30 - 18:15 Industry symposium: Clinical indication for TAVI

TAVI in everyday life

Gabor Dekany
Bupapest, Hungary

18:15 - 19:15 SESSION XXIII - VIDEO PRESENTATIONS

(15 minutes presentation, 5 minutes discussions)

Chairmen:

Hirokuni Arai (Tokyo, Japan)
Frank Van Praet (Aalst, Belgium)
Shervin Ziabakhsh Tabary (Sari, Iran)
Boris Todurov (Kiev, Ukraine)

18:15 - 18:35

A new pathology oriented repair technique for posterior mitral leaflet: "Mt. Fuji" repair technique (video presentation in AATS Mitral Conclave 2017)

Hirokuni Arai
Tokyo Medical & Dental University, Tokyo, Japan

18:35 - 18:55

AVR on beating heart for very poor LV function

Hirofumi Takemura, Kenji Iino, Hiroki Kato, Shintaro Takago, Yoshiko Shintani, Hironari No, Hideyasu Ueda
Kanazawa University, Kanazawa, Japan

18:55 - 19:15

Robotic bi-lobectomy for pulmonary tuberculosis

Petr Yablonsky, Grigorii Kudriashov, Larisa Kiryukhina, Armen Avetisyan, Igor Vasilev, Olga Sokolova
St. Petersburg Research Institute Phthiopulmonology, St. Petersburg, Russia

Saturday, 23 September 2017

Conference Hall 2

08:00 - 09:15 SESSION XIV - TAVI

(10 minutes presentation, 5 minutes discussions)

Chairmen:

Péter Andr ka (Gottsegen, Hungary)

Vlad Anton Iliescu (Bucharest, Romania)

Gencho Nachev (Sofia, Bulgaria)

08:00 - 08:15

Poor LV function and TAVI

P ter Andr ka

Gottsegen Gy rgy Hungarian Institute of Cardiology, Gottsegen, Hungary

08:15 - 08:30

TAVI or SAVR?

Vlad Anton Iliescu

“Prof. Dr. C.C. Iliescu” Emergency Institute of Cardiovascular Disease, Bucharest, Romania

08:30 - 08:45

First 150 TAVR patients - challenges and results

Borislav Kolev (1), D. Petkov (1), D. Trendafilova (1), Y. Jorgova (1), Gencho Nachev (2)

(1) Medical University Plovdiv, Plovdiv, Bulgaria

(2) St. Ekaterina Hospital, Sofia, Bulgaria

08:45 - 09:00

Possible complications during TAVI procedure

P ter Andr ka

Gottsegen Gy rgy Hungarian Institute of Cardiology, Gottsegen, Hungary

09:00 - 09:15

Treatment of aortic valvular stenosis using transcatheter techniques - the experience of Central Emergency University Hospital Dr. Carol Davila

Ionel Droc, Liviu Stan, Cristina-Mariana Calcan, Vasile Murgu, Silviu Dumitrescu

“Dr. Carol Davila” Central Military Emergency University Hospital, Bucharest, Romania

09:15 - 10:00 SESSION XV - CONGENITAL HEART DISEASE SURGERY:

THE THIRD INTERNATIONAL SYMPOSIUM OF CARDIOVASCULAR SURGERY AND PEDIATRIC CARDIOLOGY - PART III

(10 minutes presentation, 5 minutes discussions)

Chairmen:

P ter Andr ka (Gottsegen, Hungary)

Vlad Anton Iliescu (Bucharest, Romania)

Gencho Nachev (Sofia, Bulgaria)

09:15 - 09:30

First 100 cases in pediatric interventional cardiology program in “Marie Curie” Hospital Bucharest

Hyam Mahmoud, Eliza Cinte , Andrada Bogdan, Cristina Filip, Gabriela Duica, Georgiana Nicolae, Alin

Nicolescu, Giuseppe Santoro, Rana Youssef, Tammam Youssef, Mario Carminati

Marie Curie Children's Hospital, Bucharest, Romania

09:30 - 09:45

High pulmonary vascular resistance in adult congenital shunt anomaly patients: when to refuse surgery

Nazmul Hosain (1), Farzana Amin (2), Fazle Maruf (1), Abdul Quaium Chowdhury (1), Haroon Rasheed (3),

Minhazur Rahman Chowdhury (1), Satyajit Dhar (1), Mamunur Rahman (1), Md Anisuzzaman (1), Shahnaz

Ferdous (4)

(1) Chittagong Medical College & Hospital, Chittagong, Bangladesh

(2) Northern Health, Prince George, Canada

(3) National Heart Foundation Hospital, Dhaka, Bangladesh

(4) National Institute of Cardiovascular Diseases, Dhaka, Bangladesh

09:45 - 10:00

Strategies to minimize the usage of homologous blood during cardiopulmonary bypass in children weighting less than 20 kg operated for congenital heart disease

Eugeniu Vârlan, Iurie Guzman

Moldavian Republican Hospital, Chişinău, Republic of Moldova

10:00 - 10:15 Coffee break & exhibition visiting

10:15 - 12:00 SESSION XVII - ROUND TABLE: STERNAL WOUND COMPLICATIONS

Chairmen:

Sotirios Prapas (Athens, Greece)

Jeko Madjarov (Charlotte, USA)

Valeriy Mitish (Moscow, Russia)

10:15 - 10:35

The role of skeletonization of mammaries, to minimize sternal wound complications

Sotirios Prapas

Henry Dunant Hospital Center, Athens, Greece

10:35 - 10:55

The novel technique of longitudinal sternal fixation in managing the complicated sternum

Jonathan Bouchez, David Fisher, Svetozar Madzharov, Jeko Madjarov

Sanger Heart and Vascular Institute, Heineman Foundation for Research, Educational, Charitable and Scientific Purposes Inc., Charlotte, USA

10:55 - 11:15

Does deep sternal wound infection have an effect on late mortality?

George Drossos

Papanikolaou Hospital, Thessaloniki, Greece

11:15 - 11:35

Application of V.A.C. therapy among patients with mediastinitis after cardiac surgery - our experience

Y. Valyanov, M. Ivanov, H. Ivanov, N. Saracheva, L. Boyadzhiev, L. Bakalivanov

National Heart Hospital, Sofia, Bulgaria

11:35 - 11:55

Surgical treatment of postoperative sternum and ribs osteomyelitis

Valeriy Mitish

Clinical and Research Institute of Urgent Pediatric Surgery and Trauma, Moscow, Russia

11:55 - 12:00 Discussions

12:00 - 12:15 Coffee break & exhibition visiting

12:15 - 14:00 SESSION XVIII - VARIA - PART I

(10 minutes presentation, 5 minutes discussions)

Chairpersons:

Georg Lutter (Kiel, Germany)

Petr Yablonsky (Saint Petersburg, Russia)

Mihaela Rugină (Bucharest, Romania)

12:15 - 12:30

Novel stent design for transcatheter mitral valve implantation

Georg Lutter (1), K. Loger (1), S. Pokorny (2), T. Schaller (2), Irma Haben (1), D. Frank (1), Lucian Lozonschi (3)

(1) University Hospital of Schleswig-Holstein, Kiel, Germany

(2) University Hospital of Schleswig-Holstein, Technical University Hamburg-Harburg, Institute of Biomechanics, Kiel, Germany

(3) University of Wisconsin, Medical School, Wisconsin, USA

12:30 - 12:45

Detergent-based decellularization strategy well-preserved macro- and microstructure of pulmonary heart valves

Jessica Haupt (1), Alina Paur (1), Jette Seiler (1), Stanislav N. Gorb (2), Dan T. Simionescu (3), Irma Haben (1), Georg Lutter (1)

(1) University Hospital Schleswig-Holstein, Kiel, Germany

(2) Christian-Albrechts University of Kiel, Kiel, Germany

(3) Clemson University, Clemson, USA

12:45 - 13:00

Left ventricular non-compaction. Diagnostic techniques

Mihaela Rugină, Lucian Marius Predescu

“Prof. Dr. C.C. Iliescu” Emergency Institute of Cardiovascular Disease, Bucharest, Romania

13:00 - 13:15

Wake-up stroke after cardiac surgery - treatment challenge

Simona Ivanova

St. Ekaterina Hospital, Sofia, Bulgaria

13:15 - 13:30

Robot-assisted surgery for pulmonary tuberculosis: tips, tricks and pitfalls

Petr Yablonsky

St. Petersburg Research Institute Phthisiopulmonology, Saint Petersburg, Russia

13:30 - 13:45

Degenerative mitral valve disease - modern approach

Vitalie Moscalu (1), Aureliu Bătrînac (2), Vitalie V. Moscalu (3), Andrei Eșanu (1)

(1) Institute of Cardiology, Chișinău, Republic of Moldova

(2) Medpark International Hospital, Chișinău, Republic of Moldova

(3) Republican Clinical Hospital, Chișinău, Republic of Moldova

13:45 - 14:00

LMT ostial plasty using superficial femoral artery patch in Takayasu aortitis

Hirokuni Arai

Tokyo Medical & Dental University, Tokyo, Japan

14:00 - 15:00 Lunch break & exhibition visiting

15:00 - 17:00 SESSION XX - VARIA - PART II

Chairmen:

Șerban Rădulescu (Cluj-Napoca, Romania)

Rolf Dammrau (Merzenich, Germany)

Michail Argyriou (Athens, Greece)

15:00 - 15:15

Rare case of a retrosternal tumor with compression of superior vena cava

Rolf Dammrau

Helios Klinikum Siegburg, Merzenich, Germany

15:15 - 15:30

Cardiac disease and pregnancy

Mircea Onofriescu

“Grigore T. Popa” University of Medicine and Pharmacy, Iași, Romania

15:30 - 15:45

Surgical treatment strategy in diabetic foot syndrome

Valeriy Mitish

Clinical and Research Institute of Urgent Pediatric Surgery and Trauma, Moscow, Russia

15:45 - 16:00

Distal bypass surgery in patients with diabetes mellitus

Claudia Gherman (1), Andrei Eni (2), Mariana Matei (2), Alexandru Buleandra (2)
(1) "Iuliu Hațieganu" University of Medicine and Pharmacy, Cluj-Napoca, Romania
(2) County Emergency Hospital, Cluj-Napoca, Romania

16:00 - 16:15

A difficult case of MitraClip after previous mitral ring displacement - far beyond the EVEREST criteria

Dana Miruna Iancu (1), Maria Luisa Laudisa (2), Gheorghe Cerin (2), Gabriele Musica (2), Marco Diena (2)
(1) "Prof. Dr. C.C. Iliescu" Institute of Emergency of Cardiovascular Disease, Bucharest, Romania
(2) San Gaudenzio Clinic, Novara, Italy

16:15 - 16:30

Catheter directed therapy for pulmonary embolism

Michail Argyriou
Evangelismos General Hospital, Athens, Greece

16:30 - 16:45

Intraoperative, 30-day and 6 months initial clinical experience with a new commercially available thoracic stent graft system (Ankura™/ Lifetech - China). Data of a single center study

Michail Argyriou, Theodoros Kratimenos, Vasileios Patris, Panagiotis Dedeilias, Ilias Samiotis, Dimitrios Tomais, Dimosthenis Farsaris
Evangelismos General Hospital, Athens, Greece

16:45 - 17:00 Discussions

17:00 - 17:15 Coffee break & exhibition visiting

17:15 - 19:15 SESSION XXII - VARIA - PART III

(10 minutes presentation, 5 minutes discussions)

Chairmen:

Aureliu Bătrînac (Chișinău, Republic of Moldova)
Vitalie Moscalu (Chișinău, Republic of Moldova)
George Drossos (Thessaloniki, Greece)

17:15 - 17:30

Our surgical approach for hypertrophic obstructive cardiomyopathy (HOCM)

Aureliu Bătrînac, Andrei Ureche, Serghei Voitov, Andrian Rotaru
Medpark International Hospital, Chișinău, Republic of Moldova

17:30 - 17:45

Updates in heart transplantation

Radu Deac
Emergency Institute for Cardiovascular Diseases and Transplant, Târgu Mureș, Romania

17:45 - 18:00

Non-invasive ventilation in cardiac surgery patients: can we predict its failure?

Fotini Ampatzidou, L. Karagounis, A. Gogakos, A. Vlahou, N. Mihail, Theodoros Karaiskos, Athanasios Madesis, G. Kehagioglou, George Drossos
Papanikolaou General Hospital, Thessaloniki, Greece

18:00 - 18:15

Can we generate a bioartificial heart?

Sava Costin
Max-Planck-Institute for Heart and Lung Research, Bad Nauheim, Germany

18:15 - 18:30

Is the patient or the operation the dominant factor for dialysis after cardiac surgery?

Fotini Ampatzidou, Olga Ananiadou, Theodoros Karaiskos, Athanasios Madesis, Afroditi Boutou, George Drossos
Papanikolaou General Hospital, Thessaloniki, Greece

18:30 - 18:45

Postoperative chylopericardium: some alternative modalities of treatment

Nazmul Hosain (1), Farzana Amin (2), Fazle Maruf (1), Abdul Quaium Chowdhury (1), Haroon Rasheed (3), Subir Barua (1), Motiur Rahman Sarker (1), SM Asif Rahim (1), Mamunur Rahman (1), Shahnaz Ferdous (4)

(1) Chittagong Medical College & Hospital, Chittagong, Bangladesh

(2) Northern Health, Prince George, Canada

(3) National Heart Foundation Hospital, Chittagong, Bangladesh

(4) National Institute of Cardiovascular Diseases, Dhaka, Bangladesh

18:45 - 19:00

Surgical treatment of haemodictomas

Vasilii N. Dan

Institute of Surgery, Russian Academy of Medical Sciences, Moscow, Russia

19:00 - 19:15

Minimally invasive vascular surgery - a possible alternative in modern vascular surgery

Erno Jerzicska, Adrian Pop, Anca Chitic, Attila Veszi, Roxana Suhanea

Clinical Emergency County Hospital, Oradea, Romania

Sunday, 24 September 2017

Conference Hall 1

08:30 - 10:15 SESSION XXIV - ROUND TABLE: THE AIM OF RECOVERY THERAPIES IN PATIENTS UNDERGOING CARDIAC SURGERY

(10 minutes presentation, 5 minutes discussions)

Chairpersons:

Florin Mitu (Iași, Romania)

Rodica Tănăsescu (Bucharest, Romania)

08:30 - 08:45

Phase two of cardiovascular rehabilitation, in patients with aorto-coronary bypass

Al Namat Razan, Magda Mitu

Clinical Rehabilitation Hospital, Iași, Romania

08:45 - 09:00

Phase two of cardiovascular rehabilitation, in patients with valvular prosthesis

Alexandra Maștaleru, Maria Magdalena Leon-Constantin

Clinical Rehabilitation Hospital, Iași, Romania

09:00 - 09:15

Phase two of cardiovascular rehabilitation, in patients with chronic heart failure after surgical intervention

Andrei Manta, Florin Mitu

Clinical Rehabilitation Hospital, Iași, Romania

09:15 - 09:30

Phase two of cardiovascular rehabilitation, in patients undergoing myocardial revascularization

Radu Gavril, Mihai Roca

Clinical Rehabilitation Hospital, Iași, Romania

09:30 - 09:45

Preoperative evaluation and postoperative follow-up in cardiovascular surgery

Elena Deju, Grigore Tinică

“Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

09:45 - 10:00

Physical medicine and rehabilitation in post acute cardiovascular disease

Ioan Sorin Stratulat

“Grigore T. Popa” University of Medicine and Pharmacy, Iași, Romania

10:00 - 10:15

The role of integrative medicine to improve the health of the heart and of the cardiovascular system

Viorica E. Ungureanu

Academy of Scientists, Iași, Romania

10:15 - 10:30 Coffee break & exhibition visiting

10:30 - 12:00 SESSION XXV - HOW MANY LIVES DOES YOUR HEART HAVE?

A campaign initiated by

The Romanian National Society of Family Medicine: Industry Symposium

Chairpersons:

Florin Mitu (Iași, Romania)

Rodica Tănăsescu (Bucharest, Romania)

Toshimi Ujii (Osaka, Japan)

10:30 - 11:00

The art of living better

Rodica Tănăsescu

The Romanian National Society of Family Doctors, Bucharest, Romania

11:00 - 11:45

The art of living longer

Grigore Tinică

“Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

11:45 - 12:00 FINAL DISCUSSIONS AND CONCLUSIONS

12:00 – 12:30: PRESS CONFERENCE

E-POSTERS - CORONARY SURGERY

1. Acute heart failure after non-coronary sinus of Valsalva ruptured in the right atrium

Lucian Mocanu, Eugen Bitere, Grigore Tinică

“Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

2. Surgical modelling of coronary grafts

Alexandra Cristina Rusu (1), Grigore Tinică (2,3)

(1) University of Medicine and Pharmacy, Tîrgu Mureș, Romania

(2) University of Medicine and Pharmacy, Iași, Romania

(3) “Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, România

3. Emergencies in cardiac surgery: ruptured pseudoaneurysm of the right coronary sinus of Valsalva in the adult causing severe aortic regurgitation and acute right heart failure

Roxana Carmen Geană, Ovidiu Știru, Diana Sorostinean, Ion Iovu, Anca Drăgan, Șerban Bubenek, Daniela

Filipescu, Vlad Anton Iliescu

“Prof. Dr. C.C. Iliescu” Emergency Institute of Cardiovascular Disease, Bucharest, Romania

4. Results of using the opened and closed cardiopulmonary bypass contours in coronary artery bypass grafting

Damir Biktashev, Timur Lesbekov

National Scientific Cardiac Surgery Center, Astana, Kazakhstan

5. Long-term graft patency after coronary artery bypass grafting. Effects of graft selection and surgical expertise

Grigore Tinică (1), Diana Anghel (1), Mihail Enache (1), Cristina Furnică (2)

(1) “Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

(2) “Grigore T. Popa” University of Medicine and Pharmacy, Iași, Romania

6. Morphologic parameters associated with coronary artery bypass grafting dysfunction

Grigore Tinică (1), Diana Anghel (1), Mihail Enache (1), Raluca Ozana Chistol (1), Cristina Furnică (2)

(1) “Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

(2) “Grigore T. Popa” University of Medicine and Pharmacy, Iași, Romania

7. Early and mid-term patency rates of sequential versus individual coronary bypass grafts - personal study and meta-analysis

Grigore Tinică, Diana Anghel, Raluca Ozana Chistol, Mihail Enache

“Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

8. Midterm results of pump assisted beating heart coronary bypass grafting for complex coronary lesions

Nimisha Shiwalkar (1), Suresh Keshavamurthy (2), Jesus Gomez Abraham (2)

(1) Rutgers State University Of New Jersey, Newark, USA

(2) Temple University Hospital, Philadelphia, USA

9. Coronary sinus reconstruction - 2 cases report

Grigore Tinică, Mihail Enache, Diana Anghel, Daniel Dăscălescu, Liliana Ciucu, Andrei Țăruș

“Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

E-POSTERS - VALVULAR SURGERY

10. Identification and management of right ventricular perforation after pacemaker had implantation - a case presentation

Andreea Neamțu, Eugen Bitere, Lucian Mocanu, Grigore Tinică

“Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

11. "Coconut Atrium", an unusual progression of mitral valve disease

Niki Lama (1), Vasileios Patris (2), Dimitrios Fagkrezos (1), Charikleia Triantopoulou (1), Michail Argyriou (2), Petros Maniatis (1)

(1) Konstantopouleio General Athens Hospital, Athens, Greece

(2) Evaggelismos General Hospital, Athens, Greece

12. Postpartum aorta dissection in a patient with unknown Marfan syndrome

Anna Panagiotou, Eirini Mavrommati, Panagiotis Dedeilias, Constantina Romana
Evangelismos General Hospital, Athens, Greece

13. Surgical repair of the anterior mitral leaflet using CoreMatrix in a patient with infective endocarditis

Iulian Rotaru, Grigore Tinică, Mihail Enache, Flavia Corciovă, Elena Deju
“Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

14. Endovascular treatment of primary aorto-esophageal fistula

Iulian Rotaru, Grigore Tinică, Diana Anghel, Flavia Corciovă, Igor Nedelciuc, Dumitru Grăjdianu
“Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

15. Surgical repair of aortic regurgitation using CoreMatrix after medical management of infective endocarditis

Iulian Rotaru, Grigore Tinică, Mihail Enache, Flavia Corciovă, Elena Deju, Radu Andy Sascău
“Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

16. Valve in Valve. How useful is the preventive placement of radiopaque landmarks in stentless aortic valve implantation ?

Vasileios Patris (1), Niki Lama (2), Konstantinos Giakoumidakis (1), Panagiotis Dedeilias (1), Petros Maniatis (2),
Michail Argyriou (1)

(1) Evangelismos General Hospital, Athens, Greece

(2) Konstantopouleio General Athens Hospital, Athens, Greece

17. Long-term outcome of mitral valve repair compared with mitral valve replacement - a single center experience

Mihail Enache (1), Grigore Tinică (1), Diana Anghel (1), Cristina Furnică (2), Raluca Ozana Chistol (1)

(1) “Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

(2) “Grigore T. Popa” University of Medicine and Pharmacy, Iași, Romania

18. Modern challenges in surgical management of aortic stenosis

Grigore Tinică, Diana Anghel, Raluca Ozana Chistol, Mihail Enache, Igor Nedelciuc, Flavia Corciovă

“Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

19. Anterior mitral leaflet repair: critical review of operative techniques

Grigore Tinică, Mihail Enache, Andrei Țăruș

“Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

20. Double valve replacement and reconstruction of the intervalvular fibrous body in patients with active infective endocarditis

Alexandru Ciucu, Tammam Harfouch

“Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

E - POSTERS - VARIA

21. Importance of multidisciplinary teams in healthcare. A case presentation

Alexandra Gall, Diana Anghel, Grigore Tinică

“Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

22. Mediastinal tumors, types, frequency and way of care

Nataša Vešović

Military Hospital, Belgrade, Serbia

23. Posterior pseudoaneurysm of the ascending aorta following Bentall procedure

Lucian Stoica, Lucian Mocanu, Alexandra Gall, Grigore Tinică

“Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

24. Negative T waves - innocent sign or hidden danger?

Nicu Catană, Pavel Platon, Daniela Ghezea, Ioan Coman, Mihaela Rugină

“Prof. Dr. C.C. Iliescu” Emergency Institute of Cardiovascular Disease, Bucharest, Romania

25. Serum lactate as a predictor of mortality and morbidity after paediatric cardiac surgery

Alexandru Botizatu, Dumitru Frunze, Oleg Repin, Iurie Guzman, Victor Cojocaru, Anatol Ciubotaru
Republican Clinical Hospital, Chişinău, Republic of Moldova

26. Multiple organ dysfunction syndrome after pediatric cardiac surgery

Alexandru Botizatu, Vera Dogotari, Ion Balica, Anatol Ciubotaru
Republican Clinical Hospital, Chişinău, Republic of Moldova

27. Postoperative atrial fibrillation in patients with aortic valve replacement - perioperative risk factors

Alina Iliescu, Grigore Tinică
"Prof. Dr. George Georgescu" Institute of Cardiovascular Diseases, Iaşi, Romania

28. Mathematical model of aortic blood flow using Windkessel effect

Călin Corciovă (1), Marius Turnea (1), Daniela Matei (1), Flavia Corciovă (2), Grigore Tinică (2)
(1) "Grigore T. Popa" University of Medicine and Pharmacy, Iaşi, Romania
(2) "Prof. Dr. George Georgescu" Institute of Cardiovascular Diseases, Iaşi, Romania

29. Lipomatous hypertrophy of Interatrial Septum (LHIS)

Niki Lama (1), Vasileios Patris (2), Dimitrios Fagkrezos (1), Panagiotis Dedeilias (2), Charikleia Triantopoulou (1),
Michail Argyriou (2), Petros Maniatis (1)
(1) Konstantopouleio General Athens Hospital, Athens, Greece
(2) Evaggelismos General Hospital, Athens, Greece

30. Tymic pathology in the clinic of cardiovascular disease

Liliana Parascan
"Prof. Dr. C. C. Iliescu" Emergency Institute for Cardiovascular Diseases, Bucharest, Romania

31. Histopathological and immunohistochemical analysis of the atrial appendage of the patients with atrial fibrillation or sinus rhythm

Grigore Tinică, Sava Costin, Doina Butcovan
"Prof. Dr. George Georgescu" Institute of Cardiovascular Diseases, Iaşi, Romania

32. Aortic aneurysms observations in association with atheromatous arterial disease

Doina Butcovan, Elena Deju, Grigore Tinică
"Prof. Dr. George Georgescu" Institute of Cardiovascular Diseases, Iaşi, Romania

33. A small type A thymoma developed on ectopic thymus cyst associated with lymphoid B-cell hyperplasia

Doina Butcovan, Flavia Corciovă, Grigore Tinică
"Prof. Dr. George Georgescu" Institute of Cardiovascular Diseases, Iaşi, Romania

34. Left atrial, left atrial appendage and pulmonary veins anatomical variants in patients with atrial fibrillation versus patients in sinus rhythm

Andra Bulgaru-Iliescu (1), Cristina Furnică (1,2)
(1) "Grigore T. Popa" University of Medicine and Pharmacy, Iaşi, Romania
(2) "Prof. Dr. George Georgescu" Institute of Cardiovascular Diseases, Iaşi, Romania

35. Partial anomalous pulmonary venous connection (cavo-pulmonary window)

Iulian Rotaru, Grigore Tinică, Mihail Enache, Diana Anghel, Flavia Corciovă, Raluca Ozana Chistol
"Prof. Dr. George Georgescu" Institute of Cardiovascular Diseases, Iaşi, Romania

36. The role of vacuum assisted closure in the treatment of poststernotomy mediastinitis

Grigore Tinică, Mihail Enache, Andrei Țăruş
"Prof. Dr. George Georgescu" Institute of Cardiovascular Diseases, Iaşi, Romania

37. Surgical correction of ascending aortic aneurysm associated with aortic regurgitation by correcting aortic root geometry

Diana Anghel (1,2), Mihail Enache (1,2), Raluca Ozana Chistol (1), Diana Bulgaru-Iliescu (2,3), Grigore Tinică (1,2)
(1) "Prof. Dr. George Georgescu" Institute of Cardiovascular Diseases, Iaşi, Romania
(2) "Grigore T. Popa" University of Medicine and Pharmacy, Iaşi, Romania
(3) Institute of Forensic Medicine, Iaşi, Romania

38. The management of MultiSite artery disease: systematic review and meta-analysis

Grigore Tinică (1,2), Diana Anghel (1,2), Cristina Furnică (2,3), Diana Bulgaru-Iliescu (2,3), Mihail Enache (1,2)
(1) “Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania
(2) “Grigore T. Popa” University of Medicine and Pharmacy, Iași, Romania
(3) Institute of Forensic Medicine, Iași, Romania

39. Intralobar pulmonary sequestration; a delayed first clinical manifestation with massive haemoptysis due to aneurysmal, aberrant feeding artery

Nikolaos Papakonstantinou (1), Argini Psevdi (1), Georgios Hillas (2), Vasileios Patris (1), Charalambos Zisis (1)
(1) Evaggelismos General Hospital, Athens, Greece
(2) General Hospital of Thoracic Diseases of Athens “Sotiria”, Athens, Greece

40. Pulmonary actinomycosis. A rare benign clinical entity masquerading as lung cancer; keep it in mind

Nikolaos Papakonstantinou (1), Garyfalia Vlachou (2), Vasileios Patris (1), Christina Vourlakou (1), Charalambos Zisis (1)
(1) Evaggelismos General Hospital, Athens, Greece
(2) General Panarkadian Hospital of Tripoli "Evangelistria", Tripoli, Greece

41. Surgical treatment of the Takayasu IIb aorto-arteritis with aneurysm of the ascending aorta

Nicolae Stăvilă, Grigore Tinică, Mihail Enache, Andrei Țăruș
“Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

42. Prematurity and the risk of long term cardiometabolic disease

Laura Mihaela Trandafir, Georgiana Russu, Otilia Elena Frăsinariu, Oana Raluca Temneanu
”St. Mary” Pediatric Emergency Hospital, Iași, Romania

43. Pulse wave velocity measurement - early indicator for atherosclerosis

Călin Corciovă (1), Daniela Matei (1), Flavia Corciovă (2), Grigore Tinică (2)
(1) “Grigore T. Popa” University of Medicine and Pharmacy, Iași, Romania
(2) “Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

44. Unidirectional double valved patch for repair of late presenting aortopulmonary window

Andrei Țăruș, Mihail Enache, Diana Anghel, Daniel Dăscălescu, Grigore Tinică
“Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

45. Marfan Syndrome complicated with thoracic aorta dissection - a family case presentation

Andrei Țăruș, Mihail Enache, Daniel Dăscălescu, Grigore Tinică
“Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

46. Complex treatment of the poststernotomy mediastinitis - case presentation

Mihail Enache, Diana Anghel, Andrei Țăruș, Grigore Tinică
“Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

47. Long-lasting neurobehavioral consequences of successfully resuscitated cardiac arrest - a literature review

Andrei Dumbravă (1), Cristina Băluț (2), Grigore Tinică (1)
(1) “Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania
(2) „Nicolae Oblu” Clinical University Hospital, Iași, Romania

48. Clinic’s experience in endovascular treatment of peripheral arterial disease

Eduard Bernaz, Sergiu Ungureanu, Ruslan Cemîrtan, Aurel Țurcan, Sorin Barat, Vladimir Gura, Ilona Cucu, Daniela Jardan, Eugen Cerevan
Republican Clinical Hospital, Chișinău, Republic of Moldova

E-POSTERS - EXTRACORPOREAL CIRCULATION AND ASSIST DEVICES

49. A rare and late complication after the explantation of a left ventricular assist device - a case report

George Grădinaru (1), Andre Simon (2), Jullien Gaer (2)
(1) St. Thomas' Hospital, London, UK
(2) Harefield Hospital, London, UK

50. Heartmate 3 evolution: 20 years of development to become best ventricular assist device

Carmen Pleșoianu (1), Grigore Tinică (2)

(1) “Grigore T. Popa” University of Medicine and Pharmacy, Iași, Romania

(2) “Prof. Dr. George Georgescu” Institute of Cardiovascular Diseases, Iași, Romania

51. Early EMCO support rescues a patient with fulminant acute myocarditis

Irina Maria Mărgărint, Roxana Carmen Geană, Cătălina Andreea Parasca, Diana Sorostinean, Ion Iovu, Ovidiu Știru, Dan Deleanu, Vlad Anton Iliescu

“Prof. Dr. C.C. Iliescu” Emergency Institute of Cardiovascular Disease, Bucharest, Romania

52. AngioVac Aspiration System

Vasileios Patris (1), Ilias Samiotis (1), Niki Lama (2), Orestis Argiriou (3), Panagiotis Dedeilias (1), Michail Argyriou (1)

(1) Evagelismos General Hospital, Athens, Greece

(2) Konstantopouleio General Athens Hospital, Athens, Greece

(3) Aintree Hospital, Liverpool, UK

MEETING ABSTRACTS

MAIN LECTURES

CRITICAL APPROACH TO MEDICAL LITERATURE

Marko Turina

University of Zurich, Zurich, Switzerland

In modern research some basic knowledge of statistics is mandatory: calculations of significances and sample sizes, choice of proper statistical methods and creation of comparable groups. For publications, authors' guidelines should be always consulted. EJCTS guidelines state that it is advisable that a statistician be consulted to ensure that statistical methods are adequately described and applied, and results are correctly interpreted. When analysing reports, beware of percentages! Full numbers should be always used; otherwise percentages can be grossly misleading. In large studies, it is important that correct statistics are used in subgroup analysis. For correct interpretation of subgroup analysis, Bonferroni correction should be applied: divide standard p value, usually $p < 0.05$, by the number of subgroups. With 20 subgroups, very common in present studies, corrected p value for significance will be $0.05/20 = 0.0025$. This error is often observed, even in best journals. Another common error is found with spurious correlations! Correlation should be never equated with causation ("post hoc, ergo propter hoc" error). For example, a perfect correlation ($r = 0.97$) is found between US highway deaths and lemon imports from Mexico, clear nonsense, but still highly significant. Statistical end result (p value, Chi square) shows only the degree of association; it says nothing whatsoever about causative relationship. Equally, one should be careful with industry sponsored trials (and authors)! Results very often meet the sponsor's expectations. Randomized controlled trials are nowadays considered to be undisputable, ultimate source of knowledge. Randomized controlled trials are not free of bias (preconceived notion): they often suffer from:

- Selection bias: taking only "suitable", i.e. low risk patients
- Ascertainment bias: analysers are rarely blinded!
- Population choice bias: e.g. age limits
- Learning curve bias in surgical trials!
- Outcome choice bias: adding other outcomes to the main outcome (usually mortality): stroke+mortality+revascularization, etc.
- Crossover bias: intention to treat principle
- Negative results bias: difficult to publish

In most randomized controlled studies, results are derived from a small, highly selected group of patients, which is not representative of actual clinical practice. Randomized multicentre studies in surgery suffer from:

- Too many exclusion criteria
- Pre-randomization selection: doctors' and patients' bias (prejudice)
- Differences in quality of care (surgical mortality or patency rate)
- Crossovers are subjected to "Intention to treat" principle (leaving patients in groups they really do not belong to)
- Long duration of trial in rapidly evolving technology (e.g. uncoated stents in Syntax)
- Extremely costly (Syntax \approx 80 million US\$)

And finally, a worrisome trend is emerging in scientific literature: veracity (truthfulness). Cheating seems to be on the increase in scientific publications. In recent years increasing number of publications had to be retracted. There is still place for non-randomized, prospective or retrospective observational trials. They can reach important results, although they are presently less highly rated by clinicians trusting only "undisputable" results of prospective randomized trials.

CARDIOVASCULAR SURGERY IN MODERN SOCIETY

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The primary focus of a cardiovascular surgeon is to care for these problems in the manner which optimizes patient outcomes, and it is this focus which has earned the field respect and status. In the modern era we confront a massive changing of the primary objectives of cardiovascular surgery. As we all know, any step into the future, begins in the past. Cardiac surgery is remarkably young, almost its entire history having occurred in slightly more than the past 100 years, and the most important advances within the lifetimes of currently practicing physicians. Cardiovascular surgery is to date a moving target due to changing face of patients and changing face of technical requirements and perioperative management should reflect such changes. Because of the escalating cost of cardiac surgery, and the lack of money, most of the centers have simplified the cardiac surgery process, implementing an ingenious multi-principle adaptive work the KISS approach (Keep It Simple and Safe) to help more patients with the available funds, equipment, and manpower. Additional considerations are the allocation of the scarce resources to patients who are most likely to benefit from cardiac surgical procedures, and avoiding those with a low expectation for a satisfactory outcome. Listing the problems in cardiovascular surgery may be easy, but finding solutions is not in continuous changing societies. Cardiovascular medical care is a complex dilemma that may be solved only through fundamental changes in the world's architecture and economy. Unfortunately, I do not expect that such changes materialize in the near future. In my opinion there are no humanitarian solutions for humanitarian problems. Palliation in cardiovascular surgery care is possible with a multidimensional approach and may involve donors and professionals. It is important to identify 'fertile sites', professional teams, and help them through the concept of a twinning program working with institutions rather than governments. Any success should be rewarded by donors and used as an example. National and International professional organizations such ours can help by coordinating the efforts, and taking maximum advantage of contemporary technology for communications and educational techniques.

ARRHYTHMIAS

BRUGADA SYNDROME: PAST, PRESENT, FUTURE

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The Brugada Syndrome (BrS) is characterized by an elevated ST segment in the right precordial leads (V1-3) on the electrocardiogram (ECG) and an increased risk of ventricular tachycardia/ventricular fibrillation (VT/VF) episodes and sudden cardiac death. Although it has been more than two decades since the first description of Brugada Syndrome (BrS), still only two therapeutic strategies are used: implantable cardioverter-defibrillator (ICD) and/or chronic quinidine therapy. However, patients may experience frequent shocks or not tolerate the pharmacological therapy. It has been recently demonstrated that epicardial ablation of the arrhythmic electrophysiological substrate is a safe and effective procedure in preventing recurrent ventricular arrhythmias, potentially representing the treatment of choice in an increasing number of BrS patients.

CABG COMBINED WITH SURGICAL ABLATION OF ATRIAL FIBRILLATION

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Atrial fibrillation significantly impairs the results of coronary artery bypass surgery. By the team of authors was carried out 270 CABG cases with previously documented persistent AF, which were prospectively included in our study. The patients were divided on two groups in according with type of simultaneous surgical ablation procedures. In Group I were included patients who received CABG + CoxMaze IV. In Group II were included patients who received CABG + modified CoxMaze V: in this group the cardioplegia was required only at the distal anastomosis stage, and stage of the surgical ablation took place on-pump without cardioplegia. There were no statistically significant differences between the two groups in age, gender and other indicators. To compare the immediate results were used indicators such as bypass time, cross-clamp time, postoperative blood loss, the volume of transfusion therapy, duration of lung ventilation, the length of stay in the ICU, the presence of postoperative AF, in-hospital mortality. To compare mid-term (6 month) results heart rhythm and mechanical function of the LA were evaluated. For the echocardiographic evaluation of the mechanical function of the LA was determined speed performance transmitral flow. Compared with CoxMazeIV design of simultaneous surgical ablation during CABG, the use of the modified CoxMaze V procedure allows us to achieve a more favorable balance between the efficiency of retention of sinus rhythm in the postoperative period and the mechanical function of the left atrium.

ATRIAL FIBRILLATION - GUIDELINE NEW FRONTIERS

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Despite good progress in the management of patients with atrial fibrillation (AF), this arrhythmia remains one of the major causes of stroke, heart failure, sudden death, and cardiovascular morbidity in the world. Furthermore, the number of patients with AF is predicted to rise steeply in the coming years. In 2010, the estimated numbers of men and women with AF worldwide were 20,9 million and 12,6 million, respectively, with higher incidence and prevalence rates in developed countries. One in four middle-aged adults in Europe and the US will develop AF. By 2030, 14–17 million AF patients are anticipated in the European Union, with 120 000–215 000 newly diagnosed patients per year.

Diagnosis of AF continues to require formal ECG documentation (I B), and in addition to clinical evaluation, the 2016 Task Force now recommends the use of transthoracic echocardiography in all AF patients to guide management (I C), assessing concomitant cardiovascular diseases (such as hypertension, valvular disease, and heart failure), but also to guide the use of anticoagulants, the choice of rate controlling agent, and rhythm control therapy. Oral anticoagulation remains a major treatment component in AF patients, and apart from patients at the lowest risk of stroke (women and men without any clinical risk factors), most others will receive a net clinical benefit from anticoagulation (I A). The issue of anticoagulation in patients with a single risk factor (CHA₂DS₂-VASc score of 2 for women and 1 for men) is less well supported by data, but again many patients are likely to benefit, considering individual characteristics and patient preferences (IIa B). Importantly, stroke prevention should be considered irrespective of current heart rhythm; in patients with apparently successful rhythm control, anticoagulation should be continued depending on individual stroke risk factors (I B).

Compared to warfarin, non-vitamin-K oral anticoagulants (NOACs) are associated with a halving of intracranial bleeding events, while preventing strokes as effectively (or even slightly better). Therefore, NOACs are now recommended as the first-line anticoagulant in eligible patients (I A). Aspirin and other antiplatelets have no role in stroke prevention (III A). Premature termination of anticoagulation is a major concern in the management of AF patients. To reduce the risk of bleeding on anticoagulation, the guidelines provide a list of modifiable bleeding risk factors that clinicians should address when considering anticoagulation.

Rhythm control therapy remains a treatment designed to improve AF-related symptoms. Antiarrhythmic drugs, supplemented with cardioversion are recommended treatment options (I A/I B). The choice of antiarrhythmic drugs is informed by safety considerations, and the new guidelines highlight the use of ECGs to detect patients at risk of complications. Catheter ablation is now reaching the mainstream of AF management and data underpinning its use have expanded in number and quality. Catheter ablation is the rhythm control therapy of choice in patients with symptomatic recurrences of AF on antiarrhythmic drug therapy (I A paroxysmal; IIa C persistent), and emerges as a valid first-line alternative to antiarrhythmic drugs in selected patients with symptomatic paroxysmal AF (IIa B).

Finally, the new guidelines make a concerted approach to integrate the management of AF by educating patients, and adopting a self-management and shared decision-making model of care (I C and IIa C).

Progress in the management of AF continues to accelerate as we see more and more patients with AF across all forms of healthcare. The 2016 ESC guidelines for the management of AF provide the most current and integrated approach for clinicians to treat AF patients effectively and prevent adverse outcomes.

CONGENITAL HEART DISEASES

PROMISING OUTCOME OF ANATOMICAL CORRECTION OF CORRECTED TRANSPOSITION OF THE GREAT ARTERIES

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Background: Anatomic correction of corrected transposition of the great arteries with associated lesions, utilizing the morphologic left ventricle as a systemic pumping chamber, is the preferred method in many centers. The purpose of the study was to analyze functional outcome after anatomical correction.

Material and methods: Between 01/1997 and 5/2016, 63 patients with corrected transposition of the great arteries and associated lesions underwent an anatomical correction. 42 patients (67%) underwent palliation before correction, including 14 patients (22%) who required training of systemic ventricle. The double switch procedure was performed in 37 patients; 25 patients underwent the Senning-Rastelli operation, and one patient had Senning-Nikaidoh procedure. The median age at correction was 1.6±3.7 (SD) years (range, 0.2 - 17.8 years).

Results: The survival and freedom from any event was 95% and 71% at 15 years of follow-up, respectively. The combined freedom from death, failure of systemic ventricle or heart transplant was 93% at 15 years of follow-up regardless of procedure type. Sinus rhythm was present in 49 patients with 14 patients requiring a pacemaker (22%), 8 before, 4 early post-operatively and 2 late post-operatively. Neurological development is normal in all pts. 54% of the patients are not on medication.

Conclusions: Anatomical correction of corrected transposition of the great arteries is a safe procedure that provides encouraging survival and functional benefits. 93% preservation of morphological left ventricle function in 15 years of follow up supports the concept of anatomic correction. Longer follow-up is needed to confirm the superiority of this approach over other management strategies.

SURGICAL TREATMENT OF EISEMENGER SYNDROME

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Patients with congenital heart diseases, with left to right shunts, develop pulmonary hyper resistant hypertension, reversing to right to left shunt! Situation called "Eisenmenger"! Patients become cyanotic and the treatment today is heart-lung transplant! In most places this treatment is not done because of 100% mortality! Even at the best Heart Centers the mortality is very high! Consequently these patients are left to die at home with no treatment!

It is written in the textbooks that the reason for this transformation is pulmonary "hyperflow" due to left to right short-circuit! This theory didn't make sense to me because i've done many pneumonectomies and the patients did not develop hyperresistant pulmonary hypertension in the remaining lung with doubled flow. I did then experiments on pigs to prove that what makes the lungs increase resistance was oxygen and not flow!

The treatment of this pathology is based on this new theory - That is: extracting oxygen from the pulmonary artery we can reverse the high resistant pulmonary lesions! I've operated 42 Eisenmenger patients who will be presented and discussed during this meeting!

I think it will be a very stimulating discussion!

CORRECTION OF TRUNCUS ARTERIOSUS USING THE TRUNCAL CUSP (AORTIC) IN PULMONARY POSITION

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The usual method used in repairing truncus arteriosus involves using a conduit to re-establish right ventricle to pulmonary artery continuity. The use of a conduit however usually leads to a high number of reinterventions for conduit replacement, due to conduit degeneration (calcification or valvular dysfunction) or the patient-conduit size mismatch that develops as the child grows.

There are few techniques described who eliminate the need for a conduit and the subsequent need for reinterventions. Our experience consists of 6 infant patients, from January 2013 to September 2017. Among these 6 patients, 4p had type I truncus and 2p type 2 truncus; 2 cases had a severely regurgitant quadri-cuspid truncal valve, while in 4 patients the non-insufficiency truncal valve had 3 cusps. In 4 patients, we used the left atrial appendage as a posterior wall of the pulmonary trunk and a bovine pericardial patch with 2 reconstructed leaflets for the anterior wall. The range of age was (4-8 month). The body weight range was 4-6 kg. There was no early mortality one late mortality after 9 months with severe pneumonia. The mean ventilation time was 24 h with range 12-36 h. The mean ICU stay was 52 h with range 36-72 h. Pre-discharge echocardiography revealed mean gradient across the new valve of right ventricular outflow tract 15 mmHg with range 10-20 mmHg and mild pulmonary incompetence for all patient. The last two patients was a 3,5-5 months old, with type I TA, with severe regurgitation quadri-cuspid truncal valve, and a very large ventricular septal defect with right ventricular failure.

We opted to treat this two patients using a novel approach to repair the sever truncal insufficiency, through the reconstruction of aortic root with three leaflet and the use the fourth leaflet of truncal valve in situ as a new cusp of pulmonary artery and reconstruction of right ventricular outflow tract anteriorly using a bovine pericardial patch, thus leaving a competent pulmonary valve. The three leaflet aortic valve was also competent on intraoperative and postoperative control.

To the best of our knowledge, this is the first report of this new approach to repair for truncus arteriosus without a conduit.

OWN MODIFICATION OF NORWOOD-SANO PROCEDURE FOR HLHS SURGERY IN NEWBORNS WITH SMALL ASCENDING AORTA

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Objective: Norwood procedure in Sano modification improved results and follow-up of HLHS patients. Distortion of the small ascending aorta (<3mm) may result in worsening of coronary inflow and circulatory impairment. The goal of this study is to define outcomes following modified surgical technique based on direct side-to-side anastomosis of ascending aorta and pulmonary trunk to create a "common arterial trunk. Methods: Of all patients presenting HLHS enrolled in our database (2001-2017) 2 groups were analyzed as to operative results and early and midterm follow-up referring to ascending aorta diameter. Norwood-Sano procedure and its own modification were applied in HLHS surgical treatment. Outcomes were assessed using univariate and multivariable parametric tests. Results: (Norwood-Sano) Small ascending aorta measured in ECHO (mean 2,2+/- 0,66 mm) was present in the majority of patients involved to analyze. Hospital mortality in this group reached 57%. In contrary, mortality in the group with wider ascending aorta was 22% and it made a statistical difference (p=0,003). (Norwood-Sano own modification) Small ascending aorta measured in ECHO (mean 2,37+/-0,48mm) was confirmed. Hospital mortality in this group was 23%. In the second cohort (ascending aorta >3mm) mortality was comparable - 21% and no statistical difference were revealed in this study (p=0,09). Overall early mortality during last 3 yrs decreased to 13%. Results: We believed that own surgical modification of Sano-Norwood procedure was associated with better postoperative results and significantly influenced by mortality reduction. It was especially noticed in neonates with the small ascending aorta. This surgical strategy nowadays is our policy for HLHS surgery independently on ascending aorta diameter.

ROSS OPERATION AS A PROCEDURE OF CHOICE IN COMPLEX AORTIC VALVE DISEASE IN INFANTS AND SMALL CHILDREN

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Objective: Infants with severe left ventricular outflow tract obstruction may require pulmonary autograft replacement of the aortic root, frequently accompanied by relieving of LVOTO. In this retrospective study, we compare long-term results in infants to those obtained in older children. We have reviewed our over 20-year experience with Ross or Konno-Ross procedure in order to assess outcomes and to optimize patient selection. Our special attention was paid to the Konno- Ross procedure in infants with a focus on midterm survival and pulmonary autograft durability. **Methods:** From 1995 to 2017 162 pts underwent surgery due to complex aortic valve disease. The group enrolled to our study was split into 2 cohorts: 1- Ross (R) operation (130 pts) 2-Konno-Ross (K-R) operation (32 pts). Ross-Konno procedure was predominantly performed in children who underwent BAV procedure (55%) in early infancy due to critical AS. There were 11 infants in our series: 7pts qualified to Konno-Ross and 4 pts to Ross procedure. Ross operation was performed in older children (66% above 7 yrs of age). Patient data were collected retrospectively and functionally assessed by echo examination performed periodically after procedure. Primary endpoints of analysis were death, reoperation caused by autograft or homograft valve failure or detection of functional autograft valve impairment (significant stenosis or regurgitation).

Results: Patients had a pulmonary autograft replacement of the aortic valve with or without septal myotomy. There were 3 (9%) early perioperative deaths in K-R series, and 1 (0,7%) perioperative and 1 (0,7%) late death in R series, which was statistically significant. Freedom from autograft reintervention was 100% in R-K and 95% in R series (2-Bentall procedures, 3-mechanical valve implantation, 2 autograft valve plasty) at follow-up. Mitral valve replacement was performed in 2 pts (prior mitral pathology). Freedom from homograft reintervention was 97% in both groups (3 replacements and 2 “Melody” valve implantation). At 10 yrs of follow-up freedom from AI more than moderate (> 2 degree) was 91%.

Conclusions: Pulmonary autograft replacement of the aortic valve associated with septal myotomy in infants is a high-risk operation offering durable neo-aortic valve with low morbidity. Successful adaptation of the autograft to the systemic circulation and LV function recovery is a expectable benefit of Konno-Ross procedure.

THE ROSS PROCEDURE IN YOUNG AND MIDDLE AGED ADULTS - A LOST OPPORTUNITY?

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The treatment of aortic valve disease in adults is changing but not fundamentally. It is accepted that repairable valves should be preserved. What about valves that are beyond repair, which is the majority? Transcatheter valves are a real option for the elderly and less invasive surgery is evolving in all age groups. But for young and middle age adults the fundamental choice is between a tissue and a mechanical valve. The Ross procedure has been more of a fringe option as it has well known criticisms, for example it transforms single valve into double valve disease.

Against this background the Ross procedure has seen a gradual revival, supported by expert surgeons and mounting evidence. This talk explores the rationale for having a ‘living’ valve, and the latest evidence for the good outcomes associated with it. There is no trade-off between quality and quantity of life, both are improved. Surgical concepts are presented briefly as well as some insights into why the procedure is not used more widely.

THE ARTERIAL SWITCH OPERATION IN NEW PEDIATRIC CARDIAC SURGERY CENTERS IS A BIG CHALLENGE

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The arterial switch operation is one of the most challenging surgical procedures performed in the neonatal period. Besides the urgent character and the technical complexity of the intervention, a great deal of resources are necessary, and good cooperation inside a multidisciplinary team consisting of surgeons, perfusionists, anesthesiologists, intensivists, cardiologists, and neonatologists. Because of this huge requirement of technical, pharmacological and human resources, most of the cardiac surgery and newly open pediatric cardiac surgery centers choose not to perform this particular type of intervention and usually refer the patients to other, more experienced centers.

Background: In Syria-Romania, we have started the program with arterial switch operation (ASO) for transposition of the great arteries (TGA) or double outlet right ventricle with sub-pulmonary ventricular septal defect (Taussig-Bing anomaly) to assess the early and long-term outcomes.

Methods: In Syria: Between January 1994-2006 (11 patients) lot A, 2007-2010 (21 patients) lot B and 2010-2017 (105 Patients) Lot C. consecutive patients who underwent ASO for TGA with or without VSD and Taussig-Bing anomaly were included in this retrospective study. In Romania: Between 2013-2017, 14 neonates lot D, who underwent an emergent arterial switch operation for TGA in Bucharest and Iasi.

Results: The hospital death was in lot A 9 (81%), lot B 9 (43%), lot C 21 (20%), lot D 2 (14,2%). No patients need early reintervention for repair of residual defects in the arteries (great and coronary) or cavity of the heart. No patients developed more than mild aortic regurgitation or pulmonary stenosis during follow up.

Conclusions: In our experience in Damascus, Bucharest and Iasi has shown that the arterial switch operation is feasible in new centers, with good results. The most significant factors for high early mortality lot A-B was the incomplete conditions of technical and human resources to start the program of ASO, but in the lot C-D the mortality was due to preoperative critical conditions of the patients (infection, preoperative long term intubation, age and weight) which indicate that we need more neonatal and postoperative pediatric-ICU experience. Of course, the unavailability of ECMO was also a significant factor for mortality.

PERSISTENT LEFT SUPERIOR VENA CAVA. PRENATAL ULTRASOUND DIAGNOSIS. PRENATAL AND POSTNATAL CLINICAL IMPLICATIONS

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Objectives: The persistent left superior vena cava (PLSVC) is the most common thoracic vein abnormality. Postnatal identification of PLSVC in transthoracic echocardiography is difficult. Generally, in children and adults, the malformation is accidentally detected during cardiac catheterization via the left subclavian vein (LSCV). We present the importance of fetal echocardiography in the prenatal diagnosis of PLSVC and its prenatal and postnatal clinical implications.

Material and methods: We conducted the study between 01/01/2008-28/07/2017. We routinely performed fetal echocardiography in the second and third trimester of pregnancy as recommended by The International Society of Ultrasound in Obstetrics and Gynecology Practice Guidelines (2006, 2013). We identified PLSVC in the three vessels view as a supernumerary vessel to the left of the pulmonary trunk. We have identified dilated coronary sinus in the four-chamber view.

Results: We have diagnosed 31 cases with PLSVC: A) 6 cases associated with severe cardiac malformations, of which 2 cases with right superior vena cava agenesis (RSVC); B) 4 cases associated with ventricular septal defect, of which 1 case with RSVC agenesis; C) 8 cases associated with extra-cardiac pathology; D) 13 cases with isolated PLSVC, of which 2 cases with RSVC agenesis. The obstetrical approach was determined according to the complexity of the cases.

Conclusions: The prenatal ultrasound diagnosis of PLSVC is easy. The obstetrical approach is determined according to the complexity of the cases. At the same time, in children or adults, prenatal identification of PLSVC allows avoiding difficulties or complications in case of right heart catheterization by LSCV.

TOTAL RECONSTRUCTION OF PULMONARY VALVE USING BIOLOGICAL BIOSCAFFOLD - OWN INSTITUTIONAL EXPERIENCE

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Objective: Mid-term outcomes were evaluated in patients operated on for pulmonary valve regurgitation in whom an extracellular matrix (ECM) bioscaffold was applied as total trileaflet valve reconstruction.

Methods: 47 patients (M-27, F-20), age ranged 1,5-19 yrs (mean 13,5 +/-4,5 yrs) with clinically significant severe pulmonary valve regurgitation underwent valve implantation with on-table intraoperatively constructed trileaflet valve sewn out of CorMatrix ECM (CorMatrix Cardiovascular, Roswell, USA). There were predominantly patients after prior ToF repair (68%). The valves were sized to the native valve dimensions (+2SD) according to originally modified fashion and implanted in anatomical pulmonary position. Patient data were collected retrospectively and functionally assessed by echo examination performed periodically after the procedure. Primary endpoints of analysis were death, unexpected reoperation or interventional cardiology procedure or detection of functional valve failure (significant stenosis or regurgitation). Pulmonary regurgitation or stenosis was evaluated according to typically assumed criteria.

Results: From November 2013 to March 2017 51 CMx pulmonary valves were implanted in a single centre. There was 1 non-valve related death (cerebral embolism), 5 reoperations (2-commissure rupture, 1-leaflet adhesion with its incompetence, 1-perivalvar haematoma with stenotic PV, 1-false remodelling with following pulmonary artery stenosis) and 2 „Melody” valve implantations in cath-lab procedures. Follow-up data (6 months-3 yrs mean 1,4 +/-0,7 yrs) were available for all patients. months, and 3 at 12 and 18 months. Other than patients undergoing reoperation or PAVTI procedures, excellent or good result were noted in 36 pts. Moderate pulmonary regurgitation was recognized in 2 pts and pulmonary stenosis with gradient flow more than 40 in 5 pts.

Conclusions: Total pulmonary valve reconstruction with CMx decellularized bioscaffold may render useful surgical option for RVOT surgery. It is a suitable technique for implanting pulmonary valve in homografts shortage. Remodelling of implanted CMx valve may evoke a prolonged inflammatory reaction and lead to graft deterioration. Special attention must turn to patients preselection.

FIRST 100 CASES IN PEDIATRIC INTERVENTIONAL CARDIOLOGY PROGRAM IN “MARIE CURIE” HOSPITAL BUCHAREST

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Starting a new paediatric interventional cardiology program in a developing country like Romania could be a challenging task to accomplish. The tremendous need for treating children in order to reduce the morbidity and mortality in the pediatric population with congenital heart disease was the main purpose for this project.

Methods: In 2015 a program of Pediatric Interventional Cardiology was implemented with the help of the Ministry of Health and the National Insurance House, on one hand, and the help of the Italian Team from the Bambini Cardiopatici nel Mondo on the other hand.

Results: Between June 2015 and January 2017, 100 cases of congenital heart diseases were diagnosed and treated in the Compartment of Interventional Cardiology of the “Marie Curie” Emergency Children’s Hospital. From these cases 79% were interventional cases and 21% diagnostic cases. Of all cases 21% were atrial septal defect (ASD) closures using Cocoon Atrial Septal Occluder, 33% were patent ductus arteriosus (PDA) closures using Cocoon Duct Occluder, Oclutech Duct Occluder, PFM coil and Flipper Coil. 18% benefited of pulmonary valve dilatation using both Tyshak balloons or Osypka balloons, and 5% of all were aortic coarctation with stent implantation using CP Stent Bare or Covered, 2% were Rashkind atrioseptostomy. 5% were done in children with Down syndrome. 8 % were performed in cases of pulmonary hypertension. 11% were done in children less than 1-year-old. The complication and failures rate for the first 100 cases was 5% (including one ASD device embolization, two failures for pulmonary valve dilatation, one PDA device 4/6 mm withdrawal and changed to a 6/8 mm dimension device).

Conclusion: After more than 100 cases performed in our institution the early and intermediate results are very encouraging and are similar with other results reported in the current literature.

HIGH PULMONARY VASCULAR RESISTANCE IN ADULT CONGENITAL SHUNT ANOMALY PATIENTS: WHEN TO REFUSE SURGERY

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Backgrounds: Congenital shunt anomaly patients in the less fortunate parts of the World often reach adulthood without proper diagnosis or definitive treatment. Some of these patients present with severe pulmonary hypertension. The long standing practice has been to refuse surgical treatment for the patients with very high pulmonary vascular resistance. However with advancement of medical management of pulmonary hypertension and better critical care, this policy of denial requires revision. **Methods:** In this retrospective study 22 ASD, VSD and PDA patients were included with very high PVR (> 8 Wood units) initially refused and later operated at 3 Bangladeshi hospitals between 2004 and 2016. These patients had been specially prepared for surgery with newer drugs, exercise and physiotherapy. Final decision of surgery was based on repeated special clinical assessment and investigational findings after 2 to 6 weeks of extensive medical therapy. **Result:** All the patients included had severe pulmonary hypertension during initial measurement. 2 patients had difficulty in weaning from CPB and required an emergency fenestration of the closing patch; 8 required prolonged ICU stay and others had uneventful recovery. All 22 patients left hospital alive in apparently satisfactory condition. 2 patients subsequently deteriorated and expired within a year. Others improved or at least remained static. **Conclusions:** The current surgical approach to adult congenital shunt anomaly patients with high PVR should be reviewed. Further well orchestrated research of the matter is recommended as many of these apparently inoperable patients may now be operable with availability of modern medicines.

STRATEGIES TO MINIMIZE THE USAGE OF HOMOLOGOUS BLOOD DURING CARDIOPULMONARY BYPASS IN CHILDREN WEIGHTING LESS THAN 20 KG OPERATED FOR CONGENITAL HEART DISEASE

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Background: Both severities of cardiac surgery and technical features of extracorporeal circulation circuit demand blood transfusion from donors, which involves a number of risks for the patient, especially with the low body weight. “Priming” of the cardiopulmonary bypass circuit with patients' own blood [retrograde autologous priming (RAP)] is a technique used to limit haemodilution and reduce transfusion requirements.

Methods: the study included 250 children (131 boys, 119 girls) with congenital heart disease, operated on heart under CPB, weighing less than 20kg (18.45 ± 2.15) and 3.4 ± 1.7 years average age, who were divided into an experimental (125 children) and a control group (125 children). In the control group conventional CPB was performed (supplementing the “priming” with red blood cells), while in experimental one CPB started after RAP via aortic cannula with recirculation till 45 % of crystalloid “priming”. The hematocrit (Hct), lactate (Lac) levels at two perioperative time-points, intraoperative and postoperative blood usage were recorded. There were no significant differences in CPB time, aortic cross-clamp time between the groups.

Results: No hospital lethality occurred in the study and no surgical hemostasis was performed. Blood loss accounted for 6.2 ml/kg /24h in the whole study. 73 children needed perioperative transfusion of homologous blood, that made up only 29, 2 % of the whole study group. There were no significant differences in CPB time, aortic clamp, and Lac value between the two groups ($P > 0.05$). Length of ICU and hospital stay were similar. **Conclusions:** The team approach management is successful for bloodless or minimally usage of blood infant cardio-surgery. Priming” minimalization and retrograde autologous blood priming (RAP), modified ultrafiltration (MUF) could diminish the necessity of perioperative blood transfusion in infant cardiac surgery.

CORONARY SURGERY

TOTAL ARTERIAL MYOCARDIAL REVASCULARIZATION UP TO 4300 CASES

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Objectives: Advantages in late outcomes of myocardial revascularization with arterial conduits are widely recognised. However, the cardiac surgery community still remains reluctant to extend the use of the second internal mammary artery or the gastroepiploic artery because of potential higher complication rates. Concerns regarding early complications, particularly in patients with diabetes, obesity and chronic obstructive pulmonary disease (COPD), prevents the systematic adoption of these procedures. This retrospective study evaluates the rate of mortality and morbidity in a consecutive cohort of patients who underwent complete myocardial revascularization with the exclusive use of skeletonized arterial conduits.

Methods: From January 1996 to April 2016, 4325 consecutive patients underwent a complete myocardial revascularization using both internal mammary arteries (LIMA, RIMA) in 3684 cases and LIMA, RIMA and right gastroepiploic artery (GEA) in 641 patients. Age ranged from 35 to 81 years (mean 67), 34% patients were diabetic, 17% obese, 12% had COPD, 8% had both diabetes and obesity, 3.4% had both diabetes and COPD, 4% were affected by diabetes, obesity and COPD, 18% of the surgical procedures were urgent. Bilateral in situ IMAs were employed in 960 patients, composite Y graft in 2724 pts

Results: Hospital mortality was 1.2%. Incidence of perioperative myocardial infarction, stroke and mediastinitis were respectively 0.8%, 1.3% and 0.7%. Intra-aortic balloon pump was utilized in 0.6% of the cases. In 7 cases (0.1%) an arterial conduit had to be replaced by a venous graft because of inadequate blood flow. Statistically significant relations between mediastinitis and risk factors have not emerged: diabetes (p=0.311), obesity (p=0.608), both factors (p=0.790), COPD (p=0.705), all factors (p=0.288).

Conclusions: Complete myocardial revascularization using exclusively arterial conduits can be routinely performed with low mortality and complication rates. Diabetes, obesity and COPD do not represent a contraindication even in urgent cases, if arterial conduits are harvested as skeletonized. Inadequate blood flow from skeletonized arterial grafts is a very rare event.

HYBRID CORONARY REVASCULARIZATION IN 2017

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To evaluate early results of prospective trial HREVS (Hybrid REvascularization Versus Stents). The single-center randomized trial HREVS is started at our clinic in 2012. The trial design including 150 patients, who divided in 3 groups of 50 peoples. Group I is the group of hybrid myocardial revascularization, where the first stage is MIDCAB and the second stage is PCI of the remained lesions of coronary arteries. Group II is the group of the conventional CABG. Group III is the group of endovascular revascularization only with the same 2nd generation clinically proven DES. In hospital time, 24 months and 60 months after primary myocardial revascularization were planned control points of the trial. As a final points of the trial are accepted death, MACCE, a repeated revascularization. As a first stage in the group I the MIDCAB was performed. Good patency of the grafts were confirmed with flowmetry at the OR and than at the cath-lab. As a second stage the PCI were performed from 1 to 3 days after surgery with good patency of CA in all cases. In the group II CABG were successfully performed in all cases. There are no unsuccessfully or incompletely PCI's in the group III. There was no mortality and any MACCE, repeated revascularization at inhospital time of our trial. There are no cases of incomplete myocardial revascularization, technical difficulties and others complications in our study. The hybrid approach at inhospital point RCT HREVS showed the good results comparable to results of traditional approaches of myocardial revascularization.

IMPACT OF INTRAOPERATIVE IMAGING DURING CARDIAC SURGERY USING HIGH FREQUENCY EPICARDIAL ULTRASOUND

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Objective: High frequency epicardial ultrasound (ECUS) is a useful modality for intraoperative imaging. Since 2010, we introduced 15 MHz high frequency ECUS and have been investigating the efficacy of it as intraoperative evaluation in various cardiac surgeries.

Methods: In off-pump coronary artery bypass grafting (OPCAB), we directly scanned the coronary artery to decide the optimal anastomosis sites, strategized graft placement, and verified the anastomosis quality in addition to the routine use of transit time flow measurement (TTFM). In other cardiac procedures, we also directly scanned the cardiac lesions to make various surgical decisions.

Results: In OPCAB surgery, ECUS could provide more detailed information including the location of coronary artery and the intraluminal calcified plaque. We could directly approach the intra-myocardial coronary artery, avoiding unnecessary dissection or accidental injury of the right ventricle. With the precise images of intraluminal calcified plaque, we could make surgical decision for graft placement whether to perform on-lay patch grafting or not. ECUS was effective to assess the quality of the anastomosis, confirming the configuration, in addition to TTFM, which was useful for evaluating the function of the grafting.

Conclusions: High frequency ECUS can easily be employed as a complementary quality-control modality, which can assist successful surgical decision making and improve the quality of cardiac surgery.

BIOLOGICAL CHARACTERISTICS AND NON-ENDING SEARCH FOR PHARMACOLOGICAL ANTISPASTIC METHODS IN CORONARY ARTERY BYPASS GRAFTING SURGERY

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Various arterial grafts have been used for coronary artery bypass grafting (CABG). However, except the internal thoracic (mammary) artery (ITA or IMA) that has been regarded as the choice of the left anterior descending artery grafting, unanimous opinion to the best use of other grafts has not been formed. Arterial grafts are all conductance arteries and therefore they have common features compared with venous grafts. On the other hand, they are allocated in the different part of the body and have different embryological origin and physiological role, therefore have different anatomic structure and physiological and pharmacological reactivity to vasoactive substances. Thus, arterial grafts are not uniform in their biological characteristics.

Based on these considerations and our investigations on the vasoreactivity, taken together with anatomical, physiological, and embryological considerations, we proposed a useful clinical classification for arterial grafts in CABG: Type I-somatic arteries; Type II-splanchnic arteries; Type III-limb arteries. Type II (such as GEA) and Type III (such as RA) are more spastic than Type I (such as IMA). In order to obtain the best results, antispastic therapy, preservation of endothelial function, and other technical modifications are essential, particularly in Type II & III arteries.

In addition, although arterial grafts have superior long-term patency than the vein grafts they have a tendency to develop spasm that can lead to potentially life-threatening complications. A perfect antispastic protocol should include advanced surgical technique and adequate pharmacological methods. All pharmacological vasodilator drugs relax the vessel in specific mechanism(s) and therefore, there is no "perfect" single best vasodilator to prevent or treat spasm of the arterial graft against all mechanisms of contraction. One of the choices is to use combination of pharmacological vasodilators targeting on different mechanisms of spasm in order to obtain the reliable and the "best" effect. Non-ending search for pharmacological antispastic methods is therefore necessary.

REVIVAL OF CORONARY THROMBENDARTERECTOMY IN ENDSTAGE CORONARY ARTERY DISEASE

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Objective: Treatment of patients presenting with severe diffuse coronary artery disease (CAD) is controversial. Coronary endarterectomy (CEA) has been introduced as a treatment option for this end-stage pathology; many surgeons avoid undertaking it due to reported ambivalent results.

Methods: Over an eighteen-year period (03/1999-02/2017), 400 consecutive patients (age: 67.7±9.3years, male: 85.5%), undergoing CABG and CEA for occluded/sub-occluded vessels are screened. CEA was performed by traction technique followed by coronary vessel flushing with cardioplegia besides proximal/distal vessel massaging to get rid of residual debris.

Results: A total of 492 CEAs were performed. Most patients 363(90.7%) had a three-vessel disease, so a total of 4.2±1.1 coronaries were grafted. CEA target-vessel was the LAD territory in 225/492(45.7%), CX-territory in 77/492(15.7%), and RCA-territory in 190/492(38.6%) of the patients. CEA-graft was venous in 299/492(60.8%) and arterial in 193/492(39.2%). Mean transit-time flow for the CEA-graft was 66.7±45ml/min. MACCE consisted of stroke in 10(2.5%), myocardial infarction in 10(2.5%) and 30-day mortality for isolated CABG in 11/296(3.7%) patients. Follow-up imaging with angiography/CT-A was available in 63 patients with 72 CEA-grafts. Graft occlusion was reported in 13/72 (all saphenous vein grafts) but all LITA to LAD grafts are patent. Finally, estimated 5-year and 10-year survival was 80% and 60%, respectively.

Conclusion: Patients with end-stage CAD are high-risk candidates for surgical revascularization and often judged inoperable. Although CEA is a complex procedure, acceptable short and long-term results can be achieved. Traction-CEA with distal second incision and subsequent anastomosis in case of disrupted CEA-cylinder is our preferred method in comparison to open-CEA.

OPCAB TECHNIQUE USING MULTI-SUCTION HEART POSITIONER “TENTACLES™

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Objective: To accomplish successful multivessel OPCAB, we developed a new multi-suction cardiac positioner TENTACLES™ and devised various exposure techniques with stable hemodynamics.

Methods: TENTACLES™ consists of three separate small suction cups, which are each connected to an individual tube with one way valve. In contrast to apical suction positioner, TENTACLES™ has no fixation arm but has elastic silicone traction strings. Suction cups were applied to any desired surface of the ventricle, including right ventricle, lateral or basal wall, and pulled using traction strings in various directions to provide appropriate cardiac positioning. Due to the elasticity of the traction strings, cardiac wall motion was not impaired. The traction strings were fixed to surgical drape using calmps and coronary anastomoses were performed.

Results: In clinical multivessel OPCAB, all target vessels including lateral and inferior wall were successfully exposed and grafted with stable hemodynamics. Even in a severe left ventricular dysfunction (EF22%) case, lateral wall was exposed without hemodynamic compromise. TENTACLES™ provided reproducible and easy access for multivessel OPCAB with hemodynamic stability.

Conclusions: In July 2005, TENTACLES™ came onto the market in Japan. Since then it became widespread rapidly and nearly 50% of whole Japanese OPCAB cases are estimated to be performed with the use of TENTACLES™. TENTACLES™ is a first heart positioner came from Asia and we believe it would become an indispensable tool to accomplish successful multivessel OPCAB worldwide.

TOTAL ARTERIAL REVASCULARIZATION: THE CASE FOR THE RADIAL ARTERY

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The standard coronary artery bypass (CABG) operation is the left internal thoracic artery (LITA) and saphenous vein grafts (SVG). As the mean number of grafts is 3.2 - 70% of all grafts are SVG. Contemporary SVG patency studies have shown failure rates of 12% at one week, 20-25% at one year, and 50% at 10 years. In contrast, arterial grafts, have superior patencies at each of these intervals. The RITA though biologically identical, and often larger than the LITA, is rarely used because of concerns regarding sternal infection, hypoperfusion, unfamiliarity, lack of versatility, and prolongation of operations. The radial artery (RA) is an important additional or alternate (to RITA and SVG) graft. First introduced by Carpentier in 1971 and revived by Acar in 1992. The left RA is harvested (open or closed) simultaneously with the LITA. Its length (20-22 cm) allows any coronary to be reached. It is robust, easy to handle, similar to an SVG. Its size and uniformity make it ideal for sequential anastomoses and is a good size match for the coronaries. Y grafts or direct proximal anastomoses to the Aorta are straight forward. The forearms heal well. Avoiding leg incision allows earlier ambulation, particularly in older patients. Leg wounds, infections, and poor healing are avoided. Conversely forearm infections are extremely rare (< 0.5%). The RA is particularly useful in reoperations where vein grafts have been used, or where there are varicose vein, leg ulcers etc. We use bilateral RAs in 27% of patients (in addition to the LITA), especially in the elderly and for extremely obese, insulin dependent diabetic patients where sternal infection is a risk. If an additional graft is needed to complete the revascularization, then SVG from the leg is used (usually uniform with no or few branches and valves).

Precautions:

Ulnar artery collateral blood supply to the hand must be checked, RA is avoided in patients with collagen diseases (scleroderma, Raynaud's), those that live in extremely cold climates and if haemodialysis is being contemplated. The distal RA may be extremely calcified in some patients (2- 5%) and best avoided. The muscular media is prone to spasm. Anti-spasm prophylaxis is essential. Perioperatively achieved with topical and intravenous medications including papaverine, nitroglycerin, phenoxybenzamine, nitroprusside etc.), and for months postoperatively (calcium channel blockers). Competitive flow should be avoided - the RA grafted to tightly stenosed or occluded coronaries.

Results:

The combination of 1 or 2 ITAs, plus 1 or 2 RAs, allows total arterial revascularization (TAR) in >80% of CABG patients and can facilitate Anaortic OPCAB. The (30 day) mortality is 0.4% - 1% (2015). 10 year survival is 78% - 88%. - depending on age and comorbidities at surgery. RA patency at 10 years is 90%, and at 20 years 85%, which translate to an excellent clinical prognosis. RA patency failure is usually technical or because of competitive flow - It is not because of new atheroma. Evidence has accumulated in the past 10 years that the general CABG population, but also higher risk sub groups e.g. the elderly, diabetics and women, all benefit from RA grafting as opposed to SVG.

CABG WITH THE USE OF DOUBLE INTERNAL MAMMARY ARTERIES IN THE ELDERLY PATIENT ABOVE 80 YEARS OLD

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The long term superiority patency of the pediculated internal mammary arteries (IMA) Vs veins grafts is well proved in CABG.

However, the elderly patients > 75 years of age were usually excluded from the use of double IMA, because of their mild survival average and the high risk of mediastinitis and tissue healing

The introduction of the skeletonized vessel technique for the IMA harvesting, producing a minimal damage to the sternal periosteum, don't expose the sternum to the risks of dehiscence and mediastinitis.

After the excessive use of double IMA in our institution with a very low risk of mediastinitis, we decided to extend the use of this technique to the elderly group of patient > 75 yo.

In elderly patients > 75 yo, bilateral pediculated IMA can be used safely & effectively with a reasonable risk of mediastinitis. There is no risk of excessive bleeding. It doesn't increase the In hospital mortality or stay. It reduced the use of venous grafts and the lower extremities wound problems. Special care should be taking during the IMA harvesting by minimizing the blood damage to the sternal periosteum. Special care should be taking during closing the sternum by the use of the cross steel wire technique.

MULTI-OMICS STUDIES IN CARDIOVASCULAR DISEASES - OUR EXPERIENCE

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In the "Precision Medicine" era, integration of multiple 'omics' technologies will allow us to gain a more complete picture of the constituents and functions of diseases and provide far richer information for predictive modelling of phenotypes.

The multiple 'omics' technologies largely refer to high-throughput technologies that have revolutionized medical research. These technologies allow integrative studies at genomic, epigenomic, transcriptomic, proteomic, and metabolomic levels, etc. In cardiovascular diseases, genomics, epigenomics, transcriptomics, proteomics, and metabolomics are particularly important in understanding the mechanisms of the disease. Multi-omics offers the opportunity to understand the flow of information that underlies cardiovascular diseases better than the studies at a single omics level.

We have been using these multi-omics technologies in coronary artery disease, heart valvular diseases, and congenital heart diseases. With the multi-omics studies, we now have deeper understanding of the complexity in mechanism(s) of these diseases. This lecture will detail some of our studies as well as views on the prospects in this area.

THE ROLE AND IMPORTANCE OF BIOLOGICAL RESEARCH IN VASCULAR SURGERY CENTERS. PERSONAL EXPERIENCE: THE THEORETICAL RESEARCH AND ENGINEERING APPLICATION IN VASCULAR SURGERY

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Research is a key factor for knowledge of vascular disease and the development of new therapeutic strategies. In our University center, we started a Vascular Biology Laboratory, where we carry out basic research projects in parallel with clinical research; this is made possible thanks to multidisciplinary collaborations with biologists, engineers, cardiologist and pathologists.

Our main Research lines are:

Vascular Biology:

At our institution we conducted several studies, in vitro (cell culture) and animal model. On the activity of polyphenols extracted from agricultural waste on inflammation responsible of atherosclerotic plaque formation. Another field of interest is vascular inflammation with the aim to evaluate how peroxisome-proliferator activated receptors (PPARs) agonist administration could reduce inflammatory response after Ischemia/Reperfusion injury during aortic clamping in an animal model. Further study of PPAR γ and their agonists could lead to the development of effective pharmacological strategies to reduce the negative impact on the outcome of these patients.

Vascular bioprosthesis:

The aim of our research is to create a reabsorbable prosthesis in order to reproduce human arterial vessels. We fabricated a biodegradable electrospun vascular prosthesis functionalized with an anti-inflammatory agent (quercetin) performing scaffolds characterization in terms of physico-chemical, mechanical and biological properties.

Nanoparticles:

We are performing studies to develop a new therapy in atherosclerosis aiming is to produce nanoparticles capable of conveying the drug directly to the atherosclerotic lesion. Antibody-engineered nanoparticles allow us to introduce the concept of targeted therapy.

The goal for the future is a new professional figure able to blend the surgical skills and the ability to conduct scientific research projects for the development of new therapeutic strategies: the Vascular Specialist.

CABG AFTER PREVIOUS STENTING, ELECTIVE OR URGENT

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The incidence of prior PCI in patients undergoing CABG is increasing. There are many articles that show previous percutaneous coronary intervention increases morbidity after coronary artery bypass grafting.

Previous PCI is associated with a higher risk of major complications, greater hospital length of stay, and higher readmission rates after CABG.

There are several possible causes that may explain the negative impact of previous PCI using stents on CABG: There are many possible etiologies that can explain the poor prognostic effect of previous PTCA using stent on CABG:

One is stent thrombosis which more probably occurs in 6 months after PTCA specially if antiplatelet drugs are discontinued the other one is incomplete revascularization after multiple stenting in a patient which can lead to MI and also there may be situations that doing good anastomosis after previous stenting is not feasible and the surgeon should do anastomosis in more distal sights.

ANALYSIS OF COMPUTATIONAL FLUID DYNAMICS AND PARTICLE IMAGE VELOCIMETRY MODELS OF DISTAL SIDE-TO-SIDE AND END-TO-SIDE ANASTOMOSIS FOR CABG IN A PULSATILE FLOW

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The objectives: Intimal hyperplasia (IH) is a major cause of graft failure. Hemodynamic factors such as stagnation and disturbed blood flow are involved in IH formation. The aim of this study is to perform a comparative analysis of distal-end side-to-side (deSTS) and end-to-side (ETS) anastomoses using computational fluid dynamics (CFD) after validating the results via particle image velocimetry (PIV).

Material and methods: We investigated the characteristics of our target flow fields using CFD under steady and pulsatile flows. We validated CFD via PIV under steady flow in a 10-times-actual-size model.

Results: The CFD analysis revealed a recirculation zone in the heel region in the deSTS and ETS anastomoses and at the distal end of the graft and just distal to the toe of the host artery in the deSTS anastomoses. The recirculation zone sizes changed with the time phase. We found regions of low wall shear stress and high oscillating shear index in the same areas. The PIV and CFD results were similar.

Conclusions: We demonstrated that the hemodynamic characteristic of CFD and PIV is the difference between the deSTS and ETS anastomoses; i.e., the deSTS flow peripheral to the distal end of the graft at the distal end and just distal to the toe of the host artery is involved in the IH formation.

SURGICAL REMODELLING OF THE LEFT VENTRICLE

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Introduction. Published data show angiographic evidence of a left ventricular aneurysm (LVA) in about 7.6% of all ischemic heart disease patients. Morphologic and functional restoration of the left ventricle (LV) remains a surgical challenge. **Patients and methods.** From 15.06.2005 to 31.03.2017 45 patients were scheduled for surgery of chronic LVAs - in 19 using linear repair and in 26 using the Dor technique. All septal or contained free wall ruptures as well as patients with unacceptable surgical risk were excluded. Pre- and postoperative results and echocardiographic findings were compared and analyzed. LV volumes were recorded before and after surgery and indexed to the body surface area. **Results.** Surgical details showed no significant difference between the two groups in terms of times of cardiopulmonary bypass, aortic cross-clamping, duration of mechanical ventilation or intensive care need. Early survival was 73,7% for the linear repair and 88,5% for the Dor patients ($p < 0.05$). LV end-systolic volume index decreased from 56 ± 28 to 41 ± 12 ml/m² ($p < 0.05$) after linear repair and from 75 ± 34 to 39 ± 17 ml/m².

OFF-PUMP BYPASS IN OCTOGENARIANS: A GROUP WITH SPECIAL CHARACTERISTICS

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Background: Octogenarians undergo cardiac surgery more and more frequently but they have a detrimental effect on the outcome of all people, compared to younger patients. The aim of the study was to analyze our experience in comparison with the bibliography and find out which characteristics can lead to unpleasant results.

Methods: Retrospective Observational Study performed in our Hospital where, during the last five years, 21 patients underwent Coronary Artery Bypass Surgery.

Results: The mean age was $83 \pm 1,3$ years. All patients underwent elective off-pump surgery. Mortality was 4,7% and the rest of them were discharged from the Hospital in good clinical condition. The ICU stay was $3 \pm 2,1$ days and the Hospital stay was $8 \pm 4,2$ days, numbers that rise a little higher than the ones in the younger patients. COPD was the unique independent predictor of mortality and morbidity. Quality of life, in the majority of the patients, appears to be an improvement but, in a small minority, the quality of life declined basically due to psychological reasons.

Conclusions: Octogenarians is a fragile group of patients in which delays and mistakes should be carefully avoided. They also have limited resistance in any kind of stress. Off-pump surgery is a good option for them but there needs to be careful patient selection and individualized treatment decision.

THE ROLE OF CORONARY ARTERY BYPASS GRAFTING IN THE TREATMENT OF INTRASTENT RESTENOSIS

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In the era of stenting, percutaneous coronary interventions are used as initial revascularization strategy but there is the risk of in-stent restenosis in a significant number of cases (15-45%). In-stent restenosis (ISR) is an important clinical problem and those patients are a challenging group for both interventional cardiologists and cardiac surgeons as generally they are patients with aggressive coronary atherosclerosis in whom the recurrence of stenosis in case of percutaneous approach is probable to happen. There is consistent evidence that the percutaneous treatment of these cases leads to suboptimal clinical results and is associated with a high risk of additional restenosis or occlusion.

CABG has better results in patients with ISR rather than the use of interventional methods. After successful PCI, the operative risk for surgery does not increase as long as the coronary bed and the ventricular function is not deteriorated. Surgical technique is not modified due to the previous PCI.

Most of the patients who will need surgery after PCI will be operated during the first year.

Rapid evolution of the coronary artery disease seems to be as important as restenosis in determining patients who will require surgery.

ANAORTIC SURGICAL MYOCARDIAL REVASCULARIZATION USING THE Π-CIRCUIT IMPROVES BRAIN PROTECTION

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Purpose: Goal of anaortic surgical myocardial revascularization (ASMR) is to reduce the postoperative prevalence of stroke, higher than the stroke risk during percutaneous coronary intervention. Π-circuit (figure) is an off-pump strategy which connect different conduits, arterial and venous, having 1 or 2-mammary as blood source. **Material and Method:** In a retrospective cohort study we analyzed all consecutive patients who had AMR using the Π-circuit from January 2001 to May 2016. Postoperative stroke was defined as any confirmed neurological deficit of abrupt onset that did not resolve within 24 hours. Institutional data included STS predicted risk of postoperative stroke score and EuroSCORE II and were used to compare the prevalence of expected and observed events. **Results:** 3081 patients used 6548 conduits (6012 arterial) to obtain a Π-circuit which includes one or more side branches or conduit(s) elongation. Median age was 67(58,73) years, 149(4.8%) patients had a previous myocardial revascularization and 85(2.8%) had a previous stroke. Ejection fraction was $\leq 30\%$ in 201(6.5%) cases. Creatinine clearance was < 60 ml/min in 832(27%) patients and 36(1.2%) were on dialysis. 255(8.3%) were operated on emergency. Median anastomoses were 3(2,3). 30-day mortality was 1.3% (predicted 2.0%) and only 4 were converted to CPB. 14(0.45%) had a stroke (predicted 1.5%) and 7(0.2%) a postoperative AMI. The primary end-points occurred globally in 60 patients (1.9%). The Table lists the multivariate risk factors for the primary end-points. Stroke prevalence was less than 1/3 of the expected value (0.45 vs 1.5). **Conclusions:** Π-circuit is an ASMR strategy which connects different conduits, as elongation or branch, to facilitate off-pump myocardial revascularization. The very low conversion rate and avoiding the aorta as blood source change the pattern of risk factors of stroke, which are (Table) generic and unchangeable, as diabetes and peripheral vascular disease. Table. Multivariate analyses for primary end points. 30-day mortality post stroke post AMI Poor EF ($\leq 30\%$) 4(1.7,9.4) - - Emergency 5.4(2.3,12.7) - - PVD 4.2(1.9,10.0) 3.5(2.1,11,1) - Severe CRF (clearance < 30 ml/h) 8.8(1.4,55.8) - Diabetes - 1.6(0.6,6,6) -

TRANSIT-TIME FLOWMETRY FOR ASSESSMENT OF CORONARY ARTERY BYPASS GRAFT FLOW AFTER OFF- AND ON-PUMP REVASCULARIZATION PROCEDURES

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Objective: Transit Time Flowmetry (TTFM) has been used to evaluate intraoperative graft patency and identify grafts under risk of early occlusion with increased infarction and increased mortality rate in the early postoperative period. In this study, we compare conduit flow immediately after the coronary revascularization in the standard coronary artery bypass procedure with cardiopulmonary bypass (CPB) and the procedure without CPB. Our purpose is to quantitate the graft flow between the two procedures.

Materials and methods: We reviewed 124 patient after coronary artery bypass grafting (CABG). Sixty-tree patients having CABG Off-pump and 61menaged with the conventional CABG procedure On-pump using left internal mammary artery (LIMA), bilateral mammary artery (BIMA), radial artery (RA) and saphenous vein grafts (SVG). Flow in the by-pass conduits was measured with transit-time method.

Results: In amount of 402 grafts we found 10 grafts to be risky (2,5%) in five patients (4,03%). In hospital death in the group of CABG with CPB - five patients (8,2%). The parameters of graftflow in these patients were acceptable and have no predictable value in patients with acute myocardial infarction and cardiogenic shock. No deaths in the group of CABG Off-pump.

Conclusions: TTFM data and its evaluation is an useful option. This is an easy, fast and reproducible method to assess the graft patency prior to the chest closure after CABG.

THE BENEFITS OF OFF-PUMP CORONARY ARTERY BYPASS GRAFTING PROCEDURE IN OUR PATIENTS OLDER THAN 75 YEARS OF AGE

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Objective: Age has been recognized as an independent predictor of mortality in patients undergoing CABG. Number of comorbidities increasingly manifests in elderly patient's population (diabetes, renal insufficiency, pulmonary disease, cerebrovascular disease, atheromatous aorta), which comorbidity may also be independently associated with increased mortality in CABG. Off-pump coronary artery bypass surgery (OPCAB), being hotly debated, has a number of purported advantages over the on-pump surgical technic. In this study we investigate the efficacy of OPCAB technic for patients aged 75 years or older. **Materials and methods:** We randomly assigned patients 75 years of age or older scheduled for elective CABG surgery, treated by off-pump or on-pump technique. The patients' demographic, operative data and postoperative results were collected. **Results:** We reviewed 85 patient operated on between March 2014 and March 2017, divided into two groups. Forty-five patients treated with on-pump and 40 patients treated with off-pump techniques. The operative time was significantly shorter in the off-pump group than in the on-pump group. The enzyme release, need of blood transfusion and rate of major complications like postoperative stroke and respiratory failure were significantly lower in the off-pump group. Early follow-up results and major event-free survival rates did not differ between the two groups. **Conclusions:** OPCAB is a safe procedure for the elderly patients, associated with lower rates of postoperative respiratory complications and postoperative stroke. The procedure has less blood products transfusion requirements. In this patients population, the off-pump procedure is an acceptable alternative of the standard on-pump technic of revascularization.

CORONARY AND CAROTID ARTERY OCCLUSIVE DISEASE: CHANGED APPROACH TO OPERATIVE TACTICS?

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Objective: Due to increased life expectancy, the risk profile of the patients undergoing cardiac surgery changed dramatically. This is especially important in the case of concomitant coronary artery disease and carotid artery stenosis. Careful decision making and appropriate surgical strategy in these patients are critical for the success of the operation. In the current study, we present our experience in treating patients with concomitant carotid artery stenosis and coronary artery disease. Results of the evaluation of perioperative mortality and morbidity in regard to the surgical approach have been discussed. **Methods:** This was an observational retrospective study that included 835 patients. The patients underwent carotid and heart operation in either concomitant or sequential manner. **Results:** Coronary artery bypass grafting (CABG) with additional carotid endarterectomy (CEA) due to neurologic symptoms or high grade (>80%) coronary artery stenosis (CAS) has been performed in 835 patients. The average patient age was 62.56 years. Echocardiography revealed that 28.02% of the patients had a poor ejection fraction (EF <30%). Coronarography demonstrated that 21.43% of the operated patients had significant left main coronary artery stenosis (> 60%). In terms of neurological status, the majority of the patients (82.2%) were neurologically asymptomatic. The overall mortality rate regardless the sequence of procedures was 2.27%. In the group of concomitantly treated patients 44.64% of the patients required triple coronary bypass while the mean number of coronary bypasses was 2.63. Neurological sequels were present in 13 patients (2.51%). No significant difference was present with respect to the operative tactics. Nine patients (1.07%) have had a transitory ischemic attack, while 12 patients (1.44%) have had a permanent neurologic deficit. **Conclusion:** It is imperative that every patient being considered for CABG should undergo ultrasonic evaluation of the carotid arteries regardless the neurological symptomatology. We believe that the concomitant surgery on patients with severe carotid artery stenosis and coronary disease carries a slightly higher operative risk. Therefore, we would consider concomitant surgical treatment only in patients with unstable angina and significant carotid artery stenosis.

THE ASSOCIATION BETWEEN CLOPIDOGREL CESSATION, PLATELET FUNCTION, AND BLEEDING IN CORONARY SURGERY

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The objectives: The study sought to determine the association between preoperative clopidogrel discontinuation timing and bleeding complications in patients undergoing coronary artery bypass grafting (CABG) and whether preoperative platelet function predicts bleeding complications. Material and methods: In this retrospective analysis of prospectively collected data patients undergoing CABG were divided into three groups with regard to the period between preoperative clopidogrel cessation and surgery: Group 1 (n=94, ≤3 days); Group 2 (n=100, 4-5 days) and Group 3 (n=83, 6-7 days), respectively. Impedance aggregometry with drug specific platelet function assays (ASPI test sensitive to aspirin and ADP test sensitive to clopidogrel) was performed before the surgery. Primary outcome was 24h chest tube output (CTO), whereas transfusion requirements were considered as secondary outcomes. Results: Group 1 patients had a significantly higher 24h CTO relative to group 2 and group 3 patients, (p=0.003) and experienced more frequently both excessive bleeding (p=0.013) and re-explorations for excessive bleeding (p=0.045). Group 1 patients were also more frequently transfused. Multiple electrode aggregometry ASPI and ADP tests significantly correlated to 24h CTO (ASPI test – rho = -0.258, p<0.001; ADP test – rho = -0.164, p=0.007). A significant correlation was observed between clopidogrel free interval and 24h CTO (rho = -0.200, p<0.001). Receiver operating curve (ROC) analysis revealed cut-of values to delineate bleeding tendency (ASPI test ≤ 25 AUC, ADP test ≤ 63 AUC and clopidogrel free interval ≤ 3 days). Conclusions: Bleeding complications occur less frequently >3 days after clopidogrel cessation. Platelet function testing may be a useful tool in predicting bleeding risk.

INTRAOPERATIVE ASSESSMENT OF SEQUENTIAL CORONARY ARTERY BYPASS GRAFT

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Background: Nowadays, saphenous vein conduits for CABG remain basic option for surgical revascularization but controversy still exists about whether to use them as an individual or sequential graft with regard to achieve procedural completeness in terms of satisfactory early and long-term graft patency. The purpose of this study was to assess blood flow across different graft construction.

Methods: From January 2015 to December 2016, 145 patients with ischemic heart disease underwent coronary bypass surgery in our Institution. All patients had at least one venous sequential coronary anastomosis. Assessment of each graft was performed just before the sternal closure under stable hemodynamic conditions. Flowmetry was performed using a flowmeter (MediStem VeryQ C, MediStem AS, Oslo, Norway) and a 3-mm or 4-mm probe. The mean flow and pulsatility index (PI) were recorded. All variables were compared between sequential and individual grafts.

Results: All sequential grafts showed good parameters where mean flow was 70,6 ±30.2 ml/min and PI – 1,8±0,4, in comparison with individual grafts where mean flow was 37.5±20.5 ml/min and PI was 2,1±1,01, correspondently. Conclusions: Flowmetry is reliable tool for assessing intraoperative graft patency. Sequential grafting technique provides acceptable early graft patency This technique is a useful strategy for multivessel revascularization.

POSTER

SURGICAL MODELLING OF CORONARY GRAFTS

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Current research assesses by means of mathematical models and in vitro studies the haemodynamic performance of various grafts and grafting designs in order to improve long term-graft patency and survival rates in coronary artery bypass grafting (CABG) but fails to provide an optimal grafting technique tailored to the individual patient. Our study aims to solve this dilemma through an in vivo approach. The authors compared long-term outcome of CABG conduits in relation to graft morphology, target vessel and surgical expertise in a group of 127 patients that underwent CABG in a single centre between 2000-2006 and presented for long-term coronary computed tomography angiography evaluation of graft patency between 2013-2016 at an average of 129.78±36.64 months after CABG. There were analysed 399 grafts (mean 3.14±1/patient) out of which 220 arterial. Patent arterial grafts were longer than occluded ones in absolute and height-indexed values for both coronary territories. Multisite artery disease (OR 4.13), target vessel stenosis <90% (OR 3.02), target vessel calibre <1.5 mm (OR 2.31), Y anastomosis angle >56°, and distal anastomosis angle >60° (OR 5.15) increased occlusion risk. Radial artery grafts (RAG) registered a lower patency rate when anastomosed “Y” to left ITA (61.90%) compared to the ascending aorta (85%). Highest patency rate for each territory at 10-16 postoperative years were obtained with Left ITA for the left anterior descending artery (90.17%), right ITA for diagonal arteries (92.86%), RAG for right coronary artery (80.65%) and saphenous venous grafts (SVG) for circumflex territory (82.54%). In conclusion, grafting design should be tailored to the individual patient in all cases. Arterial grafts offer better long-term patency rates than SVG for most target vessels if several criteria are fulfilled: adequate graft length, graft calibre >1.5 mm, target vessel stenosis >90%, distal anastomosis angle <60°, proximal anastomosis with increased flow if RAG is used, Y anastomosis angle <56°.

EMERGENCIES IN CARDIAC SURGERY: RUPTURED PSEUDOANEURYSM OF THE RIGHT CORONARY SINUS OF VALSALVA IN THE ADULT CAUSING SEVERE AORTIC REGURGITATION AND ACUTE RIGHT HEART FAILURE

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We present the case of a 42-year-old male with congenital pseudoaneurysm of the right coronary leaflet ruptured in the right heart chambers creating an important left to right shunt.

At admission, the patient presented clinical and biological signs of right congestive heart failure: altered general status, pronounced neck veins, severe dyspnea, moderate hepatomegaly with modified hepatic biochemical parameters (ALT 397 UI/L; AST 198 UI/L).

Transthoracic echocardiography revealed a communication between the right coronary sinus and the right heart with a severe left-to-right shunt, severe aortic regurgitation due to a deficit of movement of the right coronary leaflet, enlarged right ventricle but with normal systolic function. The patient underwent emergency surgery for resection of the pseudoaneurysm and pericardial patch closure of the defect under cardiopulmonary bypass. Intraoperative aspect was of a small pseudoaneurysm from the middle of the right coronary leaflet ruptured in the right ventricle with normal aortic leaflets without any signs of active endocarditis. Intraoperative transesophageal echocardiography after the repair showed no aortic regurgitation and normal sized right heart chambers with a normal systolic function of both right and left ventricles.

Postoperative evolution was uneventful and the patient was discharged after 7 days. Clinical and echocardiographic follow up at 1 and 3 months after surgery revealed total recovery of the cardiac function.

RESULTS OF USING THE OPENED AND CLOSED CARDIOPULMONARY BYPASS CONTOURS IN CORONARY ARTERY BYPASS GRAFTING

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Objective: The objective of this report was to study the direct results of cardiopulmonary bypass surgery in conditions of cardiopulmonary bypass in closed and open circuits.

Material and Methods: 2 cohorts of patients underwent coronary artery bypass grafting. Patients in group 1 (n = 50) – the closed CPB contour. Patients in group 2 (n = 50) - the open CPB contour. The total time of cardiopulmonary bypass was lower in the 1-st group than in the 2-nd group (58min±12,7 and 64min ±16,9; p = 0,04). Postoperative analysis of laboratory indicators has been divided into 2 stages.

Results: The level of hemoglobin in the 1st group by the end of 6 hours after operation was higher, than in the 2nd group and was 112g/L ±14,15 and 106 g/L ±11,18 (p = 0,01); the level of hematocrit was 33,1 ±3,89 and 29,89 ±4,06 (p = 0,001); the level of erythrocytes at this stage was 3,9x10¹² ±0,51 and 3,6x10¹² ±0,36 (p = 0,007). After 16 hours of operation, the level of hemoglobin and erythrocytes in-group 1 remains higher as well. Leucocytes and C-reactive protein levels reduction in the 1st group were revealed also: the level of leucocytes was 10x10⁹ ±13,2 and 11,3x10⁹ ±2,4 (p= 0,02); the level of C-reactive protein was 4mg/dl ±2,8 and 5,6 mg/dl ±2,2 (p=0,01).

Conclusion: The closed contour of cardiopulmonary bypass can be used effectively and safe for coronary artery bypass grafting surgery.

LONG-TERM GRAFT PATENCY AFTER CORONARY ARTERY BYPASS GRAFTING. EFFECTS OF GRAFT SELECTION AND SURGICAL EXPERTISE

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Completeness of revascularization is a factor conditioning intermediate and late survival. The choice of coronary conduits has been debated for decades with no consensus concerning the optimal grafting design in terms of graft type and surgical technique. The primary endpoint of the study consists in identifying the ideal grafting technique according to coronary territory in a group of patients benefiting from graft patency evaluation using coronary computed tomography angiography (CCTA) at minim 10 years after coronary artery bypass grafting (CABG). The authors compared long-term outcome of CABG conduits in relation to graft morphology, target vessel and surgical expertise in a group of 127 patients that underwent CABG in a single centre between 2000-2006 (29.92% total arterial revascularization - TAR) and presented for long-term CCTA evaluation of graft patency between 2013-2016 at an average of 129.78±36.64 months after CABG. There were analysed 399 grafts (mean 3.14±1/patient) – 179 venous (SVG) and 220 arterial. For the right coronary territory, the highest patency rate was obtained with radial artery grafts (RAG) – 80.65%, for circumflex territory with SVG (82.54%) and for diagonal arteries with right internal thoracic artery – 92.86%. Left internal mammary artery (LIMA) was anastomosed to the left anterior descending artery with a patency rate of 90.17% and unexplained occlusion (no competitive flow) only in 4.1%. Identified risk factors for SVG occlusion were grafting to RCA, target vessel calibre <1.5 mm, female sex, family history and coronary endarterectomy. For arterial grafts, multisite artery disease, target vessel stenosis <90%, target vessel calibre <1.5 mm, Y anastomosis angle >56°, and distal anastomosis angle >60° augmented occlusion risk. RAG registered a lower patency rate when anastomosed “Y” to LITA (61.90%) compared to the ascending aorta (85%). SVG had a lower occlusion rate in sequential anastomosis compared to arterial grafts (22.22% for end-to-side anastomosis and 0% for side-to-side versus 35% for end-to-side and 45% for side-to-side). An optimal grafting design with favourable long-term patency can be imagined for each coronary territory based on morphological and morphometrical analysis of follow-up CCTA. **Keywords:** coronary artery bypass grafting, long-term graft patency, predictors, surgical expertise

MORPHOLOGIC PARAMETERS ASSOCIATED WITH CORONARY ARTERY BYPASS GRAFTING DYSFUNCTION

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The aim of the study is to identify main morphologic parameters associated with long-term coronary artery bypass graft (CABG) dysfunction in a group of patients benefiting from graft patency evaluation using coronary computed tomography angiography (CCTA). The authors compared long-term outcome of additional conduits according to graft morphology and grafting technique in a group of 189 patients that underwent CABG in a single center between 2000-2010 (39.15% total arterial revascularization - TAR) and presented for long-term CCTA evaluation of graft patency between 2012-2016 at an average of 125.53 months after CABG. 186 (98.41%) patients had left IMA anastomosed to the left anterior descending artery with 96.24% patency rate; 73 (38.62%) radial artery graft (RAG) with 79.54% patency rate and 81 (42.86%) right IMA grafts with 81.48% patency rate no matter the grafted territory. Saphenous vein graft (SVG) patency rate was lower (74.63%) compared to arterial grafts. IMAs proved sensitive to competitive flow and in situ right IMA registers a higher attrition rate when anastomosed to non-dominant right coronary artery. The presence of an Y anastomosis (51 cases) does not influence in situ left IMA patency but a wider anastomosis angle is associated to a higher occlusion rate of the free arterial graft (11 cases – 21,57%) with a mean angle of 67.14o for occluded versus 46.71o for patent grafts. The termino-lateral anastomosis of sequential grafts was more prone to occlusion (5 out of 25 arterial sequences) compared to latero-lateral anastomosis. The artery used for sequential grafting was completely occluded in 3 out of 25 cases versus none of the 6 SVG. Arterial grafts register a higher long-term patency rates compared to veins in complex anastomoses, wider Y and T angles and distal termino-lateral anastomoses of sequences being more prone to occlusion.

Keywords: total arterial revascularization, anastomosis, angle, occlusion

CORONARY SINUS RECONSTRUCTION - 2 CASES REPORT

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Introduction: Coronary sinus and ostium primum (unique atrium type) atrial septal defects (ASD) represent rare congenital malformations (less than 1% of total ASDs) and are frequently associated with persistent left superior vena cava (LSVC). The shunt is caused in the first case by the incomplete development of the wall between the coronary sinus and the left atrium and in the second case, the coronary sinus drains into the single atrial cavity.

Case description: Two patients (IP, 15 years, BG, 12 years) were operated in 2013 in our clinic. In the first case, although enlargement of the coronary sinus was not identified during echography, angio-CT showed fenestration of the coronary sinus wall and cardiac catheterization documented the bidirectional shunt as well as the persistent LSVC. Moreover, the ASD was associated with patent ductus arteriosus and cor triatriatum. In the second case the ostium primum ASD and the persistent LSVC as well as an anterior mitral valve cleft were diagnosed by echography and CT. Both patients underwent elective surgery. The coronary sinus was reconstructed in both cases using autologous pericardial patches. Moreover, in the first patient the ductus arteriosus was ligated and the intraatrial trabeculum was excised. In the second case the interatrial septum was reconstructed with autologous pericardium. Both cases had an unremarkable postoperative recovery.

Conclusions: Both cases showed that although the diagnosis for these malformations requires multiple investigations, a surgical correction with good long term results is feasible if the mechanism of the shunt is well documented.

EARLY AND MID-TERM PATENCY RATES OF SEQUENTIAL VERSUS INDIVIDUAL CORONARY BYPASS GRAFTS - PERSONAL STUDY AND META-ANALYSIS

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The current study addresses a perennial issue in coronary artery bypass grafting, namely the impact of grafting technique on the early and mid-term graft patency in conventional CABG and total arterial revascularisation. Between January 2014 and June 2016 there were evaluated the patency rates of coronary grafts using a 256 multi-slice MSCT scanner in a group of 168 patients that underwent CABG between 2000 - 2015. In June 2016, there was performed a meta-analysis of clinical studies in order to compare early and mid-term patency rates of sequential versus single coronary bypass grafts. Inclusion criteria were prospective of retrospective cohort studies that investigated coronary grafts patency rates by angiography or MSCT. The results of the personal study were compared to those reported in the literature. Patients were divided into Group 1 consisting in 46 patients (27.38%) with sequential grafting (10 venous sequences, 36 arterial sequences, 190 anastomoses for 132 grafts) and group 2 consisting in 122 patients (72.62%) with individual grafting alone (57 TAR, 65 conventional CABG, 355 anastomoses). Mean follow-up interval was of 5.51 years for group 1 and 6.27 years for group 2. Patency rates were of 72.73% for RITA sequences (9.09% complete occlusion), 90% for LITA sequences (0% complete occlusion), 63.63% for RAG sequences (20% complete occlusion), and 66.67% for SVG sequences (40% complete occlusion). Inflow source for RITA and RAG were either the aorta LITA. Patency rates for RITA and LITA did not significantly differ compared to individual grafting, but were lower in case of RAG and SVG. The authors identified 24 relevant studies on PubMed published 2000-2016 and displaying similar results. Occlusion rate was lower in side-to-side anastomoses compared to end-to-side anastomoses. The results of the current study and articles included in the meta-analysis support the fact that sequential LITA and RITA grafting offer good patency rates, increase the number of total anastomoses and are ideal to be used for multivessel revascularisation especially for left coronary territory.

MIDTERM RESULTS OF PUMP ASSISTED BEATING HEART CORONARY BYPASS GRAFTING FOR COMPLEX CORONARY LESIONS

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Objective: Off-pump coronary artery bypass grafting (OPCAB) has shown proven benefits for patients with a high risk for on-pump arrest CABG. However, OPCAB poses several challenges, including technical difficulties in maintaining hemodynamic status during exposure of the coronary arteries, particularly in patients with hemodynamic instability secondary to acute myocardial infarction (AMI) and complex coronary lesions. **Methods:** We report midterm results of pump assisted beating heart coronary artery bypass grafting for patients with a high risk for OPCAB. During operation, assist flow was controlled at a minimal level to maintain a systemic blood pressure of approximately 100 mmHg and a pulmonary arterial systolic pressure <30 mmHg, providing optimal pulsatile circulation for end-organ and coronary perfusion, and preventing lung and heart congestion. Miniaturized circuits of extracorporeal membrane oxygenation (ECMO) were used to provide pump assist for hemodynamic stability. **Results:** From June 2012 to January 2017, CABG was performed in 270 patients at our institute. Pump assisted CABG was performed in 37 patients (14%). Either emergent (within 24 h after onset) or urgent (within several days after onset) operation was performed in 22 cases (60%). The patients mean age was 65 ±14 years. Preoperative ejection fraction (EF) was 40±15%. Intra-aortic balloon pumping (IABP) was initiated preoperatively in 40% of cases. Both IABP and ECMO were initiated preoperatively in 10% of cases. Mean pump time was 143 ± 58 min. Assist flows during anastomosis to left anterior descending artery, left circumflex artery, and right coronary artery were 0.90±0.36 L/min/BSA, 1.24±0.46 L/min/BSA, 1.38±0.64 L/min/BSA, respectively. Mean number of distal bypass grafts was 3.1±0.8. Indications for Pump assisted CABG were low EF (<40%) mainly due to AMI (65%), severe left main trunk lesion (20%), arrhythmia (10%), diffuse coronary lesion (15%), respectively. Complete revascularization was performed in all cases. Postoperative coronary angiography after 3 year (follow-up rate, 95%) showed all patent grafts. **Conclusions:** Pump assisted beat heart CABG is a safe alternative to OPCAB, especially in patients with complex coronary lesions and low cardiac function providing high rates of complete revascularization, adequate preservation of end-organ function, and excellent mid-term results.

EXTRACORPOREAL CIRCULATION AND ASSIST DEVICES

THE USE OF ECMO IN NON-CARDIAC SURGERY

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Background: ExtraCorporial Membrane Oxygenator (ECMO) is a useful tool that is used for postoperative support in patients following cardiac surgery. Other variations of its capabilities have been tested making it an important tool in the armamentarium of life and organ support for clinicians.

Methods: During the last five years, we have used ECMO in five patients that did not undergo cardiac surgery. Three of them had ablation for life threatening ventricular arrhythmias, performed by cardiologists. The remaining two patients had a thoracic operation, performed by our team. In all of the patients the procedure was performed via femoral artery and vein.

Results: There were no deaths. In three patients the ECMO system was removed immediately after the operation while for the rest of the patients that had an ablation procedure the ECMO was removed the next day. There were no major complications, including the vessels that the device was inserted from. The patients that underwent thoracic operation had to extend their post-operative course by 2 days, given that the thoracic drainage was removed one day later than the usual.

Conclusions: ECMO is a useful tool that solves a lot of issues when you need it. It is safe with minor complications. While ECMO is being used, the attending doctor needs to be familiar with the insertion and the monitoring techniques.

THE HEARTMATE 3 FULLY MAGNETICALLY LEVITATED VENTRICULAR ASSIST DEVICE - A NEW ERA IN CARDIAC SUPPORT DEVICES

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Mechanical circulatory support is increasingly used in patients with heart failure as a bridge to heart transplantation. Currently used axial flow and hydrodynamic-levitated centrifugal flow devices still carry a small but significant risk of thromboembolic complications. The new fully magnetically levitated centrifugal continuous-flow pump HeartMate 3 left ventricular assist device (LVAD) was designed to minimize the risk of these complications.

We reviewed the outcome of all 29 patients who underwent implantation of the HeartMate 3 LVAD at the Sheba Medical Center.

From January 2016 to August 2017, 26 men and 3 women underwent implantation of the HeartMate 3 LVAD. Their mean age was 51.8 years (23-67). Etiologies of heart failure were ischemic cardiomyopathy in 52%, dilated cardiomyopathy in 41%, Adriamycin induced cardiomyopathy in one patient and post-partum cardiomyopathy in one. Fifty-five percent were in INTERMACS Level 4, 27% in Level 3 and 18% in Level 2. Two patients underwent additional biologic aortic valve replacement and one tricuspid valve repair. All patients but one were discharged home, for a hospital mortality of 3.4%. The expired patient died 6 days post implant due to right ventricular failure. Patients were discharged home after a mean of 18 days, with 18 of them (62%) sent home after less than 14 days. There were no neurological complications or pump thrombosis events in the early or late post-operative follow up. Only one patient expired during the follow-up period, 6 months after the operation, following a rare transfusion-associated lung injury secondary to a fresh frozen plasma transfusion due to GI bleeding with high INR. Three patients were transplanted, two developed drive-line exit wound infections and one sternal wound infection. All discharged patients are in NYHA class I.

Based on our initial experience, we conclude that the use of the HeartMate 3 LVAD is associated with low operative mortality, rapid postoperative recovery, and with a lower incidence of postoperative life endangering complications.

POSTER

A RARE AND LATE COMPLICATION AFTER THE EXPLANTATION OF A LEFT VENTRICULAR ASSIST DEVICE - A CASE REPORT

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Left ventricular assist devices have been successfully used as a 'bridge to recovery' in a number of acute refractory heart failure cases. However, late complications can arise after the explantation of these assist devices.

We report the case of a patient who presented at the age of 19 with peri-partum cardiomyopathy and was initially managed in ITU with a biventricular support device. This was subsequently upgraded to an ambulatory left ventricular assist device. After myocardial recovery seven months later, this was explanted via a minimally invasive approach through combined left and right mini-thoracotomies. While the explantation was uneventful, it was noted to have been difficult due to dense adhesions and part of the Dacron outflow graft was not removed. The patient presented to the A&E department five years following the explantation with significant haemoptysis. At redo-sternotomy a 10 cm remnant of the outflow graft was found to be eroding the surface of the right lung. The conduit was excised and the stump arising from the ascending aorta oversewn. Eleven months later she presented again with haemoptysis and this time a pseudo-aneurysm was identified on the CT scan. She underwent urgent open repair with peripheral cannulation and deep hypothermic total circulatory arrest. The previously sutured Dacron stump was found to be partially dehisced leaving a 2-3 cm defect in the ascending aorta. The defect was repaired with a bovine pericardial patch.

The patient made a good recovery, was successfully discharged and was well on follow-up two years afterwards.

HEARTMATE 3 EVOLUTION: 20 YEARS OF DEVELOPMENT TO BECOME BEST VENTRICULAR ASSIST DEVICE

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The new star in the world of mechanical circulatory support is now undoubted HeartMate 3. The third left ventricular assist device (LVAD) generation from Abbott is close to the point of receiving its FDA approval for commercial use, after not long ago had obtained CE Mark approval in June 20151.

The objective of this paper is to present a complete image of the 20 years HM 3's development evolution influenced by technical challenges, changes in surgical approaches and business decisions.

A comprehensive study of 105 documents was made, including technical and medical scientific literature, company's press releases and annual reports. Were identified and classified changes in design, technology, surgical approach and business decisions.

Unlike other known devices HM 3's development was characterized by constant changes in all aspects we have studied in order to keep the pace with the discoveries of the company and the competition.

Initially, the success of the "bigger brother" – HeartMate II, have put in reserve HM 3 as a possible future successor but the bold and amazing apparition of the rival Heartware have hastened the transformation from the prototype to the device we know today.

Combining the dimensions and implantation site properties of Heartware with superior outcomes compared with HM II and zero pump thrombosis, put the HM 3 in the position of becoming the new standard in treating refractory advanced heart failure. The 20 years of evolution have yielded a great product.

EARLY EMCO SUPPORT RESCUES A PATIENT WITH FULMINANT ACUTE MYOCARDITIS

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Introduction: Myocarditis represents an inflammation of the myocardium which can affect also healthy individuals. Left untreated it can lead to cardiac failure, myocardium infarction, stroke, arrhythmias and sudden death.

Case report: A 35-year-old male patient without significant clinical history was admitted with sudden onset anterior thoracic pain, posterior thoracic pain, and dyspnea. The initial clinical picture was of acute cardiogenic pulmonary edema with severe hypoxemia. Despite aggressive therapy, the clinical state was aggravated with hypotension, hypoperfusion and hyperlactatemia. The coronary angiography excluded coronary artery disease. Based on the laboratory, clinical and echocardiographic findings we suspected acute myocarditis and decided circulatory mechanical support with veno arterial ECMO. An inflow cannula was inserted into the left femoral artery and an outflow cannula was inserted into the right atrium via the right femoral vein, under TEE guidance. The cardiogenic shock was remitted in the first hours after ECMO implantation. After improvement of the left ventricle ejection fraction, ECMO was explanted after 10 days of support, under general anesthesia with patch angioplasty of the left femoral artery. The patient presented surgical site infection and wound dehiscence at the left femoral access site. We used negative pressure dressing which permitted secondary wound closure with a favorable result.

Conclusions: Venous arterial ECMO support is an effective approach for patients with fulminant myocarditis and is associated with good survival rate and outcome. Negative pressure wound therapy is increasingly used in our clinic to treat wound infection and dehiscence.

ANGIOVAC ASPIRATION SYSTEM

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Purpose: The AngioVac catheter system is a suction device designed for removal of intravascular material using extracorporeal veno-venous bypass circuit. The purpose of this study is to present the outcomes in patients treated with the AngioVac aspiration system and to discuss its efficacy in different vascular pathologies.

Materials and Methods: We retrospectively reviewed the cases of two patients treated, during last year, with AngioVac for right atrial thrombus. The preferred surgical access were both the common femoral veins and the patients were put on veno-venous bypass.

Conclusion: The AngioVac system is an interesting and promising device for removal of bulky thrombus. It has the potential to replace open cardiopulmonary surgery, in cases that thromboembolic disease is affecting main pulmonary arteries, in central line associated thrombus, and even in cardiac vegetation and tumors. The setup and substantial cost may limit its application in straightforward cases. More studies are needed to establish the utility of AngioVac in the treatment of intravascular and intracardiac material.

IMAGING IN CARDIOVASCULAR MEDICINE

TRANSCATHETER TREATMENT OF MITRAL REGURGITATION

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Mitral regurgitation (MR), either Degenerative or Functional, is the most common valvular heart disease and it increases with age, affecting about 1 in 10 people older than 75 years. MR, when is moderate or severe, has a strong impact on survival and re-hospitalisation. Guidelines pose in Class IA the surgical treatment of MR. Despite this, more than 50% of patients does not receive surgery because the old age, and the presence of comorbidities giving a high surgical risk. Moreover, the results of surgery for functional MR are scarce with high rate of recurrence and low long term survival. Therefore, transcatheter mitral valve repair or replacement faces an unmet need for a large subset of inoperable or at high risk patients. A large experience is now been reached for treating aortic valve disease and thousands of high-risk patients have been treated successfully, in particular those with severe aortic stenosis. In contrast, the experience of transcatheter mitral valve treatment started more recently, and even if a large number of devices for mitral valve repair or replacement are in an experimental phase only, few are already available. Mitraclip is largely the most common technique for mitral valve repair with more than 40000 patients treated with degenerative or functional MR. The success rate in reducing MR < 2+ is about 85% with excellent long term clinical result in terms of improvement of functional status. Transcatheter anuloplasty is another new interesting technique. A new era is starting now for transcatheter Mitral Valve replacement (TMVR). CE Mark studies are in progress for two trans-apical devices (Tiara and Tendyne) and many new mitral valve are under development.

CARDIAC MRI - EXPERIENCE OF THE NEUROMED DIAGNOSTIC IMAGING CENTER

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The objective of the current paper is to present the experience of the NEUROMED Imaging Diagnostic Center Timisoara in exploring the heart through cardiac magnetic resonance.

The pathology explored by this method is extensive and complex, being represented by malformative cardiac pathology, identification and characterization of lesions caused by coronary disease, accurate assessment of ventricular volumes and ejection fractions, both in the left and right ventricles, the evaluation of primary and secondary cardiac tumor formations, as well as the identification of inflammatory myocardial lesions, etc.

At NEUROMED Clinic, the method has been applied since 2007, so far over 650 patients, both adults and children, have been explored.

Most of the cases investigated by this method were atherosclerotic coronary artery disease, inflammatory pathology and congenital malformative, pre and postoperative pathology.

Morphological characterization of cardiac structures, evaluation of parietal kinetics, accurate identification of the affected myocardial areas after the administration of contrast media and the possibility of pre- and post-therapeutic evaluation, make the exploration of the cardiac MRI a powerful diagnostic tool with high sensitivity and specificity, which should not be absent from the modern diagnosis of heart disease.

POST-ACUTE MYOCARDIAL INFARCTION ASSESSMENT OF REGIONAL AND GLOBAL MYOCARDIAL FUNCTION BY CMR

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After a myocardial infarction a great number of pathophysiological conditions can be identified, each of them having a relevant role in terms of patient handling and prognostic implication. Residual myocardial function, presence/location and extension of scar, presence of viable myocardium and inducible ischemia have to be systematically assessed for a rationale and individualized treatment. Cardiac Magnetic Resonance (CMR) is the ideal technique to obtain a comprehensive, parametric assessment of all of these aspects in patients with a recent or chronic myocardial infarction. The standard examination is usually performed to assess residual global myocardial function and to characterize the post infarction scar differentiating between viable and non-viable myocardium using the Late Gadolinium Enhancement (LGE) technique. Further possibilities rely on the use of pharmacological stress (low dose dobutamine) for more specific viability assessment and High dosage dobutamine or dipyridamole or adenosine to identify the presence of inducible ischemia. Actually, CMR offers several advantages with respect to other imaging techniques for the assessment of myocardial ischemia. In fact, besides the detection of new/worsened regional contractile abnormalities, the detection of regional perfusion abnormalities represent nowadays a highly standardized and efficient approach for this task.

Conclusion: CMR represents the more flexible and comprehensive diagnostic tool to assess regional and global myocardial function in post-acute myocardial infarction. Morphological and functional pathophysiological aspects can be efficiently depicted either in baseline or during pharmacological stress supporting a personalized decision-making process.

EFFICACY OF EPICARDIAL ECHO IMAGING FOR DIFFUSELY DISEASED AND NARROWED CORONARY ARTERY DURING CORONARY ARTERY BYPASS GRAFTING

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Objectives: Revascularization of diffusely diseased and extremely narrowed coronary artery is frequently challenging. We report here the efficacy of intraoperative epicardial echo imaging to evaluate target coronary arteries and determine optimal anastomotic site.

Methods: From January, 2015 to March, 2017, 141 patients underwent isolated CABG in our institution. Intraoperative epicardial echo imaging was evaluated in patients with diffuse coronary artery disease, chronic total occlusion lesion and inconsistency between preoperative angiographic findings and intraoperative findings.

RESULTS: Mean number of distal anastomosis was 4.1 per patient. Mortality was 0%. Early graft patency of ITA was 100%. Among these patients, we experienced that epicardial echo was useful to demonstrate that the lumen of the distal coronary artery which was not detected by preoperative coronary angiography was present in patients with chronic total occlusion lesion. We also experienced that that epicardial echo demonstrated the lumen of the distal coronary artery was not present due to a diffusely diseased coronary artery. In such a case, we performed onlay patch grafting with or without endarterectomy to achieve complete revascularization. Patency of anastomosis with extremely narrowed coronary arteries, less than 1 mm in diameter was 95%.

Conclusions: Epicardial echo imaging may prove very useful to assess target vessels and to determine optimal anastomotic sites. Aggressive revascularization of diffusely diseased and extremely narrowed coronary arteries, even less than 1 mm in diameter, might be technically possible if epicardial echo demonstrates that the condition of the distal coronary artery warrants CABG, that is to say, that the lumen of the distal coronary artery is present.

CT EVALUATION OF CONGENITAL HEART DISEASES - ADVANTAGES AND PITFALLS

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Congenital hearts diseases (CHD) are the most frequently accounted congenital malformations with an incidence of about 4–6/1000 live births worldwide. Due to its high spatial and temporal resolution, computed tomography (CT) is increasingly used in evaluation of CHD. The aim of our study was to analyse and illustrate the advantages, limits and possible errors in CT evaluations of CHD in a group of 42 infants and small children (aged 1 day – 36 months) referred to the Institute of Cardiovascular Diseases from Iasi, Romania for diagnosis and treatment of CHD during September 2014-September 2015. All CT examinations were performed by the same team using a Siemens Somatom Definition Flash machine. CT succeeded in clarifying particular morphological aspects (ex. stenosis type and location, aortopulmonary collateral vessels) regarding structures difficult to assess by echocardiography due to limited window and lung interposition (right ventricular outflow tract, aorta and coronary arteries, pulmonary trunk and arteries, drainage of systemic and pulmonary veins, ventriculoarterial and ventriculoatrial connections). CT defined spatial relationships of cardiovascular structures with adjacent organs, and identified associated extracardiac vascular or non-vascular malformations. CT performance was limited in infants and small children by the small amount of perivisceral fat, high heart rate, lack of cooperation (possible motion artefacts) and the need of dose reduction (all patients were scanned using ultrafast low-dose protocols). Interpretation errors occurred especially in case of very small vascular structures (ostia of coronary arteries, emergence of hypoplastic vessels) and agitated children (motion artefacts). In conclusion, CT is a useful method for morphological characterisation of cardiovascular structures in children with CHD in a preoperative setting without offering any functional information and accurately depicts extracardiac vascular and non-vascular malformations that cannot be assessed by echocardiography.

IDENTIFICATION AND CHARACTERIZATION OF CONGENITAL HEART MALFORMATIONS USING CTA

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Congenital heart defects are defined as defects in cardiac structures present at birth and occur at 0.6-0.8% of the total number of births.

Exploring congenital heart abnormalities using CTA offers a number of benefits in terms of patient comfort as well as information provided to the cardiologist and cardiovascular surgeon.

Using scanning protocols with low kilovoltage (70-80 kV), no ECG synchronization for children, reduces scanning time and exposure to ionizing radiation, giving very good image quality.

Volumetric and multiplanar reconstructions provide images that allow the identification of congenital anomalies and their characterization.

Within the activity carried out in the NEUROMED Imaging Diagnostic Center in Timisoara, we have explored over 500 cases of children with congenital heart defects, ages between 5 hours and 24 years, most of them with the Fallot tetralogy, followed large vessel transpositions, aortic coarctation, and venous return abnormalities. I have also encountered cases of the unique atrium, single ventricle, coronary fistula, persistent arterial channel and common arterial trunk.

The large number of cases investigated, the extensive pathology investigated, the promptness of response to urgent requests (some cases of major surgical emergencies), and the positive feedback we received about the investigated casuistry make CT angiography an extremely useful method of investigation In the modern and complex diagnosis of pediatric cardiac malformation.

MEDICAL IMAGING IN TAVI PLANNING

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Development of electrocardiographically (ECG) gated multidetector computed tomography (MDCT) had a significant impact in cardiovascular imaging both in preoperative planning and postoperative evaluation of surgery. Due to its improved spatial and temporal resolution and its ability to produce three-dimensional, dynamic and multiplanar images, MDCT assumes an integral role in characterization of graft patency, congenital heart diseases interventions, aortic procedures, aortic valve prostheses, and endovascular devices, especially transcatheter aortic valve implantation (TAVI). In the early days of TAVI, there was a reliance on two-dimensional echocardiographic imaging for annular assessment with an under-appreciation of the non-circular configuration of the aortic annulus. MDCT allows nowadays the reconstruction of the annulus in its true axis using standard double oblique transverse reconstruction that has now been well described and can be performed in a reproducible fashion. MDCT is able to produce reproducible multiplanar reformations that permit a thorough understanding of the patient-specific geometry, thus moving the integration of MDCT into device selection from theory to reality. The aim of the current paper is to describe the systematic imaging approach to aortic root and annulus assessment for patients undergoing TAVI by emphasizing the role of MDCT as used at the Cardiovascular Diseases Institute.

INFECTIONS IN CARDIOVASCULAR SURGERY

THE NOVEL TECHNIQUE OF LONGITUDINAL STERNAL FIXATION IN MANAGING THE COMPLICATED STERNUM

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Objective: While infection following median sternotomy occurs in only a small population of patients with incidence reported at 1.32%, mortality from mediastinitis is currently reported as high as 33% [1,2]. Failure of the sternum to reunite carries an incidence of 0.3-5% and increases the potential for mediastinitis [3,4]. Various forms of sternal fixation have been introduced, whereas traditional sternal wires remain the most commonly used. We introduce a novel fixation technique that has been used to successfully salvage sternal fixation while treating the underlying infection.

Methods: From 2013 to 2017, eight patients met criteria of having had sternotomies with culture-confirmed postoperative chest wall infection. All patients were treated with serial debridement and culture-selected antimicrobial therapy. Once gross infection was controlled, the sternum was fixated with a rigid longitudinal plate and screws on either side of the sternotomy. Traditional sternal wires were then used to reduce the sternotomy. Using this method, longitudinal sternal fixation encompassing the entire length of the sternum was performed allowing placement of additional wires in the area of the xyphoid process, thus extending the line of coaptation and reinforcing the lower pole of the wound, a previously unaddressed area of weakness.

Results: In all patients, the sternum was salvaged without need of sternectomy. Mechanical ventilation requirements were also minimized in between surgical procedures by providing a physiologically intact chest wall. In patients who developed infection with sternal hardware in place, successful treatment of the infection was achieved without hardware removal. No patients died from sternal wound infection in our series.

Conclusion: Sternal dehiscence and mediastinitis remain a potentially devastating complication following median sternotomy. Our technique of plate and screw fixation of the sternum united with sternal wires offers a potential reconstructive option and may assist in infection resolution, especially in the case of sternal fragmentation which is poorly handled by other modalities. The sternal plates additionally serve to secure any horizontal instability of the sternum or ribs, and serve as a rigid platform for the transverse wires to purchase. Further study is required to determine the degree of long-term healing and more specific infection clearance patterns.

DOES DEEP STERNAL WOUND INFECTION HAVE AN EFFECT ON LATE MORTALITY?

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Sternotomy and leg wound after harvesting vein are the most common infected sites following cardiac surgery. The infections are revealed in the first month or even years after the procedure and can be deep or superficial. Specifically, the deep sternal wound infection (DSWI) is a rare complication with an incidence of 1% to 5% but can lead to mortality up to 10-20% which is constant during the last two decades.

Apart from these devastating early results, DSWI, which may be called mediastinitis, has been reported to have a negative impact on late mortality, some of the studies claiming that there is an increase in late deaths two to three folds. In contrast to these findings, some others demonstrated that there is no impact of DSWI in late deaths when it is treated properly by conventional or by negative pressure applying treatment.

APPLICATION OF V.A.C. THERAPY AMONG PATIENTS WITH MEDIASTITIS AFTER CARDIAC SURGERY - OUR EXPERIENCE

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Introduction: After a cardiac surgery, the mediastinitis can cause a serious problem that would require the patient to be kept longer in the hospital. This could lead to a more expensive treatment, an increase in morbidity and mortality. Depending on the risk factors, according to the American association of nosocomial infections, the percentage of mediastinitis among patients with cardio operations varies between 0.5% and 5%, while mortality rate can reach 40%. The frequency that mediastinitis appears among patients with ACB is between 0.12% and 2.33%.

Objective: To demonstrate our method of using VAC therapy for treating patients with postoperative mediastinitis.

Materials and methods: From 1.01.2013 until 30.06.2017, there were 2 430 operated patients with ECC и ACB – OPCAB. Due to postoperative mediastinitis, VAC treatment was used on 13 patients (0.53%).

The wound secretion showed the following microbiological sources:

- Gram-positive – *Staphylococcus haemolyticus*
- Gram-negative (Pathogenic) - *acinetobacter bauman*
- *Candida albicans*

Results:

The findings, following the data from the patients' risk factors and also the percentage of mediastinitis in the hospital, matched the records shown in already existing professional literature on the subject.

The hospital follows very well-known and established methods while preparing the patients for operations (hair removal, antiseptic treatment of the skin) and perioperative antibiotic prophylaxis.

The total amount of patients that were treated with VAC therapy due to postoperative mediastinitis, is 13 or 0.53% (13/2430). The number of dead patients is 7(43.75%).

Conclusion:

A cardiac surgery very rarely causes a postoperative mediastinitis but it has a high rate of morbidity and mortality. Using VAC therapy for those rare patients, it has been proven to be an effective method to treat them against mediastinitis.

STRATEGY OF TREATMENT ENDOGRAFT INFECTION AFTER TEVAR

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The review of publications by foreign authors on infectious complications after thoracic endovascular aortic repair (TEVAR) and presentation of own case of successful treatment of endograft infection in thoracic aorta. This topic is absolutely not reflected in domestic journals. The data about the frequency, timing and possible causes of complications. The diagnostic issues are also discussed. Demonstrated extremely dangerous of aortic endograft infection, difficulty of early diagnosis and as a rule unsatisfactory outcomes. Marked possible ways of preventing this complication and improve the results of treatment of this extremely severe category of patients.

INFECTIVE ENDOCARDITIS - RISK FACTORS, ETIOLOGY, DIAGNOSIS, THERAPY AND RESULTS. A 16-YEARS SINGLE CENTRE EXPERIENCE

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Introduction: The purpose of this paper was the assessment of major risk factors, etiology, diagnosis methods, and therapeutic results for patients with infectious endocarditis admitted into our service between January 2001 and December 2016.

Material and methods: A number of 262 consecutive patients operated for infective endocarditis in our clinic were included in this study. The major risk factors taken into consideration were the presence of intracardiac devices, pre-existent valvular lesions, and history of complex medical procedures. The surgical treatment consisted of valve replacement, accompanied in some cases by additional procedures.

Results: Patients' age ranged between 7 and 84 years, and the male sex was preponderant (79.4 %). At least one major risk factors was identified in all (100 %) of patients. The etiology was determined preoperatively (positive hemocultures) in 91 (34.7 %) cases. The diagnosis was mainly established by transthoracic echocardiography, but in 28.6 % of cases, additional imagistic procedures were necessary. Early postoperative mortality was 15.3 %.

Conclusions: Despite all recent diagnostic and therapeutic progress, infective endocarditis still represents a complex cardiac pathology, with challenging implications on long-term therapeutic results and quality of life.

CLINICAL, MICROBIOLOGICAL AND THERAPEUTIC CONSIDERATIONS IN INFECTIVE ENDOCARDITIS

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Introduction. Being a true systemic infection and a life-threatening disease associated with high mortality, infective endocarditis need to have a specific treatment based on the eradication of the involved agent by antibiotherapy.

Aim: The evaluation of the clinical and bacteriological status in order to establish a right antibiotic scheme in patients with infective endocarditis.

Material and methods: Retrospective study using clinical, microbiological, and echocardiographic findings from 79 patients with infective endocarditis, admitted to the Iasi Infectious Diseases Hospital between January 2010 - January 2017.

Results: The positive diagnosis of infective endocarditis was made based on Duke Criteria. Blood cultures were positive in almost 55% of the cases, and the etiological agents were *Staphylococcus* spp., *Streptococcus* spp., *Achromobacter* spp., *Klebsiella* spp., *Enterococcus* spp., *E.coli*. In 95% of the patients, the echocardiographic appearance was a major criterion for diagnosis. The first choice treatment was a combination of aminopenicillin and aminoglycoside in 26% of the cases, the last generation treatment being used as first choice treatment in 18% of the all study patients. Ten percent of our cases required transfer to cardiac surgery units. The favorable evolution was registered in 63% of the cases.

Conclusions: The combined antibiotherapy used in agreement with the current guidelines, remain the key to healing success.

Key words: ENDOCARDITIS, DUKE CRITERIA, ANTIBIOTHERAPY.

SURGICAL TREATMENT OF NATIVE AND PROSTHETIC INFECTIVE ENDOCARDITIS EARLY AND LATE RESULTS (OUR EXPERIENCE)

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Introduction: The incidence of infective endocarditis ranges from 3 - 10 episodes/100 000 person-years. About 40% to 45% of all patients with infective endocarditis undergo surgical treatment.

Goal: To present our experience in surgical treatment of patients with infective endocarditis.

Materials and methods: The article presents data, collected in the period from 2011 to June 2017 include 40 patients - 27 males (average age 52 years old) and 13 females (average age 57 years old) with infective endocarditis, operated in our department. Twenty six cases are evaluated as native valve endocarditis, two as endocarditis of pacemaker wire and seven cases as prosthetic valve endocarditis. In 22 cases the blood cultures are positive for microbiological agent. All operations are done through a full median sternotomy. During the interventions in 21 cases, on the affected valves were found vegetations, and in 2 patients - on pacemaker wires. Silicone catheter technique is used in 19 cases for reinforcement of the valve annulus.

Results: Early postoperative mortality is 7.5% (3 patients). One of the patients presented with paraprosthetic regurgitation at the second postoperative day and was surgically corrected. Follow-up examinations of twenty eight patients are performed at the first month after the operations. By all of them normal function of the prosthetic valves is confirm, without presence of paraprosthetic regurgitation. On the sixth month after the operation 14 patients came for follow-up and are without paraprosthetic regurgitation. One year after the operation eleven patients are estimated without paraprosthetic regurgitation. On the second year postoperatively six patients appeared for the follow-up and all of them are with normally functioning prosthetic valves. On the third year two patients are followed without paraprosthetic regurgitation.

Conclusions: The use of silicone catheter for reinforcement of the valve annulus at valve replacement procedures of patients with infective endocarditis shows good results in the early and late postoperative period regarding the absence of paraprosthetic regurgitation.

Key words: infective endocarditis, surgical treatment, reinforcement of the valve annulus

CARDIAC INFECTIONS IN HIV PATIENTS

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Bacterial endocarditis can be present in patients with human immunodeficiency virus infection (HIV). The risk of infectious complications in HIV patients has decreased with availability of highly active antiretroviral therapy (HAART). According to recent studies, infective endocarditis in HIV-infected patients, for the most part intravenous drug users, with a prevalence of 6.3% to 34% of HIV patients, but rare otherwise, is more commonly localized to the right-sided cardiac valves. The most frequent pathogens includes *Staphylococcus aureus* (>75% of cases), *Streptococcus pneumoniae*, *Haemophilus influenzae*, *Candida albicans*, *Aspergillus fumigatus*, and *Cryptococcus neoformans*. The survival from infective endocarditis, generally is similar in HIV-infected and HIV-uninfected patients (survival rate of 85% in HIV-positive patients compared with 93% in HIV-negative patients). However, patients with late-stage HIV infection have a 30% higher mortality with endocarditis than asymptomatic HIV-infected patients; this may be related to the degree of immunodeficiency. In our Clinical Hospital of Infectious Diseases „Sfanta Parascheva” Iasi, one case of infective endocarditis was reported in the last 7 years to a female patient borned in 1989, and diagnosed with C3 AIDS stage, and also having hepatic B virus infection. The clinical manifestations were represented by prolonged fever and astenia, and echocardiographic was described the presence of a vegetation on aortic valve. The etiology was not identified (negative blood culture), and the evolution was favorable under antibiotherapy according to guidelines.

In conclusion, the correct and specific therapy is absolutely needed in these patients in order to save their life. **Key words:** HIV, INFECTIVE ENDOCARDITIS, TREATMENT.

MINIMALLY INVASIVE & TMVR

STRATEGIES IN MINIMALLY INVASIVE MITRAL VALVE REPAIR

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Minimally invasive mitral valve surgery (MIMVS) is an alternative to median sternotomy for mitral valve repair. However, MIMVS is technically more demanding than valve surgery through a median sternotomy and has been known to involve a higher rate of reoperation, increased postoperative bleeding, thromboembolic events, poor visualization, and longer operative times. We introduced this procedure at our institution in 2001 especially for patients with degenerative mitral valve disease and have operated over 1,000 cases by now. Over the years, we have developed a number of technical strategies to optimize this procedure so that it is now a straightforward and standard approach with a low complication rate and perfect results. In my presentation I would like to share our experience and strategies for successful mitral valve repair with you.

MINIMALLY INVASIVE AORTIC VALVE SURGERY - BETWEEN FASHION AND ROUTINE TECHNIQUE

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Introduction: In our daily surgical activity, we are looking for the new techniques, better for our patients and also for team satisfaction. Modern cardiac surgery requires all best choice for the patient: robotic surgery, TAVI, minimally invasive techniques, totally video-assisted procedures. Some of them are complex and more expensive.

With median sternotomy with the help of extracorporeal circulation a classical approach for the aortic valve surgery we have good results, but in competition with TAVI, our patients are asking for less invasive surgery. The patients like to have the list more psychological and aesthetics comfort and the surgeon to become more competitive. We started our minimally invasive aortic valve surgery 5 years ago and we are doing for selective patients these procedures.

Material and Method. At the beginning of 2012, we started our minimally invasive cardiac surgery program for aortic and mitral valve surgery, with a video-assisted system.

We operated on over 120 patients with aortic valve disease, using in the majority of the cases ministernotomy and by necessity right thoracotomy.

In our attempt, we tried to use the same surgical instruments, mechanical or biological aortic valve, cannulas to remains on the same expensive of the procedures. Central cannulation was used in all the possible cases, in order to avoid femoral local complications.

Results: We lost 2 patients with a mortality of 2,1%, similar with full median sternotomy. In one case after femoral cannulation we got an acute severe retrograde

In 4 cases reexploration for bleeding was necessary. The remaining patients had a normal postoperative evolution with discharged within one week.

Conclusion. In spite of very attractive surgery for the patients, we have not seen any advantages but psychological and aesthetic. Perhaps for the young patients is more attractive to return quicker to physical activity. However, the operative risk is increasing because of small access and longer aortic cross time. Better, patients selection and daily practice can improve the results.

ENDOSCOPIC MINIMALLY INVASIVE MITRAL AND TRICUSPID VALVE SURGERY: 20 YEARS' EXPERIENCE IN ALMOST 3000 PATIENTS

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Since 1997, almost 3000 patients have undergone totally endoscopic mitral valve repair at the Onze-Lieve-Vrouw Clinic, Aalst, Belgium. We describe the approach to the mitral and/or tricuspid valve using Port-Access (Edwards Lifesciences, Irvine, CA) technology to facilitate peripheral cannulation, endo aortic balloon clamping of the ascending aorta, and access to the mitral valve through a non-rib-spreading right mini-thoracotomy.

The successful conduct of endoscopic mitral/tricuspid valve surgery requires the coordination of perfusionists, nurses, anesthesiologists, and surgeons. The procedure is performed under general anesthesia with a double-lumen endotracheal tube. Transesophageal echocardiography (TEE) plays a vital role in venous cannulation, in endo aortic balloon placement, and in assessing the valve both pre- and post- cardiopulmonary bypass (post-CPB).

Femoral-femoral CPB with separate drainage of the superior vena cava is utilized along with endo-aortic clamping. Cold crystalloid cardioplegia is delivered in an antegrade fashion via a port on the endoballoon. Long shafted instruments are used to carry out the procedure, while a 10-mm 3D endoscope is used to optimize visualization of the intrathoracic cavity and valvular apparatus. In our experience, a team approach with well-trained specialists has resulted in excellent results. From 1997 till February 2017, 2893 patients were treated endoscopically. 365 patients were redo cases. The 30 day or in-hospital mortality was 1.7% in primary operations and 7.4 % in reoperations (log Euroscore in redo's 21%). The repair rate of the mitral valve in non-calcified Carpentier's classification I or II was 99.2% and 95.8% respectively. In 21.6 % of the cases mitral and tricuspid valves were treated simultaneously. A MiniMaze procedure to treat atrial fibrillation was performed in 28.6% of the surgeries. In the whole series (primary and redo patients) the incidence of CVA/TIA was 1.3%.

Conclusion: Since 20 years the endoscopic technique is our preferred and standard approach to the isolated mitral/tricuspid valve. In an experienced well trained team it is safe, efficient and provides excellent results even in the most complex and redo cases.

VARIOUS TECHNIQUES OF OPERATIONS OF LEFT VENTRICULAR POST-INFARCTION ANEURYSM

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Introduction: Acute myocardial infarction can result the development of a dyskinetic or akinetic left ventricular aneurysm which may in turn cause congestive hear failure, ventricular arrhythmias, and the formation of mural thrombi.

Objectives: The aim of our study was to compare clinical results of endoventricularplasty of left ventricular with and without patch.

Methods: From 2008 to 2017 939 patients operated on for postinfarction left ventricular aneurysm. 605 patients were operated with the conventional technique and 334- with the endoventricular plasty. 238 patients (Group 1) were operated with endoventricular plasty without patch and 96 patients (Group 2) - with endoventricular plasty with patch. The two groups were matched with respect to age, comorbid risk factors, functional class, urgency of the operation and concomitant procedures. Mean age was 53,8+9,0. All patients presented with symptoms of heart failure and angina. The preoperative NYHA functional class was: 1 in 27(8,1%) patients, 2 in 109(32,6%) patients, and 3 in 179(53,6%) patients, 4 in 19(5,7%) patients.

Results: Mean graft number was 2,3+1,2. In 134 (40.1%) patients mural thrombi were identified and surgically removed. The mean length of hospitalization was 15,6+9,0 days in Group 1 and 8,0+3,9 days in Group 2. Hospital mortality in Group 1 was 1,3% and 2,1% in Group 2. Improvements observed in NYHA classes, left ventricular ejection fraction and end-diastolic volumes, end-systolic volumes in both groups.

Conclusions: Ventricular function in patients with left ventricular aneurysm improved after both techniques. In mean cases we can use endoventricular plasty of left ventricular without patch. Using endoventricular plasty with patch is necessary only when aneurysm injury all walls of LV.

TRANSCATHETER MITRAL VALVE REPLACEMENT: FROM EUREKA TO BENCH TO MARKET

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Alain Cribier has capitalized on earlier ideas of replacing one's valve by means of catheters without cardiopulmonary bypass and showed the world its feasibility by performing the first human procedure in 2002. The field of Transcatheter Aortic Valve Replacement (TAVR) has since taken off and recently became an accepted treatment for severe aortic stenosis in patients at high and intermediate risk for surgical replacement. While the interest of replacing diseased mitral valves by catheter means is as old that of TAVR's, the transcatheter mitral valve replacement (TMVR) field has not experienced a similar boom due to the complexity of anchoring and securing a valve stent right in the middle of the heart without any adjacent rigid support structures such as aorta. This is a journey from the enlightening ideas for anchoring a mitral valve stent to securing intellectual property and tribulations of understanding the results of animal studies and finding the proper ways of advancing valve development. Working with Tendyne Medical, a startup company that had just one employee, its CEO until it assembled over 50 talented individuals before its swift acquisition by Abbott was not only a medical and engineering bending of the mind but also a course in leadership and entrepreneurship.

TECHNICAL TIPS AND TRICKS FOR THE HEART VALVE SURGERY THROUGH A MINI-STERNOTOMY APPROACH

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Objective: The aim of this study was to report on our experience after 7 years of practicing partial upper median sternotomy in surgery of cardiac valves and to present technical tips and tricks when using this approach.

Methods: The study included all the patients who underwent minimally invasive cardiac valve surgery through the partial upper median sternotomy, during the period from December 2008 to September 2015. We analyzed the data on mean age of patients, type of valve surgery (aortic or mitral) they underwent, postoperative day of extubation, mean extracorporeal circulation time, mean duration of hospital stay (and postoperative hospital stay), as well as on occurrence of postoperative complications (bleeding that required surgical revision or drainage of pericardium, surgical wound infection, CVI, and instability of sternum that required resuture).

Results: During the observed period, in the Institute for Cardiovascular Diseases of Vojvodina, 96 mini-sternotomies were performed, with 92 aortic valve replacements (95,83%), of which 88 (91,67%) due to aortic valve stenosis, and 4 (4,17%) due to aortic valve insufficiency; and 4 mitral valve replacements (4.17%), of which 1 (1,04%) due to mitral valve stenosis, and 3 (3,12%) due to mitral valve insufficiency. The mean age of the patients was 65.57±10.21 years - 42 (43.75%) were females, and 54 (56.25%) were males. On the day of operation 50 (52.08%) patients were extubated; 41 (42.71%) were extubated on the first postoperative day; 2 (2.08%) were extubated on the second postoperative day; and 1 (1.04%) patient was extubated on the seventh postoperative day (2 patients were not extubated). On the average, time of 0.52 days (12.5 hours) passed from operation to extubating of the patients. Mean extracorporeal circulation time was 93.56±30.36 minutes. Mean duration of hospital stay was 18.68±11.07 days (postoperative hospital stay was 11.86±6.75 days). Postoperative complications included: 2 (2.08%) surgical revisions of bleeding and 2 (2.08%) drainages of pericardium; 2 (2.08%) surgical wound infections; 3 (3.12%) CVI; and 1 (1.04%) resuture of sternum. Conversion to total median sternotomy was performed on 3 (3.12%) patients. Death in perioperative period occurred in 2 (2.1%) cases.

Conclusions: Partial upper median sternotomy still represents an optimal surgical method for interventions on the cardiac valves (especially aortic valve) and whole ascending aorta, with a few significant advantages compared to the surgical approach of total median sternotomy.

MITRAL VALVE

PAPILLARY MUSCLE RELOCATION FOR FUNCTIONAL MITRAL REGURGITATION

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Restrictive mitral annuloplasty (RMAP) is a standard procedure to treat functional mitral regurgitation (MR), but is associated with a high recurrence rate especially in severe tethering mitral valve. Additional performance of papillary muscle relocation (PMR) is expected to relieve mitral valve tethering and to reduce the recurrence rate, but its practical method has not been established. We have been investigated the influence of procedural difference in PMR on mitral valve configuration and surgical outcome. In this lecture, I would like to discuss the effectiveness and limitation of PMR in the surgical treatment of functional MR.

FIFTY CASES OF ANTEROLATERAL MINI-THORACOTOMY FOR SURGERY OF THE MITRAL AND TRICUSPID VALVES: THE WAY WE EVOLVED

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Objective: To evaluate retrospectively the types and numbers of complications connected with the right anterolateral mini-thoracotomy as an access to the mitral and tricuspid valves and to show the ways we managed them, developing our MiCS program.

Methods: We conducted a retrospective review of 50 patients taken to the operating room for minimally invasive atrioventricular valve surgery from December 2012 till June 2017. Mean age was 46y (21-65) and 50% were male. All patients have good ejection fraction above 60%. All patients were operated through a right anterolateral mini-thoracotomy, transthoracic aortic clamp and vacuum assisted venous drainage.

Mean follow-up was 30 days and 100% complete.

Results: The procedure was performed in all patients with mini-thoracotomy, with only one conversion to sternotomy (2%). The level of mitral repair was 50%. Re-exploration for bleeding in only one case (2%), neurological disorders 2 (4%) patients, partial or complete pneumothorax in 5 (5%) patients. Hospital deaths 0%. No other major complications.

Echocardiographic evaluation reveals on the 30d day after the operation, 49 (98%) patients have mitral regurgitation 0-I degree, and only one (2%) II degree MR.

Conclusions: Right anterolateral mini-thoracotomy as an approach to the atrioventricular valves is a highly sophisticated method. When it is performed in definite manner and major principles are respected it is very safe and easy reproducible and brings outstanding surgical as well as cosmetic results for the patient.

HEART FAILURE AND MITRAL VALVE

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In the modern world, heart failure has become epidemic, with the prevalence of 0.2% in the population, and with the great medical and socioeconomic impact. Moreover, the prevalence of terminal heart failure, needing exit strategies as heart transplantation (HTx) or mechanical circulatory support (MCS) has also increased much, following the general ageing of the population.

Mitral valve has always been in the center of the pathophysiologic mechanisms of the heart failure. The pathogenesis of the mitral valve disease changed over the last several decades and shifted from the rheumatic to the degenerative pathology, so the mitral regurgitation (MR) has become one of the landmarks of the developed heart failure, with the majority of patients with heart failure develop some degree of it.

However, the pathophysiological process is even more complicated, as cardiomyopathic type of heart failure may facilitate development of MR, also the primary MR caused by any structural reason may facilitate ventricular dilatation and subsequent heart failure.

Both processes, structural changes and myocardial dilatation and weakening, feed each other and very frequently lead to the vicious circle of terminal heart failure. Therefore, it is of essential importance to determine proper type and timing of intervention to the mitral valve at any stage of the heart failure process.

In this paper, diagnostics, strategies and techniques to deal with mitral valve in the setting of heart failure, are described.

PPLICATION TECHNIQUE FOR POSTERIOR LEAFLET PROLAPSE: POTENTIALS AND LIMITATIONS

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Objectives: There are various techniques for the posterior mitral leaflet repair, triangular resection, quadrangular resection, plication and neochordae implantation and so on. The resection and suture technique (so called French correction) carried good long-term results with more than 90% reoperation free ratio. Another technique, so called American correction or Respect rather than Resect technique, recently has been high lightened. However, some reports are concerning about the long durability of Gore-Tex suture. Some reports showed rupture of Gore-Tex sutures. Some paper reported the possibility of elongation of it. And the decision of the length of Gore-Tex suture sometimes complicated. In 1956, McGoon reported the plication technique for the posterior leaflet prolapse, which is very simple and able to be repeated when the intraoperative findings look complete.

Methods and results: At Kanazawa University from 2015 until 2016, there were 95 mitral operations. Mitral valve replacement was performed on 45 patients including 2 conversions. Mitral valve repair was performed on 50 patients and 36 patients underwent MVP for type II dysfunction. MVP was carried put without any neochordae on 26 patients (plication 14, commissure fixation 9, triangle or quadrangular resection 3). Even for the patients on whom neochordae was used, plication technique was added on 3 patients.

Conclusions: Plication technique has many advantages, the surface of mitral leaflet becomes smooth, repeatable, no fear of too much resection, the potential to convert into neochordae technique. However, there are some limitations. We would like to describe the technical procedures on video and discuss about indication expansion and limitations of plication technique for mitral valve repair.

SOLVING EVERYDAY ISSUES IN CARDIOVASCULAR MEDICINE

OCCLUSION OF THE TRUNK OF THE LEFT CORONARY ARTERY CAUSED BY GIANT ASCENDING AORTIC PSEUDOANEURYSM AFTER REPLACEMENT OF ASCENDING AORTA AND AORTIC VALVE - CASE REPORT

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We present the case of an 42-year-old patient with a significant personal medical history (ascending aorta and aortic valve replacement performed 8 years ago, resuscitated cardiac arrest 1 year ago, with the implantation of an AICD), with a positive stress test in the territorial service (EKG modifications in the area of the anterior descending coronary artery) that was send to our service for the effectuation of a coronarography. The coronarography highlights an occlusion of the trunk of the left coronary artery, with the filling of the anterior descending coronary artery and the circumflex artery by injecting into the right coronary artery. Also, an ascending aortic pseudoaneurysm was suspected after coronarography as the cause of left main occlusion. The CT examination with contrast highlights a giant ascending aortic pseudoaneurysm. A surgical procedure was performed, initially with partial cardiopulmonary bypass and femoral arteriovenous cannulation for sternotomy. After that, the left internal mammary artery and left radial artery were harvested. During total cardiopulmonary bypass, total arterial revascularization was used, alongside the correction of the pseudoaneurysm through resuturing of the proximal anastomosis. Postoperative, the patient presented acute renal failure, necessitating venovenous dialysis. After 7 days, the patient presented a severe form of superior digestive hemorrhage with duodenal artery fistula, which could not be treated through gastroscopy, requiring surgery. Ulterior evolution was favorable, the patient being discharged 30 days postoperative. The thoracic CT exam performed 30 days after discharge did not indicate pathological modifications. The particularity of this case is represented by the occlusion of the trunk of the left coronary artery, through the development of a giant ascending aortic pseudoaneurysm.

RARE CAUSE OF ACUTE HEART FAILURE IN THE ADULT - RUPTURED SINUS OF VALSALVA ANEURYSM UNMASKING COEXISTING PERIMEMBRANOUS VENTRICULAR SEPTAL DEFECT

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Sinus of Valsalva aneurysm is an uncommon finding, consisting of less than 1% of congenital heart defects. We present a rare cause of acute heart failure in a 46-year old patient presenting for acute onset of dyspnea at rest, paroxistic nocturnal dyspnea and progressive heart failure symptoms. Clinical examination revealed a hemodynamically stable patient with dyspnea and tachypnea, with peripheral edema and jugular venous distention, with icteric sclere and mild skin discoloration. Transthoracic echocardiography revealed rupture of Valsalva sinus aneurysm into the right ventricle, dilatation of right heart chambers and mild right ventricle dysfunction, severe tricuspid and mitral regurgitation, and bilateral pleural effusion. Transesophageal echocardiography confirmed rupture of Valsalva sinus aneurysm and persistent shunt between aortic root and right ventricle. Further evaluation consisted of coronarography showing normal coronary arteries and right heart catheterization confirming left-to-right shunt and moderate pulmonary hypertension. After being stabilized in the intensive care unit, the patient underwent emergency surgery for the resection of ruptured sinus of Valsalva aneurysm and glutaraldehyde fixed autologous pericardial patch repair with continuous suture, followed by mitral and tricuspid valve annuloplasty via median sternotomy and heart arrest during extracorporeal circulation. Intraoperative discovery of a small perimembranous ventricular septal defect required defect closure by two sutures of Prolene 2.0 with Teflon patches. Postoperatively the patient had an uneventful recovery and was discharged on POD 20 on a 3-months regime of oral anticoagulants. Clinical follow-up at 1 and 6 months after surgery showed improvement of cardiac function and total recovery of functional capacity.

LEFT VENTRICULAR RUPTURE FOLLOWING MITRAL VALVE REPLACEMENT - CLASSIFICATION, RISK FACTORS, TECHNIQUE OF REPAIR

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Background. Depending on the site and location of rupture, this complication is classified as type I (posterior atrioventricular groove), type II (posterior wall of the left ventricle at the base of the papillary muscle), and type III (area between atrioventricular groove and papillary muscles).

Methods. During the last 25 years of activity of our department we have registered 22 cases of LVWR and 3 perforations of coronary sinus, the complications caused by MVR.

The type 1 LV wall rupture was registered at 11 patients, caused by excessive decalcination of posterior leaflet, abscesses of the annulus fibrosus, iatrogenic factors.

The type 2 – registered at 4 patients, caused by parietal resections of papillary muscle, posterior myocardial infarction.

The type 3- surveilled at 4 patients that have been implanted the valves with bigger diameter, another cases by perforation with scaffold elements of the bioprosthesis and trauma by vent utilization.

Results.

In first group of LVWR were closed off pump by deep myocardial sutures, or sutures at the coronary sinus wall, using teflon or pericardia patches.

The second group of 14 patients has had repeated interventions with hemorrhage in extracorporeal circulation conditions, by application of a “sandwich” patches.

Full hemostasis was achieved in 4 of 8 patients in first group and in 11 from 14 patients in the second one

Conclusions: The mitral valve repair interventions should be made with a regard towards a the prophylaxis of LVWR (Combined surgical techniques are the most effective in definitive hemostasis.

FLOW-ENDOTHELIAL CELL INTERACTION IN EVERY DAY CARDIAC SURGERY

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Purpose: To define the interaction between endothelial cell and blood flow concerning signaling, mechanotransduction and cell response. Also, to describe how flow induced endothelial cells response has implications in cardiovascular surgical pathology.

Method: Studies dedicated to endothelial cell - blood flow interaction were considered for theoretical background. The endothelial proliferative response to low shear stress was correlated with anatomic details concerning aortic coarctation and discrete subaortic stenosis (congenital or acquired). Correlative between low shear stress and vessel bifurcations pathology was considered. Finally, two cases of prosthetic valve dysfunction explained by low shear stress induced endothelial proliferation were reported.

Results: Endothelial cell response to low hemodynamic shear stress explains the aortic coarctation, discrete subaortic stenosis and focal location of vessel bifurcations pathology. Also, low shear stress areas induce focal endothelial that can interfere with prosthetic valve function. Each pathologic example is associated with a clear hydraulic model.

Conclusion: The endothelial cell - Flow interaction is a nice example of how short is the way from cell biology to the operating room.

UTILIZATION OF MULTI-ARTERIAL GRAFTING WITH SEQUENTIAL GRAFTS: ONE YEAR INSTITUTIONAL EXPERIENCE

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This article is a retrospective study on the patients with coronary artery by-pass grafts operated in 2016 in our department. The policy in our department is to use multiarterial grafts (MAG) with both internal thoracic arteries (ITA) and radial artery (RA) for the left coronary branches. For right coronary artery (RCA) we use the RA if available for the young patients and if stenosis is over 90% or a saphenous vein graft (SVG). A number of 575 cardiac surgery on-pump procedures were performed by 4 senior surgeons in 2016. There were 215 CABG patients (37%) and 27 patients had non ischemic associated procedures. Four patients of the 188 coronary patients had a single vessel procedure and there were 184 multivessels CABG patients. We use both ITA in 116 cases (63%) as free pediculated grafts (49 cases) or with a Y graft (64 cases) and radial artery in 81 cases (44%). We rarely use a Y graft with RA on LITA (4 cases) or a composite graft with ITA and RA (5 cases). We realized MAG in 125 (67, 93%) cases with BITA/LITA+RA combined grafts but we also used SVG in 78 cases (42, 39%) mainly for the RCA. The majority (155 cases) had 3 anastomoses (83 cases) or more than 3 anastomosis (72 cases). We report a 2,7% mortality with 4 ischemic complications deaths and one death by sepsis and we had 2 cases with mediastinitis.

Conclusion: Multiarterial coronary grafting using BITA, RA +/- SVG is feasible and technically reproducible with good results in terms of mortality and mediastinitis. MAG is possible in 70% of patients without limits of age or at diabetic patients.

RIGHT VENTRICULAR DYSFUNCTION - ASSESSMENT AND PROGNOSTIC IMPLICATIONS IN CARDIAC SURGERY

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Objectives: Perioperative right ventricular (RV) dysfunction is common in patients undergoing cardiac surgery and has a major impact on clinical outcomes. The aim of our study was to assess the diagnostic tools by echocardiography and the prognostic implications of RV dysfunction in adult cardiac surgery.

Material and methods: We included 171 patients with left heart diseases and pulmonary hypertension (PH). We analyzed the impact of RV dysfunction on perioperative mortality and postoperative complications (pericardial, pleural, hepatic or renal); need for reintervention, intra-aortic balloon pump or pulmonary vasodilator drugs; mechanical ventilation>24 hours; intensive care unit length of stay; postoperative inotropic support duration.

Results: The mechanisms of postoperative RV dysfunction are multiple: perioperative ischemia, air emboli, changes in the right ventricle geometrics, harmful effects of the cardioplegic solution. The occurrence of RV dysfunction is accompanied by a significant increase of perioperative death rate, complications (longer hospitalization in the intensive care unit and longer mechanical ventilation, prolonged need for inotropic support and renal, hepatic and pericardial complications), and by an incomplete and late recovery of the RV function. RV dysfunction tends to improve over time, but not completely. The main determinant of the early outcomes in patients with PH undergoing cardiac surgery is RV adaptation to the pulmonary vascular disease rather than the absolute value of the sPAP. Conclusions: A complex and careful preoperative assessment of the right heart is mandatory. Surgical interventions should be realized in the early phases, before the onset of irreversible alterations in the pulmonary circulation.

MITRAL REGURGITATION - MODERN THERAPEUTIC METHODS

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Mitral regurgitation (MR) is prevalent in the general population. Disease progression, involving potentially irreversible left ventricular dysfunction, implies a poor prognosis for patients who do not receive appropriate treatment. Immediate surgery is indicated in those with severe MR in whom subclinical left ventricular dysfunction is suggested by echocardiographic measurements or the presence of symptoms, however minor. Patients whose symptomatology is unclear should be evaluated by exercise testing. Ischaemic mitral regurgitation is a distinctive valve disease, it is a pathology of the muscle rather than of the valve and the characteristics of the underlying coronary disease are important determinants of clinical presentation and prognosis. Important advances in the understanding of pathophysiology, assessment, and prognosis have occurred in recent years and confirmed that ischaemic mitral regurgitation has many specific features which differentiates it from organic regurgitations.

Surgical approaches to correct mitral regurgitation (MR) have evolved over 50 years and form much of the basis for percutaneous approaches to the mitral valve. Surgical mitral repairs have been more durable with the use of annuloplasty, but recurrent regurgitation hardly resulting in reoperation can occur.

Less invasive options in treating MR may encourage higher-risk patients to seek anatomic therapy, whether surgical or percutaneous. Rapidly evolving technology will continue to be a dominant driver of surgical approaches to MR, with increasing overlap and interaction with percutaneous approaches.

CORRELATIONS BETWEEN TEMPOROMANDIBULAR DISORDER AND CARDIAC INVOLVEMENT IN MARFAN SYNDROME

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Objectives: Establishing a non-invasive possibility for an accurate evaluation of cardiac involvement severity in Marfan syndrome

Materials and methods: We've selected 28 patients, with Marfan syndrome (MS), aged between 7-43 years, with a predominance of males (52%) and monitored them for 24 months. Every 6 months, we performed cardiological and dental examination, electrocardiogram, laboratory findings, echocardiogram and Ghent revised criteria for MS.

Results: At the beginning of the study, 18 patients (64%), with clinical diagnosis of TMD, underwent temporomandibular joint Magnetic Resonance Imaging (MRI), for a certain diagnosis. 7 of 28 patients (37%) presented significant alteration of TM joint at MRI and all these 7 patients revealed moderate/severe mitral valve prolapse, the worst Z score for aortic root and the most significant pulmonary hypertension ($r = 0.7$ and $p = 0.003$).

Conclusions: During last decade, several studies proved, through invasive methods, like biopsy, that the alteration of this protein, fibrillin, from connective tissue, in diseases like MS, MASS phenotype, mitral valve prolapse syndrome (MVPS) and skeletal features Marfan like, has the same features, both inside temporomandibular joint and mitral valve. In our study, we proved that the alteration of TM joint, assessed by non-invasive methods, like MRI, could be a precious marker for cardiac involvement severity in MS and could indicate a more adequate approach of these patients. Future studies are necessary with a larger population of patients with MS, developed for a longer period of time.

SEVERE AORTIC VALVULAR STENOSIS - THERAPEUTIC OPTIONS

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Aortic stenosis is the most common valvular heart disease. The widespread availability of the echocardiographic exam has facilitated the correct diagnosis of this pathology, particularly in asymptomatic patients. Furthermore, the increase in life expectancy of the population makes the incidence of the disease to be steadily increasing. Currently, for the treatment of severe aortic stenosis we have the following solutions: surgical aortic valve replacement (SAVR), transcatheter aortic valve implantation (TAVI), percutaneous balloon aortic valvuloplasty (VAoB) and the conservative treatment. The golden standard treatment remains SAVR, a method that has certainly led to an increase in the life quality and life expectancy of the patients. It is never too late to consider SAVR as a method of treatment because studies have shown that even in patients with left ventricular systolic dysfunction after surgery this problem significantly improves. TAVI is a new method considered the ideal alternative for patients with contraindications for SAVR and life expectancy more than 1 year. Concerning VAoB, this is currently a palliative procedure who can also have a role in delaying the definitive intervention, in the critically ill patients until they are safe for SAVR. Unfortunately, the conservative treatment does not improve the patient's survival rate and it does not slow the progression of the disease. To appreciate the operator risk we can count on euroSCORE II. This model takes into account factors related to the patient, cardiac function and operation and gives us a percentage result who can also be used as a criterion for choosing the right therapeutic solution.

COMPARATIVE MEDIAL CHANGES IN AORTIC ANEURYSMS AND DISSECTIONS RELATED BY COMMON RISK FACTORS

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Summary: The common histopathologic substrate underlying ascending aortic aneurysm and dissection is non-inflammatory medial degeneration. This medial degeneration is a challenge, as medial changes are nonspecific and caused by general hemodynamic events within the aorta. The aim of the paper is a comparative histopathologic study of the aortic media from patients with ascending aorta aneurysm and aortic dissection in relation to the most common risk factors. Aortic specimens were obtained from two groups of patients undergoing surgery for ascending aortic dilatation (n = 5) and ascending aortic dissection (n = 5). For risk factor analysis the medical data were obtained from the patients' medical records. Usual and special stains were performed to evaluate the type and severity of medial degenerative lesions. The assessed aortic lesions included fragmentation of elastic fibers, medial mucoid accumulation, smooth muscle cell loss and medial fibrosis. Medial changes were classified into three degrees of severity and final medial degeneration mean degree was compared between the two groups of patients with ascending aortic aneurysm and aortic dissection. At microscopic exam, medial degeneration was found in all cases in association with disease risk factors. Histological study noted significant medial lesions in the aortas of patients with aneurysms or dissections. A higher mean of medial degeneration degree was found in the aortic aneurysm group (2.2) than in aortic dissection group (1.6). These histologic features of the media represent the morphologic substrate of these two conditions, which gradually lead to dilatation and dissection of the aorta. The moderate medial degeneration was more frequently seen with dissection than with aortic ascending aneurysms, in which MD was more severe.

RETROGRADE CARDIOPLEGIA WITH WARM BLOOD - METHOD OF FIRST-CHOICE FOR MYOCARDIAL PROTECTION IN PATIENTS WITH SEVERE CORONARY ARTERY LESIONS TOTALLY REVASCULARIZED ARTERIALLY

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The use of warm blood cardioplegia administered in antegrade manner and normothermia in coronary patients may not achieve effective myocardial protection due to severe stenosis of coronary arteries. Performing complete arterial myocardial revascularization does not allow additional administration of the hot blood cardioplegic solution antegradely through anastomosed grafts.

A retrospective study was carried out following intra and postoperative evolution of 65 patients with severe coronary lesions operated consecutively by the same surgical team between January 2015 and July 2017 at the Cardiovascular Surgery Clinic of IUBCVT Tirgu Mures. The method of myocardial protection during cardiac arrest due to mild hypothermia was the retrograde administration of warm-blood cardioplegic solution

A total of 59 men and 6 women were included in the study. In 15 male patients (23.07%) and 2 female (3.07%) aged less than 65 years, total myocardial arterial revascularization was performed using the two mammary arteries and / or the left radial artery. 57% had left ventricular dysfunction prior to surgery and 36.3% with an ejection fraction of 30-35%. After releasing the aortic clamp, no patient required circulatory support with a IABP or ECMO. Inotropic doses were small / medium in patients with severely depressed ventricular function. The average length of hospitalization in intensive care was 1-3 days. The mean age of patients with total arterial revascularization was 49.5 years, and patients did not present renal or hepatic associated pathologies.

Administration of retrograde cardioplegia with warm blood in mild hypothermia in coronary patients with severely stenotic lesions, although laborious, is a safe method that provides adequate protection of the myocardium in the case of total arterial heart revascularization.

FUNCTIONAL TRICUSPID REGURGITATION

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FTI appears in the absence of valvular and myocardial organic lesions, being potentially reversible. It appears in approximately one third of the patients suffering from left-sided heart disorder. It is caused by various diseases associated with pulmonary hypertension or right ventricular dysfunction, having as main causes PHT, leaflet tethering and tricuspid annulus dilatation. Carpentier’s functional classification includes 3 types:

TYPE 1 - normal leaflet motion –annular dilatation

TYPE 2 - excess leaflet motion (prolapse) - chord elongation or rupture, papillary muscles elongation or rupture.

TYPE 3 - a) - restricted leaflet motion during diastole - typical for rheumatic heart lesions.

TYPE 3 - b) - restricted leaflet motion during systole – appears in valvular tethering.

Surgical correction continues to raise controversy, depending on the annular dilatation and the degree of tricuspid insufficiency.

Surgical treatment:

- palliative procedures reduce the tricuspid annulus but do not remodel it.

- procedures for TYPE 1 - functional annulus remodelling using a prosthetic ring. TYPE 2 - addresses to chordae tendineae and papillary muscles

TYPE 3

- a) - commissurotomy

- b) - undersizing annuloplasty Tricuspid prosthesis is rare in ITP.

Dreyfus (2005) introduced the concept of performing tricuspid annuloplasty if the tricuspid annular diameter measured during surgery is more than 70 mm, regardless of the grade of regurgitation.

SYNTAX AND DERIVED SCORES - VALUABLE TOOLS OF THE HEART TEAM: EVOLUTION AND UTILITY

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Objectives: Heart Team decisions regarding myocardial revascularization in complex coronary artery disease are often difficult. In order to clarify and simplify the decisional process cardiovascular risk scores have been developed aiming to identify patients who would benefit more from percutaneous coronary interventions or coronary arterial bypass grafting. Used for the first time in 2005, SYNTAX (Synergy Between Percutaneous Coronary Intervention With Taxus and Cardiac Surgery) score comprises as criteria coronary angiography variables. Our aim was to characterize this score and identify its benefits and limitations, taking into consideration the derivative scores as well. **Material and methods:** We used ESC Revascularization Guidelines and main trials which led to validation of various risk scores.

Results: We identified four directions evolving from usage of Syntax Score (SS): 1. Several Syntax-derived scores have been elaborated, namely ACEF, Clinical SS, Functional SS, Global Risk Classification, Residual Syntax, CABG Syntax, with the addition of clinical and biochemical variables. The newest variant is SYNTAX II, currently implemented in ESC Guidelines. 2. Each score was tested on real-world patients (including 1- and 2- vessel disease), the advantages and limits being reported and analyzed. 3. SS was validated in acute coronary syndromes (ACS). 4. SS was correlated with other end-points in ACS, such as estimated glomerular filtration rate, high-sensitivity C-reactive protein, NT-proBNP, and myocardial injury post-angioplasty.

Conclusions: SS and its derivatives facilitate to various extents the decisional process regarding revascularization of complex CAD patients. These tools are often vital for Heart Team in many difficult contexts.

SURGERY OF THE AORTA

AORTIC DISSECTION, "HIBERNATING KIDNEY" AND THE ROLE OF IVUS IN THE ACUTE PERIOPERATIVE PERIOD

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An Overview: About 25% of the individuals with acute type B aortic dissection have vascular insufficiency involving different organs.

Renal malperfusion has been reported in 8-10% of all above cases

The presence of renal ischemia significantly worsens the prognosis and increases mortality after aortic dissection to 24-52 %.

Moreover, the risk of mortality increases ~5 times when patients required dialysis after aortic dissection The unresolved question: What is the optimal management of these patients?

Timing of intervention? Optimal time for restoring kidney perfusion? What factors can predict kidney recovery after reperfusion?

Can RIFLE and AKIN (internationally accepted classifications for acute kidney injury) be applied in case of aortic dissection with renal malperfusion?

The decision to intervene: We describe 3 cases of acute dissection with renal malperfusion.

Case number one we took into account the deterioration of renal function on basis of RIFLE and AKIN classifications and it was decided that the patient would benefit from urgent intervention

Case two and three we used perioperative CTA and IVUS to decide on the need for intervention. In one case we identified significant "stenosis" of the renal artery coming off of the false lumen which required placement of a renal stent with markedly improved perfusion post procedure. In the other case of IVUS interrogation a sizable fenestration at the level of the visceral segment was discovered, renal intervention was withheld (no PCI) with subsequent full recovery of renal function.

Conclusions: the optimal timing for intervention in aortic dissection with renal malperfusion remains a challenging clinical dilemma and requires decision/treatment in the acute phase.

Management of complicated acute type B dissection with stent graft technology is step one/the treatment of choice for malperfusion syndrome. In our case TEVAR was inefficient in terms of restoration of renal perfusion.

The RIFLE and AKIN classifications helped us choose the optimal timing of intervention

The other two cases of acute Type A aortic dissection with renal malperfusion were managed with the use of perioperative IVUS guidance.

The gold standard in treating distal malperfusion in the setting of acute Type A dissection is precise repair at the level of the proximal aortic arch, reestablishing flow through the true lumen. In our cases this was inadequate and with the use of IVUS we were able to guide our care.

We were able to salvage renal function with an adequate timing of our intervention in the acute and subacute postoperative period (1-14 days) in the case of renal malperfusion.

We believe that despite the available radiographic evidence of malperfusion oftentimes the "kidney at risk" is being perfused to some degree, hence "hibernating kidney", which makes it salvageable. This could be accomplished within 1-14 days in our cases.

We believe that despite the relatively "wide" window of opportunity for the "hibernating kidney", the intervention when indicated should be performed as soon as possible, especially if the patient is clinically stable.

Potential benefits of the proposed renal preservation strategy are:

-Preservation of Renal Function

-Potential improvement in BP control, which is a crucial component in the long term management in patients with aortic dissection.

Prospective randomized studies are required to further investigate the proposed concept.

THE INTERNATIONAL E-VITA OPEN REGISTRY: MORE THAN 1000 PATIENTS IN FOLLOW-UP

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Objective: Frozen elephant trunk (FET) represents a major surgery and is used for simultaneous treatment of the ascending, arch and descending aorta in complex thoracic aortic disease. A registry was founded within European centers to evaluate the postoperative and follow up results after FET treatment on a large patient data set basis.

Methods: Since 2005, 17 cardiac centers participated in the International E-vita open Registry. The data of the first 1000 patients (age mean±SD 61±12) after FET surgery using the E-vita open hybrid prosthesis were included in the study. FET was performed for acute/chronic aortic dissection and thoracic/thoracoabdominal aneurysm. Redo surgery was performed in 30% and concomitant cardiac surgery underwent 45%. The arch operation was performed under selective cerebral perfusion and hypothermic circulatory arrest distally. No standardized surgical protocol was used. **Results:** Thirty day mortality (13%) was significantly decreased in high versus low volume centers (p= 0.007). Permanent new stroke and spinal cord ischemia occurred in 3.2 and 3.4%, respectively. Overall survival and freedom from aortic re-intervention downstream after 5 years were 67% and 75%, respectively. Survival was increased in patients underwent FET in arch Zone 2 versus Zone 3 (p=0.009). Aortic re-intervention was performed commonly after surgery for chronic aortic dissection or a thoracoabdominal aneurysm. **Conclusion:** Frozen elephant trunk surgery can be performed safely in complex thoracic aortic disease involving the distal arch and descending aorta. Increasing experience with FET and proximalization of the distal anastomosis improved the results in mid-term follow up.

DEEP HYPOTHERMIA WITH RETROGRADE CEREBRAL PERFUSION AS METHOD OF BRAIN PROTECTION IN ASCENDING AORTA AND ARCH ANEURYSMS SURGERY

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Introduction: Antegrade and retrograde perfusion for cerebral protection are still controversial in the surgery of ascending aorta and arch. **Aim:** Selection of efficient technology for RCP on the basis of clinical experience, instrumental and laboratory research. **Materials and methods:** 317 patients with ascending aortic and arch aneurysms were operated on during 1994 - 2016 (253 (79,8%) males, age ranged 27 - 79 years, mean 53,4±8,2; acute (subacute) dissection took place in 273 (86,1%), chronic - in 19 (6,0%), without dissection - 23 (7,3%) pts. The main reason of aneurysms forming were: arterial hypertension, atherosclerosis - in 198 (62,5%); Marfan - 37 (11,7%); BAV - 35 (11,0%); cystomedionecrosis - 24 (7,6%); lues - 13 (4,1%); Takajasu arteriitis - 3 (0,9%); falling from height - 2 (0,6%); reason not established - 5 (1,6%). The operations were fulfilled with deep hypothermia (DH) and RCP through SVC. The femoral artery was utilized for arterial cannulation in most cases (97,8%). We do: supracoronary grafting with hemiarch(arch) - 221(6) (69,7%); Bentall's operation with hemiarch (arch) - 67(4) (21,1%); arch grafting - 14 (4,4%); Wheat operation with arch grafting - 6 (1,9%); aortic arch plastic - 4 (1,3%), hybrid elephant trunk - 5 (1,6%). **RESULTS.** We divided all our data into three periods, depending hypothermia level and perfusion parameters. Group I (1994-2001) - 25 operations with DH (16-18°C), perfusion flow - 500-750 mlmin², pressure in SVC - 15-25 mmHg. Mortality - 7 (28%) pts. Group II - 63 operations, in 2002-2007 yy., hypothermia (12,5-14°C), blood flow rate - 250-500 mlmin², the pressure in SVC - 10-12 mmHg. Mortality - 11 (17,4%) pts. Group III - 229 operations fulfilled in 2008-2016 yy., with deep hypothermia (18-20°C), blood flow rate - 250-500 mlmin², the pressure in SVC - 10-12 mmHg. Perfusion through the femoral artery during the RCP stage was maintained permanently in group II and III. 30-day mortality - 10 (4,4%) pts. Overall 30-day mortality composed 8,8% (28pts). Better clinical results in Group III were confirmed by analysis of arterial and venous blood, thermography, EEG and MRI of the brain. **Conclusion:** RCP with deep hypothermia (18-20°C), the pressure in SVC - 10-12 mmHg, blood flow rate - 250-500 mlmin² with continual perfusion through femoral artery is a safe method of brain protection during ascending aortic and arch correction.

TOTAL AORTIC ARCH REPLACEMENT FOR STANFORD TYPE A ACUTE AORTIC DISSECTION WITH CAROTID ARTERIES INVOLVEMENT

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Objectives: Stanford type A acute aortic dissection complicated with carotid arteries dissection may sometimes be the worst prognostic presentation due to the high potential for unfavorable evolution towards stroke even in the absence of an entry point in the aortic arch. The key to a successful operation is stabilizing the aortic arch by replacing it. **Material and methods:** This is a 73-year old woman, who presented to the emergency department with chest pain. On physical examination, she had diminished pulse on both carotid arteries. Echocardiography revealed Stanford type A acute aortic dissection involving the right carotid artery, and an intimal flap in the ascending aorta that was protruding through the aortic valve into the left ventricular outflow. Doppler carotid echography revealed dissection of the common carotid right artery with a present flow in both true and false lumen. Computed tomography angiography revealed ascending aortic dissection with an involvement of the right carotid artery, and extending towards the thoracic descending aorta. The patient underwent immediate surgery under cardiopulmonary bypass with right femoro-caval cannulation. The inspection of the aortic arch in circulatory arrest did not reveal the presence of any tears. Total arch replacement was conducted in the following sequence: cerebral protection using moderate hypothermic circulatory arrest combined with selective antegrade cerebral perfusion, distal arch anastomosis, proximal ascending aortic anastomosis, and finally left carotid and brachiocephalic trunk re-implantation. A 34 Gelatin impregnated woven Dacron graft with 4 branches was used for total arch replacement. The duration of the cardiopulmonary by-pass was 204 minutes, cardiac ischemia was 81 minutes, the distal circulatory arrest was 45 minutes, and selective antegrade cerebral perfusion was 63 minutes. The rectal temperature was 28 °C. **Results:** Postoperatively the patient had an uneventful recovery. CT 3D of both carotid arteries showed no residual dissection and a good circulation through the lumen of the arteries. **Conclusions:** Due to the risk of retrograde carotid arteries dissection, we consider that the safest surgical approach in this case is the total aortic arch replacement.

MIGRATION OF AORTIC PROSTHESIS AFTER WRAPPING OF THE MODERATELY DILATED ASCENDING AORTA - MYTH OR FACT?

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Objectives: The decision about which type of surgical treatment to be chosen in the cases with moderately dilated ascending aorta still remains a challenge to the surgeons. External wrapping is an alternative surgical technique performed in selected patients with a dilated ascending aorta. The aim of this study is to present the outcome analysis in series of patients operated in our institution who underwent cardiac surgery procedure combined with wrapping of the ascending aorta with a follow-up more than 5-years after the surgical procedure, and more specifically the potential migration of the aortic prosthesis. **Methods:** In the follow-up we included 57 consecutive patients operated in elective manner who underwent cardiac surgery operation combined with external wrapping of the ascending aorta between January 2007-December 2012. The average age was 68.8 years (51 yrs - 84 yrs), 79% of whom were men. We performed a follow-up computed tomography scans in 50 patients. **Results:** The early postoperative results were excellent with 0% 30-day mortality. One re-exploration had to be performed due to postoperative bleeding. Two patients required continuous veno - venous hemodiafiltration as a result of acute renal failure. Mean follow-up was 5 years. The long-term survival was 88%. In total, 50 control computed tomography scans were performed with 0% cases of prosthetic migration. **Conclusions:** External wrapping of the moderately dilated ascending aorta is safe option especially for the patients with high perioperative risk, such as elderly patients, and those with the need of concomitant cardiac surgery procedure. The long-term results are excellent, without prosthetic migration in any of the patients.

Keywords: wrapping, aortic aneurysm, results.

RETROSPECTIVE STUDY OF EARLY POSTOPERATIVE RESULTS IN PATIENTS WITH THORACIC AORTIC ANEURYSMS AND DISSECTIONS

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Objectives: The aim of this study is to investigate the early postoperative results and analyse complications in patients with thoracic aortic aneurysms and dissections, over fourteen years of institutional own experience in the field of major aortic surgery. The analysed cohort consists in 376 consecutive patients. They were surgically treated in our Institution during the period May 2003 - Jan. 2017. The early postoperative results, complications and mortality were retrospectively analysed. **Patients and methods:** The analysed cohort consists in 376 consecutive patients with surgically treated thoracic aortic aneurysm or dissection. Mean age of patients: (56.8 years; 26 - 83 years old). Gender: (male - 260, female - 116). Emergency surgical treatment, up to 24 hours of the onset of symptoms, was conducted in 82% of all the patients with ascending thoracic acute aortic dissection (ATAAD), DeBakey Types I and II. In only 12% of the mentioned above 82% , surgical treatment was conducted up to 6 hours after onset of symptoms. In the rest 18% of the patients with ATAAD, surgical treatment was conducted up to 72 hours after onset of symptoms. Patients with thoracic aortic aneurysms and chronic aortic dissections were electively treated. Isolated ascending aortic replacement was performed in 195 patients, 72 patients - with combined partial arch repair (PAR), 21 - patients with combined total arch repair (TAR), 7 - patients with combined proximal descending aortic repair. Additional combined cardiac procedures, consisting in: aortic valve replacement (AVR), mitral valve repair/replacement (MVR), coronary artery bypass grafting (CABG) were performed in 81 patients. In all of the studied patients, the main concept, of surgical treatment of diseased aortic segment, included resection and replacement with tubular vascular graft, conducted on cardiopulmonary bypass (CPB). For the purpose of this study, we used granted permission by hospital authorities to perform and publish patients' data from the archive database. **Results:** Most common complications in the analysed cohort are: (pulmonary, necessitating prolonged mechanical ventilation in 85 patients; bleeding, necessitating surgical re-exploration in 76 patients; renal failure (RF), necessitating Continuous Renal Replacement Therapy (CRRT) in 63 patients; neurological (stroke, paralysis) - in 35 patients; gastrointestinal (melaena, non-occlusive mesenteric ischaemia - NOMI) in 18 patients. Early mortality was estimated to be 25.8%. Survival rate and mortality of the analysed cohort is comparable with cohorts and patients presented and documented by other authors. **Conclusions:** Despite advances in aortic surgery, the concept, for surgical treatment of aortic aneurysms and dissections, remains best option for a large number of patients with indications. Postoperative complications are complex determinant, although manageable, but mortality rate, according to our goals is still relatively high, compared to other studies.

Keywords: Aneurysm, Dissection, Retrospective, Early results, Complications, Mortality

SURGICAL SOLUTIONS FOR THORACIC AORTIC PATHOLOGY

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In the past decades, the new approach to aortic pathology has been more and more endovascular. The minimally invasive techniques designed at first for high-risk patients are taken into account to almost every patient for various aortic pathologies. Open surgical treatment of thoracic aortic aneurysms is associated with high mortality and morbidity including paraplegia as a consequence of spinal cord ischemia. Physicians are turning more likely to endovascular approach. Open surgical treatment requires highly skilled teams of well trained vascular or cardiac surgeons and technical possibilities of extracorporeal circulation and neuro-monitoring. Endovascular techniques are an alternative to surgical procedures but they also need an interdisciplinary team and well-trained physicians, involving interventional cardiologists, surgeons, and anesthetists. TEVAR technology is used nowadays in treating thoracic aortic aneurysms, aortic dissection, intramural hematoma, penetrating aortic ulcer or aortic coarctation. TEVAR has gained worldwide acceptance as the first intention to treat descending thoracic aorta pathologies. Its' indications have been extended to aortic arch aneurysms and also to ascending aorta diseases. Endovascular procedures are increasing as open surgery decreases, because of demonstrated less intraoperative blood loss, shorter hospital stay and recovery period and decrease overall morbidity.

CONTROVERSIES AND CHALLENGES IN CORONARY AND CAROTID ARTERY OCCLUSIVE DISEASE TREATMENT

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Objective: Due to increased life expectancy, the risk profile of the patients undergoing cardiac surgery changed dramatically. This is especially important in case of concomitant coronary artery disease and carotid artery stenosis (CAS). Careful decision making and appropriate surgical strategy in these patients are critical for the success of the operation. Controversy about the relationship between staged and concomitant carotid endarterectomy (CEA) and coronary artery bypass grafting (CABG) still exists. In the current study, we present our case load in treating patients with concomitant carotid artery stenosis and coronary artery disease. **Methods:** CABG with additional CEA due to neurologic symptoms or high grade (>80%) CAS has been performed in 905 patients in the period of 1982-2014. Results of the evaluation of perioperative mortality and morbidity in regard to the surgical approach have been discussed. **Results:** The average patient age was 62.6 +/- 8.7 years. Echocardiography revealed that 28% of the patients had poor left ventricle ejection fraction (<30%). Coronarography demonstrated that 21.4% of the operated patients had significant left main coronary artery stenosis (>60%). In terms of neurological status, the majority of the patients (88.3%) were neurologically asymptomatic. The overall mortality regardless the sequence of procedures was 2.3%. In the group of concomitantly treated patients, 44.6% required triple coronary bypass while the mean number of coronary bypasses was 2.6. Postoperative neurologic complications were present in 12.2%. Ninety-one patients (10.0%) have had TIA, while 18 patients have had a permanent neurologic deficit while 4 patients died as a result of it. **Conclusions:** It is imperative that every patient being considered for CABG should undergo ultrasonic evaluation of the carotid arteries regardless the neurological symptomatology. Concomitant surgery on patients with severe CAS and coronary disease carries a slightly higher operative risk and, therefore, should be avoided. Concomitant surgical treatment should only be considered in patients with unstable angina and significant CAS in whom we may expect higher morbidity and mortality.

SURGICAL TREATMENT OF AORTIC DISSECTIONS - 30 YEARS EXPERIENCE, FROM NIGHTMARE TO SATISFACTION

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Background: Many studies have shown that the results of surgical treatment in patients with aortic dissection have been improved. Despite this significant improvement, surgical treatment of aortic dissection remains one of the most complex technical and tactical challenges in cardiovascular surgery. We analyzed our 30-years evolution of results in surgically treated patients with acute aortic dissections.

Methods and Results: Between 1987 and 2017, 994 patients (755 men, on average + I SD aged, 54.9 14 years) underwent surgical treatment for acute Aortic dissection type A. The overall mortality was 17.3%. The patients were divided into two groups. The first one in which we resolved only the ascending aorta (576 points) and the second one in which we performed an aortic arch replacement (418 points). For the first 12 years, we performed replacement of the ascending aorta in the state of aortic cross clamping, and after that, we used only "open" distal anastomotic technique. After 1999 we introduced selective antegrade cerebral perfusion as a method for cerebral protection. Previously for cerebral protection, we used another two options: deep hypothermia circulatory arrest and in a small group of patients- TOfTade cfl:1'Obrol perfusion. Multivariate analysis identified - shock, organ malperfusion, aortic wall rupture and myocardial ischeinia — they were independent determinants of early operative mortality. After 1999 the introduction of: "open" distal anastomosis, "Sandwich" technique and antegrade cerebral protection, the rates of mortality and complications were reduced.

Conclusions: Based on medical articles and our data acute type A aortic dissection demand surgical management as soon as possible. In this complicated disease, survival of patients is the most important outcome.

FUTURE OF COMPLEX THORACIC AORTIC SURGERY

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Though excellent results are achieved by specialized teams worldwide using open surgical techniques in treating complex thoracic aortic pathologies, total endovascular methodologies have become the gold standard in the treatment of complicated Type B aortic dissection or thoracoabdominal aortic aneurysmal disease in the elderly and frail patient population. Worldwide efforts by dedicated vascular surgeons in association with the vascular prostheses producing industry have now reached a prosthetic quality level in combination with advanced implantation skills, that endovascular treatment of aortic arch pathologies is available with acceptable results in the hands of experienced teams. The ascending aorta will follow next.

It is the intention of this contribution to demonstrate the latest developments in endovascular, hybrid and open surgical techniques including the product armamentarium, currently available or at the horizon, including own concepts and surgical strategies for the future.

SURGERY AND THE RESULTS OF TREATMENT OF DISSECTING AORTIC ANEURYSMS TYPE A: NEW APPROACHES

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Introduction: Dissecting aneurysm of aorta type A is a life-threatening condition. It's frequency is about 3-4 cases per 100 thousand people. Despite significant improvements in surgical techniques in recent years and intensive post-operative treatment, the situation with operative mortality rates (8-34%) and the remote prognosis of acute type A dissecting aneurysm of aorta remains unsatisfactory due to a series of fatal complications. The key to successful treatment of acute type A dissecting aneurysm is in time surgical treatment.

Objective: To provide the full experience of surgical treatment of type A dissecting aortic aneurysm aortic anesthesia and everywhere about new approaches.

Materials and methods: for the period of 1980 -01.01.2017, in National Amosov Institute of Cardiovascular Surgery - 2620 patients with aneurysm of the thoracic aorta were treated. In 752 (28.7%) operated patients, a type A dissecting aneurysm was diagnosed. Among them, men were 605 (80.5%), women - 147 (19.5%). Age of patients varied within 20-79 years, mean age 52.3 ± 9.6 . Diagnosis of dissecting aneurysm of ascending aorta was based on clinical data, X-ray examination, echocardiography (transthoracic and transesophageal), aortography, CT, MRI. The main factors that could lead to dissection were: arterial hypertension - 493 (65.6%), Marfan syndrome - in 99 (13.2%), generalized cystomyelonecrosis - in 79 (10.9%), bicuspid aortic valve - 64 (8.5%). Mechanical injury as a cause of dissection was found in 5 (0.7%), the reason is not established - in 12 (1.6%). In acute stage (from the moment of dissection to 2 weeks) and in subacute stage (up to 6 weeks) - 575 (76.5%) patients were operated, in the chronic stage (from the moment of dissection to more than 6 weeks) - 177 (23.5%) patients. In 511 (68.0%) there was type I dissection, in 241 (32.0%) patients with type II dissection was diagnosed according to the classification of De Bakey. Surgeries were performed in conditions of artificial blood circulation, moderate hypothermia (26-32C), with correction of the aortic arch in 294 patients (39.0%) - under conditions of deep hypothermia (13-20C) and retrograde cerebral perfusion (290 patients) or antegrade cerebral perfusion (4 patients). The protection of the myocardium was performed by ante-, retrograde administration of the cardioplegic solution. In the last 505 patients (67.2%), the main drug for cardioplegia was the use of Custodiol in a dose of 15-20 ml / kg. Urgent surgeries were performed in cases of acute dissection with manifestations of acute cardiovascular insufficiency, tamponade (hemopericardium) of the heart. For the surgical treatment of dissecting aneurysms of type A, the following techniques were used: supracoronary replacement of ascending aorta - in 480 (63.8%) patients; Bentall-De-Bono surgery - in 257 (34.2%) patients; Wheat operation - in 7 patients; hybrid surgery using the method of "elephant trunk" - in 4 patients; other - in 4 patients. In 36 (5.0%) patients, operations were supplemented with coronary artery bypass grafting surgery of 1-4 grafts.

Results: The total hospital mortality in the surgical treatment of a type A dissecting aneurysms was 10.8%; with acute dissection of 11.5%, with chronic - 8.5%. It should be noted that hospital mortality for the period of 1980-2009 was 18.4% (348 patients), and for the period of 2010-2016 - 4.2% (404 patients).

Conclusions: Obtained surgical experience, improvement of heart and brain protection in surgical treatment of dissecting aneurysms type A permitted to achieve hospital mortality 4.2%.

AORTIC ARCH DEBRANCHING, COMPLEMENTARY SURGICAL TECHNIQUE IN ENDOVASCULAR TREATMENT OF DESCENDING AORTA DISEASE

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Background: Compared to open surgical treatment, isolated endoprosthesis (TEVAR) or multilayer flow modulator (MFM) or hybrid approaches for complex thoracic aortic diseases with implication of the aortic arch became recently more and more common in current treatment protocols in many specialized centers.

These methods proved to have lower morbidity and mortality, with good short and long term outcome.

Objectives: To evaluate these techniques and results in complex thoracic aorta disease involving the aortic arch such as: aneurysms of the thoracic aorta and type B Stanford aortic dissection.

Methods: Between 2004 and 2017, 26 patients were diagnosed and treated for complex thoracic aorta disease, mainly type B Stanford aortic dissection (20 patients – 76,92 %) and thoracic aorta aneurysms (6 patients 23,1%). 24 of them were men (92, 3%) and 2 (7,7 %) were female with a mean age 54 yo (27 – 78 yo). Main cardiovascular risk factors were severe or poorly controlled arterial hypertension and systemic atherosclerosis. After angio-CT evaluation scans, inadequate landing proximal zone indicated the need for surgical revascularization of one or more aortic arch vessels in 8 patients (30,7 %) prior to endovascular repair. Aortic arch vessels were bypassed in a surgical operating room, followed by the endovascular procedures in a cath lab. Occasionally the by-pass procedure was performed in the cath-lab after the decision to cover both the left common carotid and left subclavian artery with the EVG. The EVG used are: Medtronic Valiant in 6 cases, Evita Open – jotec in 3 and Endomed in 1 case. In 13 cases MFM stents were used.

Results: The technical success was achieved in all cases. No deaths occurred so far in-hospital or at 30-day follow-up. No endoprosthesis migration was noticed in those patients in which FU CT was performed. There were 4 cervical hematomas with no special treatment (50%) of those with debranching. 3 patients required CSF drainage (one with total coverage of the descending thoracic aorta from the left common carotid to the celiac trunk). One patient required drainage for pericardial effusion and one had distal aortic and bilateral iliac thrombosis, due to femoral access complication which required urgent revascularization by axillo-femoral bypass.

There were no neurological complications (paraplegia, stroke), no acute renal failure, no infection and no need for surgical conversion.

The longest follow up is more than 13 years and all treated patients are alive.

Conclusion: Hybrid procedures are a safe option in the treatment of complex aortic type B dissections different etiology (TAA, of post-traumatic, severe high BP) and thoracic aorta aneurysms involving the aortic arch, with low mortality and good procedural success. Further studies and longer follow-up are needed to establish the role of this complex procedures in the management of aortic dissection and aneurysms of the descending thoracic aorta.

Key words: Type B aortic dissection. Thoracic aorta aneurysm. Endovascular graft implantation. Multilayer flow modulator. Hybrid procedure.

TAVI

FIRST 150 TAVR PATIENTS - CHALLENGES AND RESULTS

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Purpose: The objective of this presentation is to provide an overview of our center experience with TAVR management of high risk patients (pts), with severe aortic stenosis.

Methods: From 2009 to 2016 a total number of 150 patients, 66 male and 84 female with average age 76.4 years (from 68 to 86 years), underwent TAVR.

All pts suffered from severe aortic stenosis and several others comorbidities. Majority of pts were NYHA class III (73%), class IV -16P« and only 11% class II. Left ventricular ejection fraction (LVEF) less than 35 % we found in 32 pts, between 35-50%-30 pts and more than 50% -88 pts. Peak aortic gradients were between 46-140(82) mm Hg and mean gradients -30-90(53)mmHg. Mean STS score was 12,19 and mean Euro score - 17,88. 79% of pts were treated using a tran femoral approach, 16P« transapical approach, 5% transaortic and only 1pt was treated with left subclavian approach.

Results: All 150 replacements were successful without any conversion to conventional AVR using CPB. In 2 pts we changed approach from transapical to transfemoral. We found post-procedural aortic valve regurgitation grad. 0 - I in 113 pts. Grad. II - 35 pts and Grad. III only in 2 pts. NYHA class and aortic valve gradients decreased significantly in all pts cohort. Early post-procedural mortality (30 days) was 8%. Complications: myocardial infarction -1 pt, vascular-9 pts, aortic rupture -2 pts, Pericardial effusion-2 pts and PPM implantation-14 pts.

Conclusions: Our experience shows that TAVR is a reasonable approach for the management the severe aortic stenosis with acceptable morbidity and mortality. TAVR could be recommended as optimal treating strategy for high risk patients.

TREATMENT OF AORTIC VALVULAR STENOSIS USING TRANSCATHETER TECHNIQUES - THE EXPERIENCE OF CENTRAL EMERGENCY UNIVERSITY HOSPITAL DR. CAROL DAVILA

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Despite the success that cardiac surgery offers, the data accumulated over the last years shows that untreated aortic valvular disease is a difficult problem, particularly among the elderly population.

Revival trial, the first study made for this procedure, included 55 patients who benefited of aortic valve replacement using a transfemoral artery implantation technique and 40 patients using a transapical catheter. This made possible the first prospective randomized trial for TAVI - PARTNER – which demonstrates that TAVI is non-inferior to classic cardiac surgery.

In France, using the national registry data from 2010-2012, FRENCH2 trial showed an implantation success rate of 97% and a one-year survival rate of 76%.

The Central Military Hospital Heart Team performed the first transcatheter aortic valve replacement by the end of 2013. Since then, 16 patients were treated in our department. Inclusion criteria are those recommended by European and American guidelines for cardiology and cardiothoracic surgery. In 6 cases we performed transfemoral approach, but the majority had transapical insertion after left thoracotomy. Edward-Sapien 3 and CoreValves were used, with an implantation success rate of 100%. No post-procedural complications were present. Post-TAVI, aortic valve regurgitation was negligible. 3, 6 and 12 months and yearly follow up protocol was applied; at the 12 months follow-up, one patient died from a non-valvular related cause.

In conclusion, TAVI is a successful procedure reserved for patients with high surgical risk with severe aortic valve stenosis, re-establishing patients' life quality.

VALVULAR SURGERY

DIFFICULT ISSUES IN AORTIC VALVE SURGERY: MANAGEMENT OF ASYMPTOMATIC SEVERE A.S.

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Decision making for optimum management of asymptomatic aortic stenosis is being addressed with emphasis on clinical, imaging and surgical treatment modalities. Timing of surgery in view of outcome is highlighted. The role of lesser invasive valve replacement techniques is presented.

RIGHT MINI-THORACOTOMY FOR AORTIC VALVE SURGERY: EVOLUTION OF MYOCARDIAL PROTECTIONS STRATEGIES

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Background. Due to the rapid growth of transcatheter techniques, patients being sent for aortic valve surgery are more likely to have aortic insufficiency or require associated procedures. Interest in right anterior thoracotomy (RAT) aortic valve surgery continues to grow. Improved exposure techniques and perfusion and myocardial protection strategies offer the opportunity to manage more complex problems with this approach. We retrospectively reviewed our experience with the RAT approach and the change in associated procedures, protection strategies, perfusion strategies and exposure techniques.

Method. We reviewed patients undergoing RAT AVR through a 4 – 8 cm skin incision at a single institution during the period corresponding to the initiation of our transcatheter aortic valve (TAVR) program. From January 2014 to January 2017, 194 patients with aortic valve disease underwent RAT AVR. During the same period 255 patients underwent TAVR. Mean age was 67.4 ± 10.0 years, and 112 (57.7%) were male.

Results. All patients received a bioprosthesis implanted with interrupted pledgeted 2-0 Ethibon suture. Eight of the last 16 patients utilized minimal suture valves. Combined procedures included: 12 robotic LIMA to LAD, 4 SVG to RCA, 6 PVI, 8 LAA ligations, 3 mitral valve repair, 4 tricuspid valve repairs (20%). One patient required reoperation for chest wall bleeding. Overall cardiopulmonary bypass was 84 min + 14 min, and aortic cross clamping was 73 ± 16 min. In-hospital mortality was 1.5% (3/194). All cases were completed without conversion to sternotomy. 38 patients had primary aortic insufficiency. Perfusion strategy: the first 24 patients utilized a groin incision for arterial and venous access. All further cases utilized percutaneous vacuum-assisted venous drainage and central arterial cannulation was adopted in the subsequent 170 patients. Supplemental venous drainage was utilized with a floppy suction in 10 pts. Histadine-tryptophan-ketoglutarate (HTK) was utilized in 94 percent of cases and Del Nido in the remaining. TAVR CT scans to determine the angle and location of the valve were utilized to determine the location and size of the incision.

Conclusions. Evolution of perfusion, myocardial protection and exposure techniques have allowed for safer management of more complex aortic disease. Management of more complex cardiac disease and patients with aortic insufficiency requires a patient-specific team strategy for exposure, perfusion access and myocardial protection.

VALVE SPARING AORTIC ROOT REPLACEMENT - SINGLE CENTER EXPERIENCE

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Introduction: Valve-sparing aortic root replacement has become a well-established option for patients with aortic root aneurysms who have morphologically normal tricuspid or pliable bicuspid aortic valve. The procedure carries great advantages for young patients in that it avoids the need for a mechanical-valved conduit and the concomitant requirement for long-term anticoagulation.

The aim of this study is to analyze results of valve preserving operations in a single center.

Material and methods: Since 2013, overall number of 32 elective patients were operated using valve sparing technique. In all cases we used re-implantation procedure. We analyzed mid-term follow up results.

Results: Majority of patients were male. Average age was 55.41 years. In all patients we used tube graft, except last three where we used valsalva graft and measurements were performed with aortic caliper. There were no major cardiovascular accidents. There were no intra-hospital deaths. Maximum follow up was 4 years. Reoperation rate is 0%.

Discussion: The mid-term results of aortic valve sparing for aortic root aneurysms are excellent. Aortic valve-sparing operation is associated with low rates of valve-related complications. The probability of late aortic insufficiency is low after the re-implantation procedure. Further investigation and follow-up is needed.

IMMEDIATE RESULTS OF AORTIC VALVE NEOCUSPIDIZATION (OZAKI PROCEDURE)

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Objective: Optimal prosthesis for aortic valve replacement is still under debate. We analyzed immediate results of Ozaki procedure (OP) performed at our Institution.

Methods: In the period from December 2016 till May 2017 32 patients underwent OP for aortic stenosis. There were 18 male (56.2%). Mean age was 67.5 ± 11.3 years. 11 (34%) patients had bicuspid aortic valve. Preoperative TEE examination demonstrated: average peak pressure gradient of 93.7 ± 27.5 mm Hg; average mean pressure gradient of 60.6 ± 14.6 mm Hg; aortic annular diameter measured 22.7 ± 3.1 mm.

Surgical technique is based on replacement of every single cusp of the diseased valve with neocusp trimmed using original Ozaki set from patients own pericardium treated with glutaraldehyde. In case of native bicuspid valve it was substituted with three cusps, using rhaps as orientation for neocommissure.

Results: Ozaki procedure was successfully performed in every patient. There were no mortality or major complications in postoperative period. Aortic regurgitation was absent, trivial or mild in all cases. Average peak pressure gradient at discharge from the hospital was 14.5 ± 3.2 mm Hg.

Conclusions: Immediate results of Ozaki procedure are promising. Operation was feasible to perform in every patient, independently on native valve anatomy. Prospective randomized trial is needed to verify advantages and limits of this method in comparison to standard techniques in the long-term follow-up.

FREQUENCY OF AORTIC ANEURYSM FORMING AND DISSECTION IN PATIENTS WITH BICUSPID AORTIC VALVE (BAV)

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Background: BAV- congenital heart lesion. BAV remains independent risk factor of aorta dilatation and aneurysm forming and aortic dissection. **Aim:** to clarify the role of BAV in aortic aneurysm forming and dissection. **Materials and methods:** for the period of 2010 -2016, in National Amosov Institute of Cardiovascular Surgery - 1225 patients with BAV were treated. Among them, males were 921 (75.2%). Age of patients varied within 2-79 years, mean age 49.9 ±9.8. The following surgeries were performed: open aortic valvulotomy – 17 (1.4%) patients; aortic valve replacement – 736 (60.1%) patients; anuloplasty of aortic valve – 1. In 471 (38.4%) patients aortic dilatation or aneurysm was formed that required the following surgeries: aortic valve replacement+banding – in 41 (3.3%) patients; Robicsek operation – in 223 (18.2%) patients; Bentall operation – in 194 (15.9%) patients; supracoronary aortic replacement – in 4 patients; Wheat operation – in 6 patients; David operation – in 3 patients; All surgeries were performed through median sternotomy. In 30 (2.4%) – ministernotomy was applied. In 109 (8.9%) patients surgeries were combined with coronary artery bypass grafting operation (1-5 grafts). In 18 (1.5%) surgeries were combined with anuloplasty of mitral valve. In 47 (3.8%) patients BAV was combined with aortic coarctation. 916 (74.8%) patients had aortic stenosis; 170 (13.9%) – aortic insufficiency; 139 (11.3%) – combined lesions. **Results:** In institute 5062 surgeries were performed on aortic valve, including aortic valve replacement and mitral-aortic valves replacement. Among BAV aneurysm forming was observed in 471 (38.4%). The reason of aortic dilatation and aneurysm forming remains unclear. Among possible reasons we consider disturbances of hemodynamic blood stream through stenotic valve, hereditary factors and media structure anomalies. In 41 (8.7%) patients of the last group ascending aorta dissection occurred which necessitated urgent operation in 33 (7.0%) and 8 (1.7%) patients required non-urgent surgery. Total hospital mortality composed 0.8%. **Conclusion:** operation of BAV reasons composed 24.2% of all operations of aortic valve. In 38.4% of BAV patients ascending aorta dilatation and aneurysm forming developed. In 8.7% patients with BAV and ascending aortic aneurysm dissection (rupture) occurred, which needed urgent (7.0%) and non-urgent (1.7%) operation.

THE AGE OF 80 OR HIGHER IS NOT A RISK FACTOR FOR MIDTERM SURVIVAL AFTER AORTIC VALVE REPLACEMENT

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Background: We reviewed our experience to evaluate if age ≥80 years was a risk factor for survival after aortic valve replacement (AVR). **Material and Methods:** From 2011 to 2015 240 patients 60 year old or more underwent AVR, isolated (AVR_{is}, n=117) or associated to other procedures (AVR₊, n=123). Patients were divided in 3 subgroups according to the age: 60-69, 70-79 and ≥80. **Results:** 30-day mortality was 2.5% (6 patients), without any difference according to the surgical (1.7% and 3.3%, p=0.445) or to the age (1.6%, 3.3% and 1.8%, p=0.745) grouping. Stepwise logistic regression showed that chronic renal failure (CRF) was the only risk factor for 30-day mortality (OR 19, CI 3-122, p<0.001). Overall 6-year survival was 88±3, without any difference between AVR_{is} (88±5) and AVR₊ (88±4), p=0.685). Survival in the three age groups was similar (Table), although there was a physiologic reduction in the elderly patients. However, survival in patients 80 years or older was similar to survival of a normal population of same age (74%). Cox analysis showed that, again, CRF was the only risk factor for lower survival (HR 7, CI 3-18, p=0.001). **Conclusion:** In the era of transcatheter therapies age alone cannot be the driver for denying surgery to patients 80 years or older. In this population AVR can be performed safely, with a survival similar to that one of a normal population of the same age. **Table. 6-year survival after AVR.**

Age (y)	60-69	70-79	≥80	p	All
AVR _{is}	92±4 (n=61)	92±3 (n=123)	73±10 (n=56)	0.079	93±6 (n=24)
AVR ₊	89±7 (n=62)	83±9 (n=31)	91±5 (n=37)	0.150	93±3 (n=61)
	67±17 (n=25)	0.427			

AORTIC VALVE REPLACEMENT IN GERIATRIC PATIENTS WITH SMALL AORTIC ROOT AND LOW BODY SURFACE AREA; IMPROVED EFFECTIVE ORIFICE AREA FOLLOWING PERCEVAL S VALVE IMPLANTATION

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Aim: The aim of this study is to see how the sutureless, stentless, Perceval S aortic valves behave when implanted in elderly patients with small aortic root as compared with conventional stented prosthesis in a similar patient cohort. This was a prospective randomized institutional study. **Patients and methods.** Over the last 5 years 123 sutureless valves have been implanted in our institution. In this study 25 patients with severe symptomatic aortic valve stenosis underwent aortic valve replacement with sutureless self-anchoring Perceval S valve implantation. This group of patients is compared with 25 patients who underwent conventional biological stented prosthesis implantation (soprano SORIN group). The two groups of patients have had similar demographic and medical characteristics with severe aortic stenosis. The study was conducted from January 2012 to June 2014. Preoperative, intraoperative and postoperative parameters were studied in order to investigate the utility of the Perceval S valves in this group of patients. **Results:** The Perceval S valve implantation seems to be an advantageous biological valve with excellent hemodynamic characteristics as compared with the typical biological prosthesis with shorter ischemia time (40 ± 5.50 min vs 86 ± 15.86 min; $p < 0.001$), shorter extracorporeal circulation time (73.75 ± 8.12 min vs 120.36 ± 28.31 min $p < 0.001$), less operation time (149.38 ± 15.22 min vs 206.64 ± 42.85 min; $p < 0.001$) and better postoperative recovery. The postoperative gradients were 23.5 ± 19.20 mmHg vs 24.5 ± 19.90 mmHg respectively. The postoperative effective orifice area in these two groups were respectively 1.5 ± 0.19 cm² vs 1.1 ± 0.5 cm² ($p = 0.002$). **Conclusions:** Aortic valve replacement with Perceval aortic valves in geriatric patients with comorbidities and small aortic annulus seems to be an alternative, safe and "fast" intervention with excellent short and mid-term results which provides a better effective orifice area.

AORTIC VALVE ULTRASONIC DECALCIFICATION AS AN ALTERNATIVE APPROACH TO REPLACEMENT FOR AORTIC VALVE STENOSIS WITH SMALL ANNULUS

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Objective(s): Valve repair is superior to valve replacement in terms of postoperative risk. Nowadays, there has been increasing interest in valve-sparing surgery to treat pathology of the aortic valve due to valve incompetence. At the same time, there is lack of studies concerning valve repair for calcified aortic valve stenosis. The aim of the study is to present the hemodynamic outcomes of the relief aortic valve stenosis by means of ultrasonic valve decalcification. **Methods:** Between January 2014 and January 2017, 16 patients (mean age, 70.2 ± 7.4 years) with aortic valve stenosis underwent ultrasonic valve decalcification. Preoperative transthoracic echocardiography revealed aortic ring diameter 19 ± 1.1 mm, aortic valve peak systolic pressure gradient as 102 ± 20.5 mm Hg (mean gradient - 66 ± 0.8 mm Hg) and AVA as 0.80 ± 0.03 cm² (index AVA - 0.40 ± 0.01 cm²/m²). The operative technique consisted of standard nonpulsative cardiopulmonary bypass, systemic hypothermia (32°C), antegrade cold crystalloid cardioplegia. Aortic valve debridement was performed under direct vision using irrigation/aspiration probe of modern ultrasound machine. Ultrasonic intermittent applications were used in of approximately 5-10 seconds duration until the calcium was removed, avoiding damage to the valve and restoring the cusps mobility. The calcium deposits were carefully removed using external suction. **Results:** There was no hospital mortality in the study group. After the procedure, peak systolic pressure gradient was reduced to 25 ± 11 mm Hg (mean - 12 ± 5.1 mm Hg) and AVA was increased to 1.9 ± 0.2 cm² (index AVA - 1.0 ± 0.13 cm²/m²). Postoperative follow-up at 7 months showed the peak systolic pressure gradient as 22 ± 9.7 mm Hg (mean - 11 ± 3 mm Hg) and AVA as to 1.9 ± 0.18 cm² (index AVA - 1.0 ± 0.1 cm²/m²). **Conclusions:** We believe ultrasonic decalcification can be considered as a type of aortic valve repair and can serve as an acceptable therapeutic option for treatment of elderly patients with aortic valve stenosis with the small annulus. But long-term follow-up study, in a big group of patients, on the results of this technique, is necessary.

POSTER

ENDOVASCULAR TREATMENT OF PRIMARY AORTO-ESOPHAGEAL FISTULA

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Introduction: Primary aorto-esophageal fistula is a rare cause of massive upper gastrointestinal bleeding. The most important causes of AEF are the erosion of the esophageal wall by a thoracic aortic aneurysm. Conservative treatment of AEF results in a 60% in-hospital mortality rate with no late survival, and conventional surgical treatment has a reported in-hospital mortality rate of nearly 40%.

Thoracic endovascular aortic repair (TEVAR) has recently gained recognition as a possible technique for the emergent treatment of AEF, despite a considerable risk of infection.

Case report: A patient presented at our institution in emergency with hypotension associated with hematemesis, posterior chest pain, and hemorrhagic shock. The patient was a 62-year-old man with multiple risk factors: chronic kidney disease stage 5, hemodialysis, aortic atheromatosis, the descending thoracic aorta aneurysm. The patient was presented at IBCV Iasi in emergency for investigations and endovascular repair.

Diagnosis: Emergent computed tomographic (CT) showed primary AEF that was caused by the rupture of an aortic aneurysm penetrating ulcer into the esophagus and posterior mediastinum hematoma.

The angiography reveals an aorto-esophageal fistula through left femoral surgical approach.

Treatment: Implantation of a stent graft on the descending thoracic aorta with the exclusion of the aneurysm and closure of the aorto-esophageal fistula through right femoral artery approach.

"COCONUT ATRIUM", AN UNUSUAL PROGRESSION OF MITRAL VALVE DISEASE

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Purpose: Calcification of the greatest part of the left atrium is a very rare progression of mitral valve disease, also known as "porcelain" or "coconut" atrium. Typically results from mitral stenosis caused by rheumatic heart disease, but also exists case reports that correlate the calcifications in the myocardium of left atrium with mitral valve surgery. It can manifest 5-15 years after the initial disease.

Methods and materials: The chosen imaging method, in order to evaluate the atrial calcifications, was a CT scanning (64-slice MDCT, Brilliance, Philips). The study consisted of a thin sliced, non-Contrast and Contrast chest CT. **Results:** We describe a patient case, who was drug to our attention in need of a redo mitral valve replacement, he had a previous medical history of rheumatic heart disease 40 years ago and 15 years ago he had a double valve replacement, with mechanical valves, surgery (mitral and aortic). The preoperative evaluation revealed calcifications of the entire left atrium, including the septum, and resembled a shell. This condition prevented further surgical intervention.

Conclusion: Although less severe forms of left atrium calcifications (sporadic calcifications of atrial appendage, or free wall of the left atrium, or mitral valve), have been described, the severe form of "coconut or porcelain atrium" (calcification involved all areas of the left atrium, including the septum), has been reported quite rare. The preoperative assessment is crucial, as the existence of dense wall calcifications should be considered a very high-risk factor, for a redo mitral valve operation.

DOUBLE VALVE REPLACEMENT AND RECONSTRUCTION OF THE INTERVALVULAR FIBROUS BODY IN PATIENTS WITH ACTIVE INFECTIVE ENDOCARDITIS

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Endocarditis involving the fibrous skeleton of the heart requires carefully planned surgical intervention. We present a 61 year old male with extensive endocarditis affecting both aortic and mitral valves with involvement of the intervalvular fibrous body (IFB) who underwent double valve replacement and reconstruction of the intervalvular fibrous body. The aortic and mitral valves were approached through the aortic root and the dome of the left atrium. After excising the aortic valve, the diseased fibrous body, and the mitral valve, a prosthetic mitral valve was implanted and two separate bovine pericardium patches were used to close the dome of the left atrium, and to reconstruct the aortic root, reestablishing the aortic and mitral annuli, before implantation of a prosthetic aortic valve. Operative risk is high and remains high for the first year, before becoming equivalent to that of conventional operations for endocarditis. The patient developed antibiotic-induced nephrotoxicity requiring renal replacement therapy and moderate prosthetic aortic valve regurgitation. He was transferred to the cardiology department to continue antimicrobial therapy of infective endocarditis before discharged home.

Keywords: Intervalvular fibrous body, Endocarditis, Surgery, Aortic valve, Mitral valve

POSTPARTUM AORTA DISSECTION IN A PATIENT WITH UNKNOWN MARFAN SYNDROME

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Objective: A 32-year-old patient with a history of normal childbirth ten days ago comes to the emergency department with severe dyspnea, chest pain and palpitation feeling. Emergency screening tests (fast chest CT) reveals aortic dissection and the patient is urgently transferred to the operation room.

Material and methods: The patient has still oedema and anemia, both as a result of pregnancy physiology. She gets attached to the monitor, venous lines are established and, after administration of gastric protection drugs, a rapid induction to anesthesia is made. At the same time antibiotics and tranexamic acid are administered in continuous mode.

The patient is quickly put in extracorporeal circulation where she undergoes ascending aorta and hemiarch replacement with a composite graft under mild hypothermic arrest along with antegrade cerebral perfusion and open distal aortic anastomosis for 181 minutes. After weaning of the extracorporeal circulation, she presents severe bleeding which is treated with prothrombin and fibrinogen complex, as well as with the administration of ten blood platelet units and a red blood cells unit.

Results: After the end of the operation, the patient is transferred to the postoperative care unit of cardiac surgery patients, on noradrenaline and dobutamine drip, where she is successfully awakened and hemodynamically stable the following day, staying stable the next days until the discharge of the hospital.

Conclusion: The early recognition of Marfan patients, especially in pregnant women, possibly performing a combination of electrocardiography and heart ultrasound during pregnancy, could become a lifesaving routine.

SURGICAL REPAIR OF THE ANTERIOR MITRAL LEAFLET USING COREMATRIX IN A PATIENT WITH INFECTIVE ENDOCARDITIS

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Introduction: Extracellular matrix coming from pig small intestine submucosa is being used to repair mitral valve, cardiac septal defects, aortic valve and other structures. After one year 95% of the collagen ECM in these patches is replaced by the normal soft tissue of the heart. The ECM bioscaffold is a satisfactory material for MVr in a variety of surgical situations, including endocarditis. It appears to resist calcification and infection. Additional studies are warranted to determine the long-term durability of repairs made with ECM.

Case report: We report the case of a patient aged 35 years, with a historic of splenectomy, diagnosed with endocarditis affecting mitral and aortic valve with *Enterococcus faecalis* in December 2016 that followed antibiotics specific for 6 weeks, symptomatic with severe dyspnea, headache, vertigo, weight loss and fatigue. The patient was admitted to IBCV Iasi for investigations and surgery.

Diagnosis: The transthoracic echocardiography examination revealed severe mitral regurgitation, abscess and perforation on the anterior leaflet; moderate-severe aortic regurgitation.

Treatment: The surgical treatment consisted in the reconstruction of the anterior mitral leaflet using a patch of CoreMatrix and aortic valve replacement.

ENDOVASCULAR TREATMENT OF PRIMARY AORTOESOPHAGEAL FISTULA

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Case report: A patient presented at our institution in emergency with hypotension associated with hematemesis, posterior chest pain and haemorrhagic shock. Patient was a 62-year-old man with multiple risk factors: chronic kidney disease stage 5, hemodialysis, aortic atheromatosis, the descending thoracic aorta aneurysm. The patient was presented at IBCV Iasi in emergency for investigations and endovascular repair.

Diagnosis: Emergent computed tomographic (CT) showed primary AEF that was caused by the rupture of a aortic aneurysm penetrating ulcer into the esophagus and posterior mediastinum hematoma.

The angiography reveals an aorto-esophageal fistula through left femoral surgical approach.

Treatment: Implantation of a stent graft on the descending thoracic aorta with the exclusion of an aneurysm and closure of the aorto-esophageal fistula through right femoral artery approach.

SURGICAL REPAIR OF AORTIC REGURGITATION USING COREMATRIX AFTER MEDICAL MANAGEMENT OF INFECTIVE ENDOCARDITIS

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Introduction: Extracellular matrix coming from pig small intestine submucosa is being used to repair aortic valve, cardiac septal defects and other structures. After one year 95% of the collagen ECM in these patches is replaced by the normal soft tissue of the heart. Aortic valve repair has become an attractive alternative to aortic valve replacement for the correction of aortic regurgitation; however, little clinical evidence exists in determining which biomaterial at aortic valve repair would be optimal.

Case report: We report the case of a patient aged 30 years, met with CKD stage V undergoing chronic in January 2016, diagnosed with endocarditis on aortic valve with *Staphylococcus aureus* methicillin-resistant in March 2016 that followed antibiotics specific for 6 weeks, symptomatic with severe dyspnea, vertigo and decreased exercise tolerance. The patient was presented at IBCV Iasi for investigations and surgical treatment.

Diagnosis: The transesophageal echocardiography examination revealed CCL rudimentary, severe aortic regurgitation with excentric out-flow, vegetation on the CCL and perforation on CCR and CNC.

Treatment: The patient underwent surgery, which consisted in plastic of aortic valve perforation by closing CCR and CNC with patch CoreMatrix.

VALVE IN VALVE. HOW USEFUL IS THE PREVENTIVE PLACEMENT OF RADIOPAQUE LANDMARKS IN STENTLESS AORTIC VALVE IMPLANTATION?

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Purpose: In patients with aortic stenosis, bioprosthetic valves are increasingly used. Although their benefits, they are also presenting limitations, as their time-related degeneration. Reoperation which was, until a few years ago, the only treatment for this condition, carries a significant surgical risk, especially in patients with multiple comorbidities, so the benefit of less invasive technique enabling the implantation of aortic valve prosthesis (Valve in Valve) by a percutaneous access is remarkably important. Eligible patients are judged by a heart team, and imaging plays a key role in this selection, focusing on correct identification of bioprosthetic aortic valves type and size, evaluation of patients at increased anatomical risk for coronary artery occlusion. Radiolucency of stentless bioprosthetic valves, represent a significant challenge.

Methods and materials: Surgical aortic valve replacements (SAVR) with a bioprosthesis were performed using a stentless valve with no radiopaque components (Solo Smart, Sorin).

The chosen method, in order to evaluate the results of the operation, was CT scanning. The study consisted of a thin sliced Contrast ECG gated chest CT (1 systolic cardiac phase), trying to simulate the required assessment of aortic root and the radiopaque placed markers.

Results: As surgical implant technique varies and may impact the relationship of the prosthetic annulus to the coronary ostia, marking the aortic annulus during the operation in order to have some useful radiopaque landmarks, is a great assistance promoting better orientation and correct identification of the position of the bioprosthetic valve. Although the implantation of metallic vascular clips at the level of aortic annulus (in any commissure or in the middle of any cups) was considered, the decision was to position three metallic clips bellow the aortic annulus in the three stiches ligated during the solo valve implantation.

Conclusion: We are suggesting the preventive implantation of radiopaque landmarks, during surgical aortic valve replacements, using tissue valves which are lacking fixed anatomic markers, as a guide for a presumptive Valve in Valve procedure, keeping in mind that appropriate imaging guidance is crucial and can prevent valve misplacement, coronary obstruction, and other potentially lethal complications.

LONG-TERM OUTCOME OF MITRAL VALVE REPAIR COMPARED WITH MITRAL VALVE REPLACEMENT - A SINGLE CENTER EXPERIENCE

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The aim of the study was to conduct a long-term follow up of patients undergoing mitral valve (MV) repair compared to MV replacement in terms of cardiac function, morbidity and survival due to limited retrospective studies in the field. The authors performed a single center retrospective study on a series of 681 patients that underwent MV surgery over a 13 years period (January 2002-December 2014). The study group was divided into 2 study subgroups, one consisting in 196 patients (28.78%) with MV repair procedures, the second consisting in 485 patients (71.22%) with MV replacement. 91 patients (13.36%) (35 with MV repair-17.86% and 56 with MV replacement-11.54%) were evaluated by routine echocardiography every 6-12 months for 48 months postoperatively. Perioperative and follow-up data were assessed using Kaplan Meier curves, univariate and multivariate statistical tests in terms of prognosis and survival. MV repair was preferred in male patients (2.06:1 male to female ratio) with a mean age 60.09±13.68 years for group I and 57.83±11.76 years for group II. MV repair was performed in 111 patients (56.63%) with mitral regurgitation and type I/II Carpentier lesions. 89 patients with MV repair (45.41%) and 179 patients with MV replacement (36.91%) benefited from additional cardiac procedures. Within 30 days mortality rate was of 1.02% for MV repair (2 cases) and 1.03% for MV replacement (5 cases) (p=0.418). Long-term mortality rate was 4.12% (8 cases) for MV replacement and 5.62% (27 cases) for MV repair at an average of 63.7 months. At 48 months, 24 patient with MV repair 68.57% had no or mild regurgitation and 31 (88.57%) were reevaluated in NYHA class I or II. The independent predictors of mortality were concomitant CABG, renal and liver failure, LVEF <35%, age >73 years. The current study proves good short and long-term survival rates in the setting of significant amelioration of heart function in case of MV repair, thus making it the procedure of choice whenever the anatomy of the mitral apparatus and functional status allows it. Keywords: mitral valve repair, mitral valve replacement, morbidity, mortality, cardiac function

ANTERIOR MITRAL LEAFLET REPAIR: CRITICAL REVIEW OF OPERATIVE TECHNIQUES

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Introduction: Treatment of the mitral regurgitation (MR) represents a challenging situation for the cardiac surgeons due to the complex etiology and pathophysiology of the disease. Today, the benefits of mitral valve (MV) reconstruction for operative correction of MR are well established. Repair of anterior leaflet remains more demanding than that of the posterior leaflet and produces less predictable results.

Objective: The aim of this study is to present different operative technique emphasizing the advantages, disadvantages and the proper indications for each of them.

Materials and methods: This review is based on the assessment of the latest literature for the topic of anterior mitral leaflet repair (AMLR), it evaluates the reproducibility of different techniques, the survival rate, freedom from the reoperation and possible complications.

Results. When used by experienced surgeons the long term results for AMLR are comparable with such techniques as quadrangular resection of posterior leaflet, the freedom from reoperation varies from over 80% for different techniques, none of authors reported deaths caused by bad reparative procedure.

Conclusion: A variety of surgical techniques are currently used for the repair of AML but the optimal treatment is not clearly defined, each technique must be individualized for the specific patient and it's type of disease. Simple repairs where the surgeon is confident of his results should be undertaken in all patients irrespective of their age and condition.

MODERN CHALLENGES IN SURGICAL MANAGEMENT OF AORTIC STENOSIS

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Recent developments in the management of aortic diseases have resulted in a paradigm shift in the surgical management of the condition. Patients previously denied intervention in the form of surgical aortic valve replacement (SAVR) are now candidates for transcatheter aortic valve implantation (TAVI). Meanwhile, the risk and age profiles of those undergoing SAVR are rising consequently to the aging of the population. The aim of the study is to describe comparatively the most prominent current advances regarding the surgical procedures in aortic stenosis (AS) with emphasis on TAVI. There were analyzed 1308 patients that undergone aortic valve interventions at the Cardiovascular Diseases Institute from Iasi, Romania, over a 16 years' period (2000-2015). The surgical procedures were statistically analyzed in terms of immediate and mid term mortality and morbidity. Out of the 1308 patients, 1247 (95.34%) benefited from aortic valve replacement: 298 with bioprosthetic valves (22.78%), 939 (75.3%) with mechanical valves and 10 (0.8%) with TAVI. Most of the patients with bio prosthetic valves presented aortic disease (65.10%) and severe AS (72.48%). Patients with mechanical valves had aortic disease in 53.99% of cases and severe stenosis in 57.08% of cases. All patients with TAVI had severe AS with mild regurgitation. 58 patients (4.69%) with SAVR were reoperated for complications within 30 days, with a higher reintervention rate (9.09%) among patients

>75 years old. Similarly, within 30 days' mortality was higher among elderly patients (4.55%) compared to the whole study group (22 patients - 1.78%). Mean patients' age registered similar values in case of bioprosthetic valves (75.6±8.03 years) and TAVI (73.6±7.5 years). 157 patients with bioprosthetic valves (52.68%) were evaluated by clinical examination and echocardiography for a mean period of 15.08±16.59 months. Mid term complications (leak, mismatch, regurgitation, degeneration) were identified in 14 cases (8.9%). Multiple advances in the surgical management of aortic stenosis have occurred in the past decade. TAVI is gaining terrain in elderly patients due to higher morbidity, mortality and mid term complication rate independent to operative risk.

Keywords: Aortic stenosis, elderly, transcatheter aortic valve implantation (TAVI)

VARIA

THE SURGICAL ANATOMY OF THE AORTIC VALVE AND ROOT

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The arterial (aortic and pulmonary) roots, although apparently of a more simple design, as compared with the atrioventricular valves, depict a more refined, more subtle and still less understood structure and function. The aortic root is constituted of interdependent elements: the sinuses, the leaflets, the interleaflet triangles, the sinutubular junction and additional “annuluses”, and lodges the origin of the coronary arteries. The normal gross anatomy, histology and physiology of the aortic root are synthetically described in order to underscore the importance of a thorough diagnostic interrogation while also presenting the limits of the standard measurements. The characteristics of the diseased aortic root are subsequently described offering a useful guide for a complete and clinically and surgically relevant diagnostic picture, for elaborating the most suited therapeutic indication in the individual patient and for the best and most accurate surgical procedure to be applied.

Key words: aortic root, aortic valve, coronary artery variations, aortic root remodelling, cardiac ultrasound, bicuspid aortic valve, quadricuspid aortic valve

OUR SURGICAL APPROACH FOR HYPERTROPHIC OBSTRUCTIVE CARDIOMYOPATHY (HOCM)

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Introduction: HOCM is a genetic disease, autosomal dominant, characterized by ventricular myocardial hypertrophy, predominantly of the interventricular septum, with variable prodromes, often tempered, but involving a high incidence of sudden death. Global morbidity in adult society is averaging between 0.02-0.023%. In Moldova a complex surgical approaches in the treatment of HOCM has a history of about 5 years. It is steadily improving surgical techniques, being in touch with international protocols.

The aim of study: Presentation of national standards and our experience for complex surgical treatment of HOCM, familiarizing specialists from related fields of cardiac surgery regarding the possibilities of surgical correction of HOCM.

Material and methods: During 2011-2017, in the Republican Clinical Hospital and International Hospital Medpark underwent surgery 33 patients (17 males, 16 females), average age – 52.3 years. Surgical technique selected: Marrow myectomy - 19 patients, the technique R.Dion - 14 patients. Postoperative period complicated with ischemic stroke - 1 patient, postoperative hemorrhage - 1 patient. The mean duration of hospitalization was 7,1 days.

Conclusions: The latest medical literature, relying on complex randomized studies unanimously are telling us that "gold" standard in HOCM treatment, for patients without vital contraindications for cardiac surgery, remains only radical surgical. The surgical approach in HOCM, in combination with complex valvular correction, solves the problem of TEVS obstruction, but also decrease systolic anterior motion of the mitral valve and abolish its regurgitation.

NON-INVASIVE VENTILATION IN CARDIAC SURGERY PATIENTS: CAN WE PREDICT ITS FAILURE?

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Objectives: Aim of this study was to determine causes of NIV failure leading to re-intubation. **Materials and methods:** From June 2012 to May 2016 a total of 1754 patients underwent cardiac surgery in our department. NIV patients were subdivided in 2 groups: NIV failure group, meaning re-intubation in the first 72 hours and NIV success group. The following perioperative variables were compared: Age >75, gender, obesity, Glomerular Filtration Rate, ejection fraction <50%, smoking status, diabetes mellitus, dyslipidemia, arterial hypertension, pulmonary hypertension, peripheral vascular disease, COPD, NYHA stages 3 and 4, REDO, Cardiopulmonary Bypass Time >120 min, transfusion with > 3 RBC units, re-exploration because of bleeding, perioperative infarction, postoperative stroke, acute kidney injury –AKI, need for renal replacement therapy because of AKI –RRT, prolonged mechanical ventilation ($v > 24$ hours). After univariate logistic regression analysis, variables with statistical significance underwent multiple regression analysis which gave the final results. **Results:** The independent perioperative factors associated with NIV failure and need for re-intubation are shown in table 1. **Conclusions:** Prolonged ventilation, postoperative stroke and renal complications described as AKI and especially the most severe type when RRT is mandatory, represent the independent perioperative factors associated with NIV failure. **Factors Adjusted OR 95% CI p** AKI 5.1 1.38-18.8 0.014 RRT 60.21 6.31-574.2 <0.001 Post-op stroke 5.9 1.1-31.7 0.004 Prolonged ventilation 7.5 2.2-25.4 0.001 Table 1. Multivariate analysis of perioperative variables

IS THE PATIENT OR THE OPERATION THE DOMINANT FACTOR FOR DIALYSIS AFTER CARDIAC SURGERY?

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Objective: Acute kidney injury (AKI) complicates recovery from cardiac surgery in up to 30 % of patients. One to 5% of patients develop AKI necessitating renal replacement therapy (RRT). The aim of our study is to evaluate the association between several risk factors and post-op AKI requiring dialysis.

Material and Methods

During a 4-year period, 1624 elective adult cardiac procedures were performed in our unit and forty-two patients (2.6%) received acute dialysis postoperatively. Several pre- and perioperative risk factors were studied and univariate and multivariate analysis was performed.

Results: Age, diabetes mellitus, dyslipidemia, smoking history and history of stroke were not univariately different between those who received and those who did not receive RRT. NYHA functional class, but not ejection fraction, entered the multivariate analysis. The lower pre-op glomerular filtration rate was a univariate but not an independent predictor of dialysis need after cardiac surgery, among patients who were not on chronic dialysis. Cardiopulmonary bypass duration and the amount of blood transfusion proved to be independent predictors of post-op dialysis requirement.

Conclusion: Reviewing the literature and based our results, a question was raised regarding the predominant factor for dialysis: is it the pre-op patient's condition, or the more complicated procedure?

POSTOPERATIVE CHYLOPERICARDIUM: SOME ALTERNATIVE MODALITIES OF TREATMENT

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Objectives: Chylopericardium is a rare but potentially lethal complication following cardiac surgery. Although may appear in combination, isolated chylopericardium is different and far more rare than its pleural counterpart, chylothorax. It may occur due to many diverse reasons. As no single effective method of treatment has been established, various maneuvers have been attempted in its management. Objectives of this study is to compile various measures adopted with some newly adopted innovative techniques in combating this rare but gruesome and potentially fatal condition. **Materials and Methods used:** As a rare disorder, Chylopericardium is difficult to study due to scarcity of patients. In this retrospective study we have studied the management strategies adopted in 5 different Bangladeshi hospitals. Some innovative ideas have come out from the different management strategies. The hospital records have been thoroughly examined. The concerned surgeons, anesthetists, interventionists have been interviewed. **Results:** In addition to the routinely practiced methods of treating chylopericardium, some important factors and new innovative ideas have been figured out. These include using dietary interference of chyle production, maneuvering hydro-static pressure, using drugs reducing fat absorption, modifying chest closing technique etc. **Conclusions:** Despite being a disturbing and potentially fatal condition, there hasn't been any single strategy in combating chylopericardium. Some new innovative ideas have been figured out in the management of isolated chylopericardium. These may be of help in reducing the treatment cost, morbidity and mortality of this troublesome postoperative complication following cardiac surgery.

MINIMALLY INVASIVE VASCULAR SURGERY - A POSSIBLE ALTERNATIVE IN MODERN VASCULAR SURGERY

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Considered "gold standard" for many years, open vascular surgery is marked by difficulties generated by the major invasive character which reflects into the intra- and postoperative evolution of the patients. Due to this reason, the reproducibility of these procedures has to suffer.

This presentation is meant to sustain various vascular surgical procedures with major impact on the work volume of the vascular centers in our country.

Cerebral surgical revascularization - the most frequent is carotid endarterectomy.

This procedure can be performed in a minimal invasive manner, through a incision of 3-4 cm in length.

The advantages of this procedure are represented of lesser invasivity, lower bleeding risk, maximal cerebral protection, reduced hospitalization.

Open surgical revascularization of aorto-iliacal arterial lesions is an another field in which minimal invasive approaches can be used.

The advantages of aorto-ilio-femoral bypasses are obvious but require classical procedures with high invasivity and important morbidities. Using minimal invasive techniques allows significant reduction of invasivity and associated morbidities.

The advantages of these techniques are quantified by the intensive care time needed, less blood products required, quicker and easier mobilization of the patient, less hospital stay and thus higher cost-efficiency.

Phlebologic surgery - in current practice, routine imposes utilization of several simultaneous techniques which are called by us hybrid approaches and consists if association of open minimal invasive with endovascular surgery.

In conclusion, associating various technological opportunities to our current medical practice, allows us to be less invasive for our patients and thus more cost-efficient for our medical system.

NOVEL STENT DESIGN FOR TRANSCATHETER MITRAL VALVE IMPLANTATION

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Aims: In this study results of a functional in vitro study of two newly developed valved stents for transcatheter mitral valve implantation (TMVI) are presented.

Methods: Two novel stent designs, an oval shaped and a D-shaped stent with a strut fixation system were developed. The fixation force of the novel stents were tested in vitro in porcine hearts with a tensile test setup. In further experiments, the stents were equipped with a circular valved stent and the valve performances were investigated in a pulsatile heart valve tester.

Results: Sufficient mean stent fixation forces in the range of 24.2 ± 0.9 N to 28.6 ± 1.9 N were measured for the different stent models. The novel valved stents showed good performance in an in vitro pulsatile heart valve tester. A sufficient opening area and low opening pressures were measured for all tested mitral valved stents. Compared to an established reference valve the D-shape and oval valved stent showed a lower systolic transvalvular pressure gradient which indicates slightly higher valvular leakage of the closed valved stents. However, the mitral nitinol valved stents demonstrated adequate durability.

Conclusion: This study indicates a sufficient annular fixation force of the tested TMVI valved stent prototypes. Therefore, these mitral valved stents demonstrate a new type of mitral valved stent design.

Key words: TMVI, transcatheter, mitral valved stent, off pump, in vitro testing, mitral design, offpump, stent design, mitral valve, mitral reconstruction, mitral replacement

DEGENERATIVE MITRAL VALVE DISEASE - MODERN APPROACH

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Background: Mitral valve regurgitation is a relatively common and important heart valve lesion. Barlow's disease and fibro-elastic deficiency both are a common form of degenerative mitral valve disease, associated with mitral valve prolapse. During last years, is observed the tendency of a paradigm shift - the concept turns to dysplasia of connective tissue. In this review, we remark the differentiation point of Barlow's disease and fibro-elastic deficiency related to the worldwide experience of a better approach.

Methods: We reviewed international reports on mitral valve degenerative disease of major critical care journals with publications ranging from 2007 - 2017. Our primary outcomes were to describe the anatomical and morphological variability of the mitral valve. Interestingly was to describe the morphological diversity: the thickness shift of leaflets, diversity of amorphous substance; collagen, reticular and elastic fibers displacement.

Results: We have obtained data on the anatomical and morphological variability of the mitral valve for both disorders included in the pattern of degeneration. Important was to discover reports of different patterns for dysplasia of connective tissue referred to mitral degeneration. Moreover, size shifting of scallops could be a barrier factor. Our research determined some minor peculiarities as choosing an operating technique, or even the leaflet's scallop for the best result related to histological and morphological variability, especially in fibro-elastic deficiency.

Conclusions: Nowadays management of degenerative mitral valve remains often suboptimal for many patients, and this article explores the need for a new approach in the field of degenerative mitral valve regurgitation, that should mandatory include anatomical and morphological variability.

Keywords: Mitral valve, Anatomical variability, Morphology.

DETERGENT-BASED DECELLULARIZATION STRATEGY WELL-PRESERVES MACRO- AND MICROSTRUCTURE OF PULMONARY HEART VALVES

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Background: Heart valve disease is an increasingly prevalent and clinically serious condition resulting in substantial morbidity and death worldwide. Biological tissue has great potential to function as bioprostheses in patients for heart valve replacement.

To remove the antigenicity of the tissue, bioscaffolds must be decellularized while preserving the complex mixture of structural and functional proteins that constitute the extracellular matrix. An intact microstructure of the material is mandatory since reseeding of scaffolds can prevent calcification. Unfortunately, an optimal decellularization protocol of heart valve leaflets resulting in adequate preservation of the extracellular architecture is still lacking.

Material and Methods: Here, we compared three different decellularization strategies for their efficiency to maintain acellular scaffolds with a preserved heart valve ultrastructure. Porcine pulmonary heart valves were treated either with 1) Trypsin-EDTA (TRP), 2) a protocol using detergents in combination with nucleases (DET+ENZ) or 3) AccutaseTM solution followed by nuclease treatment (ACC+ENZ). The treated heart valves then underwent histological, DNA and SEM analysis. Fresh (native) porcine pulmonary valve tissue samples served as controls.

Results: Histological and DNA analysis of leaflets decellularized with ACC+ENZ revealed complete removal of all cellular components, whereas cellular removal was incomplete in the TRP group. However, TRP and ACC+ENZ-treated valves were enlarged and showed a disrupted architecture and degraded ultrastructure. SEM analysis supported this result, as the remaining extracellular matrix appeared loose and ruptured. In contrast, fully acellular heart valves with intact architecture, layer composition and surface topography were achieved with DET+ENZ treatment.

Conclusions: Our observations show that in comparison with TRP and ACC+ENZ procedures DET+ENZ treatment preserved macroscopic structures and microscopic matrix components *in vitro*, resulting in an excellent scaffold for further application in tissue engineering. Additional studies will investigate whether *in vitro* seeding of leaflets with autologous progenitor cells before implantation leads to optimal functional tissue engineered heart valves *in vivo*.

LMT OSTIAL PLASTY USING SUPERFICIAL FEMORAL ARTERY PATCH IN TAKAYASU AORTITIS

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Takayasu aortitis is a disease of unknown cause that affects mainly the aortic arch and the proximal portion of its main branches, including the coronary artery ostia.

A 37 year old female suffered severe AR and 90% stenosis of LMT. We successfully performed LMT ostial plasty with superficial femoral artery patch in combination with David procedure. Postoperative coronary CT showed satisfactory opening of the LMT ostium. Surgical tips and long term result of previous similar case will be discussed.

RARE CASE OF A RETROSTERNAL TUMOR WITH COMPRESSION OF SUPERIOR VENA CAVA

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A 33-year-old female patient had about 1 year before an episode of thoracic and back pain. Now a chest X-ray showed a tumor connected to superior vena cava and ascending aorta. In the CT scan, it showed 9x6 cm with compression of the vein and attached to the ascending aorta with calcifications. The tumor was directly behind the sternum. The surgical resection was performed with the support of extracorporeal circulation.

LEFT VENTRICULAR NON-COMPACTION. DIAGNOSTIC TECHNIQUES

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Left ventricular non-compaction (LVNC) is a cardiomyopathy associated with sporadic or familial disease, the latter having an autosomal dominant mode of transmission. The clinical features associated with LVNC vary from asymptomatic to symptomatic patients, with the potential for heart failure, supraventricular and ventricular arrhythmias, thromboembolic events, and sudden cardiac death.

A multimodal diagnostic approach is the current recommendation for the diagnosis of LVNC.

Echocardiography is the diagnostic modality of choice, revealing the pathognomonic features of a thick, bilayered myocardium, prominent ventricular trabeculations and deep intertrabecular recesses. Although echocardiography may be limited by its dependence on ultrasound windows and the skill of the operator, it remains the front-line imaging modality of choice.

New echocardiographic techniques, including tissue Doppler imaging, strain rate imaging, and speckle tracking, are available to provide a more objective and quantitative assessment of LVNC. Myocardial strain values have been shown to be abnormal in patients with LVNC even in the presence of normal LV systolic/diastolic function. Speckle tracking is helpful to describe abnormal LV body rotation/twist. Additional morphological evaluation can be performed with 3-dimensional echocardiographic analysis and contrast echocardiography. Both techniques allow detailed, accurate assessment of the number of trabeculations, compacted segments, intertrabecular recesses, and trabecular volumes. However, both techniques retain an element of user dependency and experience to perform and interpret the imaging findings.

Cardiac magnetic resonance imaging (CMR) is increasingly used to confirm the diagnosis of LVNC. CMR also offers direct characterization of myocardial fibrosis, which is an independent prognostic marker in different types of cardiomyopathies.

Diagnosis by echocardiography and CMR imaging must be concordant. This concept may help not to overdiagnose LVNC, but it has to be validated.

Multidetector computed tomographic angiography (CTA) may also be used to assess features of LVNC. It provides excellent spatial and contrast resolution for the evaluation of myocardial morphology with the added advantage of providing information relating to the coronary arteries and intrathoracic vasculature. Although not usually recommended as a first-line investigation, it may be useful where CMR imaging is contraindicated or insufficient image quality has been obtained echocardiographically.

Cardiac catheterization and coronary angiography are used to provide information about coronary artery and cardiac anomalies.

Future directions for accurate diagnosis may incorporate a multimodality imaging approach, possibly modified for ethnicities, with particular focus on the functional diagnostic assessment of LVNC.

WAKE-UP STROKE AFTER CARDIAC SURGERY - TREATMENT CHALLENGE

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Patients waking up with stroke symptoms represent a distinct but underprivileged fraction of patients. Because in a wake-up stroke the time of symptom onset is unknown these patients are a challenge to acute stroke treatment.

Based on the accepted criteria and guideline recommendations, the unknown time window since symptom onset excludes the majority of this sub group from reperfusion treatment with intravenous thrombolysis and mechanical endovascular treatment. However, a number of patients might benefit from reperfusion treatment beyond the 6-hour time frame. We present two cases of successfully treated wake-up stroke patients after cardiac surgery with Penumbra system ®.

CARDIAC DISEASE AND PREGNANCY

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Cardiac disease is a leading cause of maternal death in pregnancy in many countries, including the Romania. One-third of these deaths are a result of myocardial infarction/ischemic heart disease. Pregnancy itself raises the risk of acute myocardial infarction by three- to four-fold, with the risk being 30 times higher for women over the age of 40 years compared with women aged less than 20 years. Other risk factors include chronic hypertension, pre-eclampsia, diabetes, smoking, obesity and hyperlipidemia. A similar number of late deaths are associated with peripartum cardiomyopathy. Other significant contributors (5–10% each) are rheumatic heart disease, congenital heart disease and pulmonary hypertension. Congenital heart disease is one of the most common congenital abnormalities and the majority of those affected will survive to adulthood, in large part because of the development of effective corrective/palliative surgery over the last 30 years. Women at significant risk of adverse events during pregnancy should be seen regularly in the tertiary antenatal clinic. A further multidisciplinary meeting should take place at 32–34 weeks of gestation to establish a plan of management for delivery. The general principle of intrapartum management is to minimize cardiovascular stress. In most cases, this will be achieved by the use of early slow incremental epidural anaesthesia and assisted vaginal delivery. Caesarean section is usually necessary only for obstetric indications. In order to optimize maternal and neonatal outcomes, close collaboration between the maternal-fetal medicine specialist and the cardiologist is important.

DISTAL BYPASS SURGERY IN PATIENTS WITH DIABETES MELLITUS

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Introduction: Diabetes mellitus is a multisystemic disease, a widespread pathology worldwide, and its incidence is estimated to increase in the coming years. Its complications such as atherosclerosis, neuropathy, retinopathy or nephropathy are the main causes of mortality and morbidity of this disorder. The purpose of this study is to evaluate the importance of the main methods of medical and surgical treatment in chronic and / or critical lower limb ischemia in patients with diabetes. **Material and methods:** This study was performed on a consecutive series of 71 patients with lower limb ischaemia, in Fontaine III and IV class. Distal revascularization procedures, but also associations with endovascular procedures have been performed. The results were evaluated in the short and medium term. **Results:** Favorable post-treatment results were obtained in 76% of patients, where the trophic lesions were healed and the bypass was functional. The death rate was 2.5%. The internal safen vein constituted prosthetic elective material for distal revascularization. **Conclusions:** Distal arterial revascularization is the method of choice in diabetic lower limb ischemia, with the best results in healing ulcerative lesions and decreasing amputation rates.

Key words: distal arterial bypass, diabet mellitus, lower limb ischemia

A DIFFICULT CASE OF MITRACLIP AFTER PREVIOUS MITRAL RING DISPLACEMENT - FAR BEYOND THE EVEREST CRITERIA

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We present a 67-year-old male with ischemic cardiomyopathy and severe functional MR, admitted for acute decompensated heart failure. The patient had previously performed cardiac surgery intervention in 2012 with triple CABG and mitral valve annuloplasty.

TTE on admission revealed severe systolic dysfunction (EF 25%), LV spherical remodeling, severely dilated LV and severe functional MR with abnormally high pulmonary pressure.

TEE confirmed severe MR with central jet by tethering of both mitral leaflets, big tenting area and a particular movement of the mitral annuloplasty ring. 3D reconstruction, the key point in understanding this case, revealed mitral ring dislodgement with clockwise rotation. The ring plane resulted obliquely oriented with respect to the mitral coaptation line, creating two unequal mitral orifice (intra-ring and extra-ring orifice).

The surgical risk for reintervention was too high, so the patient was considered for MitraClip as a nonconventional case without ideal valve morphology. The main problem encountered was to pass through the right mitral orifice, the intra-ring orifice, in order to perpendicularly reach the coaptation line and the regurgitant jet. Another pitfall was the anteroposterior distance of the prosthetic ring which resulted to be smaller than the diameter of the open clip, so the clip had to be advanced in a closed position. RT3DE played a crucial role in the clip orientation which had to be performed in the LV.

We presented a nonconventional MitraClip procedure in a patient with mitral ring dislodgement and modified anatomical approach, with good postprocedural results and optimal follow-up parameters.

CATHETER DIRECTED THERAPY FOR PULMONARY EMBOLISM

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The treatment and outcome of acute pulmonary embolism (PE) have remained unchanged over the last few decades. Recently a formation of multidisciplinary PE response teams with a more multimodality approach to the treatment of PE promises better results. Apart of anticoagulation and traditional fibrinolysis there are available other treatment options with a focus on the interventional approach. Catheter-based therapies aim to relieve obstruction quickly and restore pulmonary blood flow, improving cardiac output and converting a hemodynamically unstable patient into a stable one. Catheter-directed therapies (CDT) might include clot fragmentation, aspiration, and low-dose fibrinolytic injection. For unstable patients who require immediate intervention and/or those with contraindication to fibrinolysis, mechanical thrombus fragmentation, debulking, or aspiration of occlusive thrombi may be attempted. Also Fragmentation and aspiration of PE may be helpful in stabilizing patients with massive PE, especially when systemic fibrinolysis has failed. Multiple techniques have been tried with success. The aim is to reduce the load on the RV by partially relieving the obstruction in the main PA branches. Although fragmentation alone may cause distal embolization and potentially worsen distal branch obstruction. Aspiration can be attempted using specialized catheters. Complexity and the requirement for a surgical cutdown for access prevented it from being widely adopted. A new aspiration system which uses large venous catheter that can remove soft thrombi utilizing a centrifugal pump and venous reinfusion cannula has been approved for the removal of undesirable intravascular material, including fresh, soft thrombi or emboli. Although it is more commonly used to retrieve thrombi from the vena cava and right atrium. Currently, there is not enough evidence to strongly support routine utilization of any of these techniques in the management of submassive or massive PE, beyond anticoagulation. Although invasive therapy as a first-line management of intermediate and high-risk PE, it is reasonable to reserve it for patients with massive PE and shock, who have contraindications to fibrinolysis, or who have failed other treatments, or who have concomitant intracardiac thrombus or paradoxical embolus.

INTRAOPERATIVE, 30-DAY AND 6 MONTHS INITIAL CLINICAL EXPERIENCE WITH A NEW COMMERCIALY AVAILABLE THORACIC STENT GRAFT SYSTEM (ANKURA™/ LIFETECH - CHINA). DATA OF A SINGLE CENTER STUDY

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Background: To evaluate the intraoperative performance, safety and efficacy of a new commercially available thoracic stent-graft system (Ankura™/ Lifetech) for the endovascular treatment of thoracic aortic diseases, reporting also 30-day and 6 months follow-ups.

Methods: From February 2014 till April 2016, 51 patients, 38 male, (median age 64,5 years), 13 female, (median age 68 years) received endovascular treatment with the Ankura™ Stent Graft device at a single center in Athens, Greece, for diseases of thoracic aorta (20 degenerative aneurysms, 7 type B dissections, 6 dissecting aneurysms 7 traumatic pseudoaneurysm, 2 penetrating ulcer, 1 intramural hematoma and 1 isthmic stenosis). The mean operation time was 2 hours 14 minutes.

Results: During operation, there was no major complication or death. In one single case, the device presented mechanical damage of the sheath, where a different company's device also did not succeed to be released. In 2 cases the delivery of the device was unsuccessful due to atherosclerotic iliac arteries and implantation of surgical graft in the common iliac arteries through which finally passed the device was needed.

In all other cases the stent graft was easily released with no migration. The mean post operation discharge time was 4,5 days. In hospital, 30 days and 6 months follow-up with CT scan showed optimal graft function. There was 1 case with type I prox. endoleak (successfully re-operated), 3 cases of type I distal endoleak under surveillance. 3 cases had transient paraparesis postoperatively, treated with lumbar drainage. There is no graft thrombosis or migration.

Conclusion: In this single center clinical study the Ankura Thoracic Stent Graft, has demonstrated high procedural technical success and very satisfactory 30 days and 6 months clinical outcome, showing a promising capacity to treat a variety of thoracic aortic diseases. Further studies and longer follow ups are needed.

POSTER

MEDIASTINAL TUMORS, TYPES, FREQUENCY AND WAY OF CARE

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Introduction: Mediastinum is anatomical space which is situated between two pleuras, in front is a sternum, behind is a spine, low border is a diaphragm and up it is open to the neck. There are 4 anatomical parts: upper mediastinum where thymus is situated, aortic arch and his branches, oesophageus, ductus thoracicus and nerves (n.vagus,n.phrenicus,n.reccurens); front mediastinum with thymus, limph nodes, mediastinal connective tissue, branches of mammar's arteries and veins; middle mediastinum is a space of heart and pericard, trachea and main respiratory tract, pulmonary artery and veins; back mediastinum where are oesophageus, descendent aorta, ductus thoracicus , n.vagus, thoracic sympaticus. Diagnostic is made by standard chest radiography, multislice computerized tomography (MSCT) of thorax, magnetic resonance (MR) of thorax, esophagography, angiological methods and tumor markers of mediastinal neoplasms.

Goal: We wanted with this research to examen frequency, types of mediastinal tumors and the way of care in group of hospitalized patients at The Clinic for chest surgery Medical Military Academy in the period from 01.01.2016 to 16.06.2017.

Material and method: From 01.01.2016 to 16.06.2017 there were 65 patiens hospitalized with mass in the mediastinum. Considering diagnostic examens there were planed elective diagnostic and therapeutic interventions. 46 masses were localized in the front mediastinum, 11 in the middle and 8 in the back mediastinum. Front mediastinum was location for 42 thymomas which were resolved by video-assisted thoracoscopy (VATS) , two lymphoma were diagnosticed on the same way and one teratoma and perikard's cyst were treated throw mini-thoracotomy. In the middle mediastinum we were extirped bronchogenes cyst throw mini-thoracotomy, by mediastinotomy we approved microcellulare cancer, by mediastinoscopy squamocellulare thymus cancer. We used VATS biopsy for diagnosis 6 lymphoma and two neoplastic conglomerats of lymph nodes in the middle mediastinum. Back mediastinum was predilection place for two neurofibromas, one neuroblastoma wich are clasically removed and one shvanoma wich were extirped by VATS and 4 lymphoma were diagnosticed by VATS. 32 patients were resolved by VATS, 31 by thoracotomy and one by mediastinoscopy and mediastinotomy. Average age was 44,6. Sex ratio was almost equal 32 female :33 male.

Conclusion: Total frequency of mediastinal tumors is 0.1%. Sex ratio is equal. Today minimal invasive surgical intervention VATS takes advantage in surgical treatment of mediastinal masses.

Key words: mediastinal tumor, surgery, video-assisted thoracoscopy (VATS).

HISTOPATHOLOGICAL AND IMMUNOHISTOCHEMICAL ANALYSIS OF THE ATRIAL APPENDAGE OF THE PATIENTS WITH ATRIAL FIBRILLATION OR SINUS RHYTHM

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Background: Atrial fibrillation (AF) is the most common arrhythmia and despite obvious clinical importance remains its pathogenesis only partially explained. A relation between inflammation and AF has been suggested by findings of increased inflammatory markers in AF patients.

Objective: The goal of this study was to characterize morphologically inflammatory cell populations in atrial myocardium of patients with AF as compared to sinus rhythm (SR).

Methods: We examined 20 subjects (10 with AF, and 10 in SR) undergoing coronary bypass or valve surgery. Postoperative bioptic samples of the left and the right atrial tissue were examined using HP and immunohistochemistry.

Results. The number of isolated CD3+ T-lymphocytes and CD68-KP1+ cells were elevated in the left atrial myocardium of patients with AF compared to those in SR. No foci of inflammation were detected in any sample.

Conclusions: An immunohistochemical analysis of samples from patients undergoing open heart surgery showed moderate and site-specific increase of inflammatory cells in the atrial myocardium of patients with AF compared to those in SR. These cells and their cytokine products may play a role in atrial remodeling and AF persistence.

AORTIC ANEURYSMS OBSERVATIONS IN ASSOCIATION WITH ATHEROMATOUS ARTERIAL DISEASE

Doina Butcovan, Elena Deju, Grigore Tinică

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Background: Atherosclerosis and aortic aneurysms are multifactorial diseases with known and common environmental risk factors that contribute toward disease development.

Methods. The study was made in a period of 5 years, between 2012 and 2016 on surgery aortic specimens processed by using routine histological methods and by assesment of aortic aneurysms features of the thoracic and abdominal aortic aneurysms in relation with atherosclerotic risk factors.

Results: A histological description of the atherosclerotic lesions located within thoracic and abdominal aneurysm, in 20 patients, 17 men and 3 women, with mean age of 60.45 years is presented. The affected aorta showed various degrees of ATS lesions in relation to degree of destruction of the arterial wall on surgical resected aortic segments. The paper also studied the atherosclerotic aneurysm in association to severe complications, which shows the necessity of continuous monitoring of these patients.

Conclusions: Our study explored the association between the features of thoracic aortic aneurysms (TAA) and abdominal aortic aneurysms (AAA) in comparison with atherosclerotic (ATS) risk factors and showed there was a clear association of TAAs and AAAs with cigarette smoking and obesity and showed more advanced ATS lesions in abdominal aorta than thoracic aorta. The more studies are necessary to explore the common etiology involvement in both AAs.

SURGICAL CORRECTION OF ASCENDING AORTIC ANEURYSM ASSOCIATED WITH AORTIC REGURGITATION BY CORRECTING AORTIC ROOT GEOMETRY

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Ascending aortic aneurysms are frequently associated with aortic regurgitation in the absence of structural valvular damage consequently to sinotubular junction geometrical alterations. Although Bentall and Wheat interventions are traditionally considered the standard in the treatment of these conditions, normal leaflet morphology might offer the chance for a valve sparing surgical approach. The method is sustained by two underlining principles: remodeling of the sinotubular junction and cranial relocation of the aortic annulus by using a shorter graft for the dilated aortic aneurysm. The second principle represents an improvement over the remodeling technique proposed by Tirone David due to its hemodynamically better correction overwhelmed by a greater long term patency. Between 2002 and 2015 in IBCV Iasi 71 eligible patients (51.04±12.07 years) were surgically treated by ascending aorta replacement with Dacron graft simultaneously with the aortic valve preservation. 22 (30.98%) patients benefit by elective surgery for aortic aneurysms while 49 (69.01%) cases with aortic dissections were considered as emergencies. Perioperative echocardiographic and computed tomography analyses were done in order to document the degree of aortic valve incompetence and to evaluate the aortic root morphology. Surgically, the sinotubular junction was remodeled by using Dacron graft or PTFE bands. The aortic valve plane was relocated in a more cranial/oblique position by using the length of the Dacron graft thus being restored the normal anatomical alignment. Preoperative, all patients presented moderate to severe aortic regurgitation. Perioperative mortality was 14.28% in the acute dissection group and 0% in the elective surgery group. During a mean follow-up of 5.73 years' aortic regurgitation was absent (78.87%) or mild (21.13%), while the size of the sinotubular junction and the length of the ascending aorta had better values throughout echocardiographic examinations. Postoperative computed tomography revealed a decrease in the aortic length, a narrowing of the sinotubular junction, a moderate aortic root diameter reduction, and an angular widening between the aortic root plane and longitudinal spinal axis. The aortic relocation technique is simple, reproducible, provides satisfactory mid term results and can be successfully applied in treating aortic insufficiency secondary to ascending aorta aneurysm.

Keywords: aortic aneurysm, relocation, aortic valve, annular plane

A SMALL TYPE A THYMOMA DEVELOPED ON ECTOPIC THYMUS CYST ASSOCIATED WITH LYMPHOID B-CELL HYPERPLASIA

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A 73-year-old male was discovered to have an unilocular cystic growth (~3.5 cm in diameter) in the anterior mediastinum, adjacent to ectopic thymus foci located within mediastinal adipose tissue. The cystic wall, was lined by a single layer of flattened to cuboidal epithelial cells and was partially encircled by a solid mass of fusiform neoplastic cells with unilocular intratumoral cystic structure. Based on the location and histopathologic findings of the growth, concurrent spindle-cell thymoma and thymic cysts was diagnosed in association with an abundant lymphoid stroma with prominent germinal centers. We also discuss the association between thymic cysts and thymoma and review the literature of ectopic cystic thymomas in adult patients.

LEFT ATRIAL, LEFT ATRIAL APPENDAGE AND PULMONARY VEINS ANATOMICAL VARIANTS IN PATIENTS WITH ATRIAL FIBRILLATION VERSUS PATIENTS IN SINUS RHYTHM

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The aim of the study is to evaluate by multidetector computed tomography (MDCT) the prevalence, location and size of LA (left atrial) diverticula and accessory appendages, the prevalence of PVs anatomical variants and LAA (left atrial appendage) shapes in patients with atrial fibrillation (AF) compared to patients in sinus rhythm (SR). Images obtained by MDCT in a group of 100 patients with <1 year paroxysmal or persistent AF prior to radiofrequency catheter ablation and in a group of 100 patients in SR with unconfirmed or insignificant (<50%) coronary arteries stenoses were compared. The prevalence of LA diverticula (22% in AF group, 19% in SR group) and accessory appendages (6% in AF group, 5% in SR group) was not significantly different between the two groups. Similar sizes of LA diverticula and accessory appendages were registered in patients with AF and in SR. The prevalence of a common left venous trunk was significantly higher in patients with AF (27%) compared to patients in SR (20%) (p=0.009). LAA had a complex shape but no significant differences concerning the prevalence of the 4 major types were registered between the groups. The only parameter associated with AF was the presence of a left common trunk suggesting that it is either a consequence or a predisposing factor for the development of AF.

PARTIAL ANOMALOUS PULMONARY VENOUS CONNECTION (CAVO-PULMONARY WINDOW)

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Introduction: A partial anomalous pulmonary venous connection is a rare congenital cardiac defect. In PAPVC, the blood flow from a few of the pulmonary veins returns to the right atrium instead of the left atrium. In this case, we are talking about very rare finding and mostly involves the anomalous drainage of the right superior pulmonary vein and the middle pulmonary vein into the superior vena cava. **Diagnosis:** The Angiographic – CT revealed right superior pulmonary vein in superior vena cava (Fig. 1), the middle lob vein communicating side-to-side with SVC before opening to the common right pulmonary venous ostium. The catheterization underlined the existence of two venous aberrant drainages going to the right atrium, which cause a left-to-right shunt and a pulmonary circulation overload ($Qp/Qs = 4.87$; Normal $Qp/Qs < 1$). **Case report:** We report the case of a 36 years old male, diagnosed at the age of 2 with patent foramen ovale, with a 1-year history of increasing dyspnea, chondrocostal pain and sometimes tiredness. The clinical exam revealed a systolic murmur with an intensity of 2/6 in the right parasternal 2nd -3rd intercostal space. He was referred to our institution for additional investigations and surgical treatment. **Management:** The patient underwent a surgical treatment which consisted of redirecting the partial anomalous pulmonary venous connection (right superior pulmonary vein + right middle pulmonary vein) – and the closing of the cavo-superior type of atrial septal defect with a patch of autologous pericardium.

THE ROLE OF VACUUM ASSISTED CLOSURE IN THE TREATMENT OF POSTSTERNOTOMY MEDIASTITIS

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Background: Poststernotomy mediastinitis is one of the most feared complications in patients undergoing cardiac surgery. The overall incidence of poststernotomy mediastinitis is relatively low, between 1% and 3%, however, this complication is associated with a significant mortality, usually reported to vary between 10% and 25%. Nowadays there is a wide range of wound-healing strategies but none of them is fully effective in all cases. Vacuum-assisted closure is a novel treatment which proved its efficiency in poststernotomy mediastinitis and can supplement or replace classical treatment.

Material and methods: A 65 years old patient with diabetes, above knee amputation on left and chronic venous insufficiency in right leg, who undergo a CABG procedure with radial and 2 internal thoracic arteries, developed mediastinitis and a big sternal coaptation defect. The complex management of the patient included selection of optimal antibacterial therapy, wound debridement and sternal resection, application of VAC therapy with moderate negative pressure of 125 mm Hg with further closure with pectoralis muscle flaps plasty.

Results: Patient was discharged in a good physical condition, the follow up did not reveal any residual complications. **Conclusion:** This case suggests a highly effective role for the VAC device in the treatment of poststernotomy mediastinitis. The VAC technique can be considered as a method that combines the benefits of both closed and open wound treatment.

THE MANAGEMENT OF MULTISITE ARTERY DISEASE: SYSTEMATIC REVIEW AND META-ANALYSIS

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Multisite artery disease (MSAD) is defined as symptomatic or asymptomatic atherosclerosis (ATS) involving at least two major vascular territories. It affects approximately 15% of patients diagnosed with ATS disease at any site. In case of patients with coronary artery disease (CAD) one may apply the rule of 20%-20% have concomitant peripheral artery disease (PAD), 20% carotid artery stenosis (CAS), and 20% renal artery stenosis (RAS). Up to 50% of patients with PAD, CAS or abdominal aorta aneurysm (AAA) present CAD. Regardless the incidence and worse prognosis, there are few studies and available evidence specifically focused on MSAD. In 2010, the European Society of Cardiology in association with European Association for Cardio-Thoracic Surgery issued the first guideline on myocardial revascularization including specific recommendations in case of concomitant CAS, PAD, RAS. The authors performed a search on MEDLINE database on clinical studies, randomized trials, reviews and meta-analyses dealing with various atherosclerotic disease associations in order to analyze therapeutic strategies, to assess prognosis and to compare them with the ones applied at the Cardiovascular Diseases Institute from Iasi, Romania. Several therapeutic options have been proposed for MSAD, from medical treatment to endovascular interventions, but little evidence from randomized clinical trials and the lack of specific guidelines led to arbitrary therapeutic strategies variable from one team to another according to individual experience. In our opinion, from various revascularization combinations, concomitant carotid endarterectomy (CEA) and coronary artery bypass grafting (CABG) are associated with best outcomes in terms of short and long-term morbidity and mortality and represents the strategy currently applied in our clinic with 0% mortality between 2004-2015.

Keywords: multisite artery disease, coronary artery disease, carotid artery stenosis, renal artery stenosis

INTRALOBAR PULMONARY SEQUESTRATION; A DELAYED FIRST CLINICAL MANIFESTATION WITH MASSIVE HAEMOPTYSIS DUE TO ANEURYSMAL, ABERRANT FEEDING ARTERY

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Objectives: Pulmonary sequestration is a rare congenital malformation of the lung. Lack of communication with the tracheobronchial tree and presence of systemic arterial blood supply is typical of this clinical entity. Pulmonary sequestrations are divided in intralobar (75%) and extralobar (25%). Most cases are diagnosed before the age of 20 years.

Material and methods used: A 20-year-old man without medical history was admitted to our hospital due to massive hemoptysis without similar previous manifestations. The chest CT-scan revealed an intralobar pulmonary sequestration in his right lower lobe supplied by an aberrant feeding arterial branch from the descending aorta with aneurysmal dilatation.

Results: The patient was submitted to right lower lobectomy due to the degeneration of the entire lobe because of the lesion. The aneurysmal feeding vessel directly from the descending aorta was successfully divided by an endostapler as initial manipulation. The patient was discharged from hospital in an excellent clinical condition.

Conclusions: Massive hemoptysis is an extremely rare first manifestation of pulmonary sequestration in adulthood. Aneurysmal feeding aberrant artery can lead to lethal complications, and surgical resection once diagnosed is the standard of care in order to prevent them.

PULMONARY ACTINOMYCOSIS. A RARE BENIGN CLINICAL ENTITY MASQUERADING AS LUNG CANCER; KEEP IT IN MIND

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Background: Pulmonary or thoracic actinomycosis is a rare bacterial infection mimicking lung cancer. A surgical intervention may be required for its diagnosis and subsequent treatment.

Materials and methods used: A heavy smoker, 76-year old man with a history of alcohol abuse, having dyspnea was referred to our hospital due to right lower pulmonary lobe consolidation with large ipsilateral pleural effusion. A lung cancer was suspected. He was already receiving intense, intravenous, antibiotic therapy with piperacillin/tazobactam and linezolid. No fever was detected. A chest tube was inserted in his right pleural cavity but pleural effusion cytology revealed no malignancy. PET-CT revealed a high metabolic activity (SUVmax:8) 5.6cm lesion of the right lower lobe. Bronchoscopy revealed no endobronchial lesion. The lung ventilation/perfusion scan showed decreased activity of the right lung (29%).

Results: Right lower lobectomy was performed due to the central location of the mass. The postoperative course was uncomplicated and the patient discharged in good condition. The final histology revealed pulmonary actinomycosis and the patient was entered in a 6-month duration antibiotic treatment with excellent response.

Conclusions: Pulmonary actinomycosis can be misdiagnosed as lung cancer. As a result, histological and microbiological confirmation is required for the diagnosis. When thoracic actinomycosis is early diagnosed and proper antibiotic treatment is administered, the prognosis is excellent with very low mortality.

SURGICAL TREATMENT OF THE TAKAYASU IIB AORTO-ARTERITIS WITH ANEURYSM OF THE ASCENDING AORTA

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Case presentation: Takayasu Arteritis is a rare, chronic and nonspecific inflammatory disease that involves aorta and its large branches. We present the case of a 36-year-old female patient from our clinic, accusing dyspnea, syncope, fatigability, sweating, and vertigo. Since 2008, she had anemia and inflammatory syndrome of unknown cause, which despite treatment was not resolved. In 2012, an echocardiogram established following a few syncope episodes the diagnosis of moderate-severe aortic insufficiency. In 2014, a CT exam is performed, highlighting the ascending aortic aneurysm that confirms the urgent necessity of surgery, which took place in March 2014 and consisted of replacing the aortic valve with a biological prosthesis and the ascending aorta with a Dacron conduit. The definitive diagnosis was confirmed by the histopathological examination. The postoperative evolution was marked by the progression of vascular lesions (despite rheumatological consultation and treatment) in the aorta (periprosthetic infiltration adjacent to the ascending aorta and the presence of a pseudoaneurysm on this level) and also in the subclavicular and carotid arteries (with no significant haemodynamic lesions, but with a stroke and left sensory brachial monoparesis), as well the progression of NYHA II to III cardiac insufficiency. The patient subjectively accusing accentuated fatigue, constrictive, prolonged, without a strict relationship with the effort chest pain (coronary arteries with hemodynamic insignificant lesions). An aortic aneurysm should be considered as a possible complication of Takayasu Arteritis and the vascular lesions progress despite localized surgical intervention.

PREMATURITY AND THE RISK OF LONG TERM CARDIOMETABOLIC DISEASE

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An estimated number of 15 million infants are prematurely born annually and this number is continuously rising. One of the most prominent causes of death among children younger than 5 years old is represented by preterm complications at birth. The nutrition of premature infants is one of the most important domains in their multidisciplinary care. Premature infants are a different population whose nutritional needs, developmental maturity, and long-term outcomes are different from those of term infants. Nutrition in the first day of life has long term implications: malnutrition represented by undernourishment and overnutrition influence nutrition and the evolution of health in the long run. Early nutrition in preterm infants has long-term adverse consequences represented by obesity, glucose intolerance adult-onset hypertension and neurodevelopmental sequelae. Numerous factors are associated with obesity in preterm infants: small for gestational age, the timing of complementary feeding, rapid weight gain, epigenetic factors. The accelerated growth rate in the first 4 months of premature life is associated with insulin resistance and cardiovascular disease. In premature infant’s long-term strategies are needed to prevent diabetes and cardiovascular diseases in order to reduce the mortality and morbidity at a younger age.

Keywords: premature infants, early nutrition, cardiovascular disease

PULSE WAVE VELOCITY MEASUREMENT - EARLY INDICATOR FOR ATHEROSCLEROSIS

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Objectives: Pulse wave velocity (PWV) is an index of aortic stiffness and a predictor of cardiovascular mortality. Since aortic PWV is influenced by age, it may be important for the evaluation of cardiovascular risk in the elderly.

Material and methods: Arterial stiffness indexes can suggest to begin treatment before symptoms or clinical signs appear. The most important factor contributing to increase in PWV is age because of increased arterial stiffness caused by medial calcification and loss of elasticity. The increase in PWV could be an early indicator of atherosclerosis development. There is a qualitative association between the process of atherosclerosis and arterial rigidity.

Results: We compared values of wave speed (s) calculated from measurements of pressure (P) and velocity (V) using different analytical methods: PU-loop, β stiffness parameter, characteristic impedance, foot-to-foot method, and the sum of squares (Σ^2). Wave intensity analysis refers to the energy flux per unit area (W/m²) carried by a wave. It uses one-dimensional flow equations of mass and momentum conservation solved through the method of characteristics, thus accounting for non-linear components of flow in elastic arteries and holding the advantage of time domain treatment.

Conclusions: There is no gold standard technique for calculating wave speed. The sum of the squares method (Σ^2) provides a good estimate of wave speed with low variation. The wave intensity analysis is receiving increasing attention as a diagnostic tool, as it provides data on the source of waves, wave interaction and wave propagation in the arterial system, including the coronary tree.

UNIDIRECTIONAL DOUBLE VALVED PATCH FOR REPAIR OF LATE PRESENTING AORTOPULMONARY WINDOW

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Background: Aortopulmonary window is a rare anomaly with an overall incidence of 0,2%-0,5%, it represents a communication between the ascending aorta and the main pulmonary artery with intact semilunar valves. Prognosis in the absence of correction is poor, with mortality of 40% in the first year of life. Postoperative pulmonary hypertensive crises and right-sided heart failure remain the predominant cause of death in patients undergoing septation of the aortopulmonary window with moderate-to-severe pulmonary arterial hypertension. The use of unidirectional fenestrated valved patch for closure of aortopulmonary window is rarely described.

Materials and methods: A 16 years old female presents an aortopulmonary window associated with persistent left superior vena cavae, confirmed imagistically. Cardiac echography revealed a low-pressure gradient at the level of defect - 10 mm Hg, with persistent left to right shunt. Cardiac catheterization showed a Qp/Qs ratio of 3,5 and pulmonary hypertension close to the systemic – over 50%. Surgical closure of the defect was performed with unidirectional double valved patch made of bovine pericardium.

Results: Postoperative evolution was uneventful. During 6 months follow-up the exercise tolerance was significantly increased and there were no signs of right cardiac heart failure. **Conclusion:** The use of a one-way, valved aorticopulmonary septal patch as part of the surgical repair may allow decompression of the right-sided chambers in the event of perioperative pulmonary hypertensive crises, thus preventing postoperative right-sided heart failure. This technique further improves the surgical results and allow closure of the fenestration after the remission of pulmonary vascular reactivity.

MARFAN SYNDROME COMPLICATED WITH THORACIC AORTA DISSECTION - A FAMILY CASE PRESENTATION

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Marfan syndrome (MFS) is the most common inherited disorder of connective tissue affecting multiple organs: skeletal, ocular, and cardiovascular systems. The most life-threatening and life-shortening complication is aortic dissection. Without surgery, life expectancy of MFS patients is reduced to approximately 32 years.

Objective. The purpose of this presentation is to reveal the necessity of the early operative treatment in a patient diagnosed with Marfan syndrome and the importance of screening tests in this group.

Materials and methods. The report is based on the analyses of the medical history of three patients, first degree relatives, diagnosed with Marfan syndrome who were admitted and operated in the department of cardiovascular surgery for the aortic dissection. The diagnosis was based on the echographic, angiographic and computer tomography data.

Results. All three patients were discharged in a good physical condition with the proper cardiac function and anticoagulation drugs. The follow-up of the patients didn't reveal any further complications.

Conclusion. The screening of patients with Marfan syndrome for an aortic aneurysm is a useful and necessary instrument in the prevention of acute aortic dissection. The choice of the surgical procedure is based on the identification of the type of the dissection, its extension and the preference of the surgeon.

COMPLEX TREATMENT OF THE POSTSTERNOTOMY MEDIASTITIS - CASE PRESENTATION

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Background: Poststernotomy mediastinitis is one of the most feared complications in patients undergoing cardiac surgery. The overall incidence of poststernotomy mediastinitis is relatively low, between 1% and 3%, however, this complication is associated with a significant mortality, usually reported to vary between 10% and 25%. Nowadays there is a wide range of wound-healing strategies but none of them is fully effective in all cases. Thus, the treatment of this complication requires a complex approach and sometimes a multidisciplinary surgical team.

Material and methods: A 65 years old patient obese, diabetic, with COPD and arteriopathy with lower limb amputation undergone a miocardial revascularisation with two internal mammary arteries. Nine days after surgery the secondary sternoraphy was performed using Robiceck technique because of sternal fracture which he got after extreme psychomotor agitation. One month after discharge patient was readmitted in our service with poststernotomy mediastinitis and a big sternal coaptation defect. The complex management of the patient included a selection of optimal antibacterial therapy, wound debridement and sternal resection, application of VAC therapy with a moderate negative pressure of 125 mm Hg with further closure with pectoralis muscle flaps plasty.

Results: Patient was discharged in a good physical condition, the follow up did not reveal any residual complications.

Conclusion: In this case, the complex and aggressive approach with repeated surgical debridement, application of VAC therapy and the use of vascularized musculocutaneous flaps has demonstrated the extremely high efficacy in the treatment of poststernotomy mediastinitis.

LONG-LASTING NEUROBEHAVIORAL CONSEQUENCES OF SUCCESSFULLY RESUSCITATED CARDIAC ARREST - A LITERATURE REVIEW

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The rate of successful resuscitation of cardiac arrest is constantly increasing due to timely addressability and the improvement of pre-hospital medical interventions. However, quite often this results in persisting neuropsychological consequences, more or less obvious during clinical examination or everyday life.

We review in the present paper the most important data regarding persistent neuropsychological deficits reported to occur following cardiac arrest. Consisting mostly of isolated clinical cases or groups of cases, they may configure a profile of neurobehavioral long-lasting disturbances more or less specific to this etiopathogeny.

CLINIC'S EXPERIENCE IN ENDOVASCULAR TREATMENT OF PERIPHERAL ARTERIAL DISEASE

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Introduction: Endovascular surgery is a young direction of vascular surgery, but with a very dynamic development and an impressive potential. It has the advantage of minimally invasive and efficient resolving of all ischemic lesions of the arterial shaft, especially those of run-off, inaccessible to open vascular surgery.

Methods: Endovascular technologies in the treatment of peripheral vascular disease have been implemented in Surgery Clinic No. 4, Republican Clinical Hospital, Chisinau in 2013, with the establishment of the endovascular surgery department. During 2014-2017, 840 endovascular interventions (percutaneous transluminal angioplasty – ATP and/or Stenting - ATPS) were performed. In 2014, 71 interventions were performed, of which 18(25.35%) aortic – iliac ATP, 26(36.6%) femuro – popliteal ATP, 6(8.4%) femuro – popliteal ATPS and 12(16.9%) tibial ATP. In the later years the number and variety of interventions increased steadily: in 2015 – 211 interventions, in 2016 – 293 interventions and in January – July 2017 – 285 interventions. Thus, of 840 interventions 7(0.83%) are subclavicular ATPS, 5(0.6%) abdominal visceral branches ATPS, 173(20.5%) aortic – iliac ATPS, 230(27.38%) femoral ATP, 101(12%) femuro-popliteal ATP, 141(16.78%) tibial ATP and 79(9.4%) multilevel ATP: 15 (1.78%) femoral/tibial ATP, 64 (7.6%) popliteal/tibial ATP. In addition to peripheral arterial disease, 26(3%) cases of pediatric cardiac surgery, 63(7.5%) cases with superficial visceral embolization, 11(1.3%) venous endovascular interventions and 5 cardio stimulator implants were performed. Most interventions in the aortic-iliac segment were achieved by brachial approach. The rate of surgically treated access complications was 0.95% (8 cases).

Conclusions: Endovascular treatment is an important option in the therapeutic arsenal of peripheral arterial disease, being frequently and the only way to succeed. Its share in the treatment of acute and chronic cardiovascular pathologies is steadily increasing, especially in patients with high surgical and anesthetic risk.

NEGATIVE T WAVES - INNOCENT SIGN OR HIDDEN DANGER?

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Case presentation: A 38-year-old male patient with no previous medical history was admitted for sharp, moderate chest pain, with onset of less than a week, related to moderate physical activities.

The patient was a smoker, had dyslipidemia and a family medical history of type II diabetes. The patient had no current treatment and mentioned gaining 20 kg in weight in the past 6 months. Physical examination was unremarkable with a blood pressure of 140/90 and a pulse rate of 80/min.

The baseline ECG showed negative T waves in DIII and aVF leads.

Echocardiography showed inferior wall motion abnormalities with a normal ejection fraction. Percutaneous coronary angiography was performed revealing sub-occlusive RCA II stenosis (>90%) with placement of a drug eluting stent which allowed for restoration of blood flow.

Key points: New onset angina with negative T waves in inferior leads in a young man with few cardiovascular risk factors, coronary angiography revealed subocclusive RCA stenosis treated with PCI.

SERUM LACTATE AS A PREDICTOR OF MORTALITY AND MORBIDITY AFTER PAEDIATRIC CARDIAC SURGERY

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Background. The accurate identification of patients who have the potential to further deteriorate after cardiac surgery is difficult. Hyperlactataemia after cardiac surgery in children is associated with an increased risk of adverse outcome. **Objective.** The aim of this study was to investigate the effect of increased serum lactate on outcome in children after the cardiopulmonary bypass. **Methods:** Serum lactate level was measured in 152 children undergoing open heart surgery in a tertiary pediatric cardiac surgical unit and were collected at the time of admission to the pediatric intensive care unit, the following data were collected from the medical records. Lactate level was more than 2 mmol/l in 71 patients (group1) and less than or equal to 2 mmol/l in 81 patients (group2). **Results.** Demographic characteristics and details of surgery were similar in both groups. Increased cross-clamp ($62,8 \pm 12,0$ vs $30,2 \pm 5,8$ minutes, $p < 0,0001$) and cardiopulmonary bypass times ($89,8 \pm 13,6$ vs $53,1 \pm 8,8$ minutes, $p < 0,0001$) were associated with a significant rise in postoperative lactate levels. The duration of ventilatory support ($21,3 \pm 4,1$ vs $14,3 \pm 2,4$ hours, $p = 0,0017$) and intensive care unit stay ($3,9 \pm 1,0$ vs $2,3 \pm 0,3$ days, $p = 0,0007$) was significantly increased in patients from groupe1. The incidence of multiple organ dysfunction syndrome was greater in group1 (20(28,2%) vs 7(8,6%), $p = 0,0016$) patients. **Conclusions:** This study has demonstrated that elevated blood lactate level is associated with adverse outcome, and monitoring the blood lactate level during and after cardiac surgery is a valuable tool in identifying the patients who have the potential to develop postoperative complications.

MULTIPLE ORGAN DYSFUNCTION SYNDROME AFTER PEDIATRIC CARDIAC SURGERY

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Background: Despite the scientific, technological and surgical improvements of the elective paediatric cardiac surgery utilising cardiopulmonary bypass, continues to account for increased complications, the potential for multiple organ dysfunction syndrome. **Objective.** Estimating the risk factors for multiple organ dysfunction syndrome in children after the cardiopulmonary bypass and particularities of organ dysfunction in this population. **Methods.** We selected 152 children undergoing open heart surgery, during January-December 2015, divided into 2 groups: group 1 included 27 children that included criteria for multiple organ failure by Goldstein and lot 2, patients who did not develop MODS. **Results.** Demographic characteristics and details of surgery were similar in both groups. In patients who developed MODS were increased cross-clamp ($94,6 \pm 21,7$ vs $35,1 \pm 5,5$ minutes $p < 0,0001$) and cardiopulmonary bypass times ($132,9 \pm 26,6$ vs $56,9 \pm 6,5$ minutes $p < 0,0001$). The duration of ventilatory support ($34,7 \pm 9,5$ vs $14,2 \pm 1,4$ hours $p < 0,0001$) and intensive care unit stay ($6,8 \pm 2,4$ vs $2,2 \pm 0,2$ days $p < 0,0001$) was significantly increased in patients from MODS group. The serum lactate level was higher in group 1 ($3,2 \pm 0,6$ vs $2,03 \pm 0,2$ mmol/l $p = 0,00002$). In the study group died 4 (2,6%) patients, all with MODS. **Conclusions.** The clinical criteria adopted have allowed the identification of risk group for MODS, the predisposing factors being increased duration of the CBP and aortic cross-clamp. The MODS prevalence in our group is 17.7%, in contrast to the percentage reported in other studies that has been between 10.9% and 27.2%. The most common types of dysfunction were those of the respiratory, cardiovascular and liver system.

MATHEMATICAL MODEL OF AORTIC BLOOD FLOW USING WINDKESSEL EFFECT

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Objectives: The aim of this study to mathematically model the blood flow to the aorta, to establish the relationship between blood pressure and blood flow in the aorta, the compliance of blood vessels, and to compute the analytical and numerical solutions for analyzing the results of the Windkessel Model used in cardiac modeling.

Material and methods: In the electrical analog, the arterial compliance (C in cm³/mmHg) is represented as a capacitor with electric charge storage properties; peripheral resistance of the systemic arterial system (R in mmHg x s/cm³) is represented as an energy dissipating resistor. The flow of blood from the heart (I (t) in cm³/s) is analogous to that of current flowing in the circuit and the blood pressure in the aorta (P (t) in mmHg) is modeled as a time-varying electric potential. The 3-Element Windkessel Model simulates the characteristic impedance of the proximal aorta.

Results: The basic Windkessel model calculates the exponential pressure curve determined by the systolic and diastolic phases of the cardiac cycle. As the number of elements in the model increases, a new physiological factor is accounted for and more accurate the results are when related to the original curve.

Conclusions: We were able to model a healthy heart, where the blood pressure is expected to vary between 80 mmHg - 120 mmHg during the cardiac cycle. The model is capable of absorbing the fluctuations in the blood dynamics during the cardiac cycle.

LIPOMATOUS HYPERTROPHY OF INTERATRIAL SEPTUM (LHIS)

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The objectives: Lipomatous hypertrophy of Interatrial Septum (LHIS) is an uncommon but benign lesion of the heart, with the presence of fatty tissue at the anatomical position of the interatrial septum. The aim of our study is to highlight this specific pathological entity, as well as its precise characteristics according to the chosen imaging method, in order to avoid unnecessary procedures and cause unnecessary anxiety in patients.

Material and methods: We retrospectively reviewed chest CT scans and coronary CT angiograms, which were performed in our department, using our 64-slice MDCT, Brilliance, Philips.

Results: Lipomatous hypertrophy of Interatrial Septum (LHIS), represents a relatively rare entity. It is, most often, a random finding in asymptomatic patients, but has also been implicated in the induction of supraventricular arrhythmias. The role of CT is to emphasize it's specific imaging characteristics, including fat composition and particular shape, contributing to the differential diagnosis of the lesion from other left atrial tumors, in order to be avoided more invasive procedures or cost-effective imaging techniques such as PET.

Conclusions: In keeping with the benign nature of the lesion in most patients, treatment is mandatory only in patients with the compromise of superior or inferior vena cava and arrhythmias unable to be controlled conservatively.

TYMIC PATHOLOGY IN THE CLINIC OF CARDIOVASCULAR DISEASE

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Introduction: In the past two years, there have been 4 cases with thymic mediastinal pathology: a case with unilateral thymic cyst, a thymolipoma associated with mediastinal liposarcoma, a case with type B2 thymoma and a thymic carcinoma. Pathology of the thymus embraces many aspects but the cases presented have been performed in our clinic. The first case is a 28-year-old female with a mediastinal cystic form. The second case is the presence of a thymolipoma in a 28-year-old in combination with myasthenia gravis generalized form and mediastinal tumor. The third case is a woman of 45 years with myasthenia gravis and mediastinal tumor. The fourth case is a 53-year-old patient with a mediastinal tumor.

Material and methods: All cases have been operated. In the first case, a 5/2 / 0.5-1 cm, oblong, translucent, yellow-red, tall, slightly granular surface was extracted. The second case presented 2 pieces: 1. Tumor fragment of 1.5 / 1.5 / 1 cm, un-encapsulated, hard, yellow-brown-rosiatic and 2. Timus with 8/6/2 cm surrounded by and interspersed with adipose tissue. The third case presented an encapsulated tumor of 5.5 / 3.5 / 2 cm, high consistency, white-gray-and-gray color, and the last case (4th) presented macroscopically like a tumor with dimensions of 5 , 5/4/3 cm sectioned by the surgeon, with high consistency, gray, uncoated. The harvested fragments were included in paraffin and colored with the usual techniques HE, VG, PAS-Alcian, Gomory. Malignant tumors were IHC stained.

Results: The histological aspects change depending on the lesion and the deviation from normal (in the case of malignant cells), it changes from the wall of cystic formation padded with flattened or cuboidal epithelial cells, sometimes with squamous metaplasia in the case of unilocular thymic cyst to well-defined characters of cellular atypia with complete loss of thymus-specific architecture as well as the absence of immature lymphocytes. In the first case, a 28-year-old woman, colored with common techniques (HE, VG), was diagnosed with unilocular thymic cyst. The second case, male, 28 years old, usually stained with HE, VG, especially with PAS-Alcian, Gomory, Argentic Impregnation, PM (Movat Pentachrome), and immunohistochemically S 100 – positive diffuse in the lesion, CD34- positive in vessels and focal in stromal cells, SMA-positive in vascular walls, CK7-negative, AE 1/3 negative, CD 45- positive in inflammatory infiltrate and Ki-67 positive approx. 1-3% diagnosis being well-differentiated liposarcoma (lipomatous atypical tumor). The third case, female, 45 years, required IHC: CD57-positive staining in small lymphocytes, CK19- positive in tumor cells, CD117-negative, TdT and CD3-positive in thymocytes, KI67-positive 10%. The diagnosis was of B2 type. Case No.4, Female, 53 years, IHC: CD5 positive in small lymphocytes and rare tumor cells, CD117 positive in tumor cells, TTF1 negative in tumor cells, P63 positive in tumor cells dispersed, Ki67 positive 60% in tumor cells, negative ER in tumor cells have supported the diagnosis of squamous cell carcinoma of thymic origin.

Conclusions: Thymic cyst is of embryonic origin. In case of well-differentiated liposarcoma, tumor location, histology, size and subtype are the most important prognostic indicators. The prognosis of predominantly cystic thymoma (the particularity of the case diagnosed in our clinic) depends, as with other types of thymomas, on stage, microscopic type, complete excision, myasthenia gravis, proliferation index, and DNA ploidy. The complete loss of thymus-specific architecture as well as the absence of immature type lymphocytes can be considered as an unfavorable prognostic factor as they are found in various types of thymic carcinoma.

VIDEO PRESENTATIONS - HOW TO DO?

A NEW PATHOLOGY ORIENTED REPAIR TECHNIQUE FOR POSTERIOR MITRAL LEAFLET: “MT. FUJI” REPAIR TECHNIQUE (VIDEO PRESENTATION IN AATS MITRAL CONCLAVE 2017)

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The most common repair technique for posterior leaflet prolapse is quadrangular or triangular resection. In case of excessive P2 prolapse, numerous surgical procedures, such as sliding plasty has been proposed to reduce the risk of systolic anterior movement (SAM). However, in these procedures, intact clear zone tissue should be resected. In posterior leaflet prolapse, pathologically diseased tissue is mainly located at the tip of the leaflet and clear zone is usually intact. We developed a new pathology-oriented repair technique for posterior mitral leaflet prolapse: “Mt. Fuji” repair technique, which can provide fool-proof resection line of pathologically diseased segment with preservation of intact clear zone tissue and reconstruction with no need of artificial chordae or second chordal transfer.

AVR ON BEATING HEART FOR VERY POOR LV FUNCTION

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Objective: The operative strategy for the severe aortic stenosis accompanied with severe left ventricular dysfunction is still controversial. Here we report a case of the patient on whom we performed aortic valve replacement on pump beating heart without cardiac arrest.

Methods and results: A 65-year-old male patient had been suffered from congestive heart failure. LVEF was 18% and he was on inotropic agents. The aortic pressure gradient was 35mmHg meaning the patient was on low flow low gradient aortic stenosis. The aortic valve was bicuspid, which was not suitable TAVR. We decided to perform surgical AVR. After the establishment of heart lung machine and total extracorporeal circulation was obtained, the aorta was clamped. the both coronary artery were perfused using intra coronary self-expandable cannula with the blood flow of 300ml/min. The cannula was stabilized on the aortic wall with snaring. The heart continued beating well. The operative field was comfortable for valve replacement procedure. 23mm mechanical valve was implanted with the running suture technique of three of 5-0 Propylene. After the aortomy was closed and deairing was completed, the clamp was released. The aortic cross clamp time was 45 min. The heart tolerated well all procedure and the weaning from CPB was easy. The patient was extubated on the next day and recovered well. The LVEF recovered up to 32% at discharge.

Conclusions: There are several strategies for such bad condition patient with LFLG AS with very impaired left ventricle. Our technique is the old one, but still good option.

ROBOTIC BI-LOBECTOMY FOR PULMONARY TUBERCULOSIS

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Objectives. Pulmonary bi-lobectomy is rare surgical procedure for pulmonary tuberculosis treatment. Nevertheless minimally invasive approach can be implement in such cases for improved postoperative outcomes. The purpose of this case is the demonstration first robot-assisted thoracoscopic bi-lobectomy.

Material and methods. Male, 31 years old, with drug sensitive cavitary pulmonary tuberculosis of the right upper and middle lobes was admitted to the chest center after 11 months antituberculosis treatment. RATS right upper bilobectomy was performed. The overall operative time and blood loss were 190 min and 50 ml respectively. Trocars were inserted in 7th (camera port), 6th and 7th (instrumental ports), 9th (assistant port) intercostal spaces. There was a feature of vascular anatomy: additional middle lobe artery and seventh segmental artery had the same origin from intermediate trunk of pulmonary artery.

Results. Postoperative course was associated with prolonged air leakage and additional chest tube thoracostomy. There were not late postoperative complication during one-year follow up.

Conclusions. This clinical case showed feasibility of the robot-assisted bi-lobectomy for pulmonary tuberculosis. Robotic system provides high quality visualization and carefully division of the pleural adhesions and hilar structures.

THE AIM OF RECOVERY THERAPIES IN PATIENTS UNDERGOING CARDIAC SURGERY

PREOPERATIVE EVALUATION AND POSTOPERATIVE FOLLOW-UP IN CARDIOVASCULAR SURGERY

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Cardiac surgery is associated with significant morbidity, mortality and socioeconomic costs. Preoperative assessment assists the clinician in identifying potential complications. Careful patient selection and preparation during preoperative evaluation may minimize morbidity, mortality and resource use. The result of preoperative investigation may predict the postoperative support required in order to maximize the chance of a good and short recovery. As the population ages and care becomes more sophisticated, cardiac surgery is being performed on older, sicker, and more complicated patients. Simultaneously, the spectrum of cardiac surgery is expanding, with increasing use of both minimally invasive techniques and mechanical circulatory support devices. Follow-up of patients after surgery is very important as results of the surgery depend on the treatment of the patient in the follow-up period. A good follow-up and treatment also provide protection to the patient from various complications and recurrence of the disease. We present the algorithm that we use in our clinic in pre- and postoperative management of patients according to the guidelines and recommendations from the medical literature.

THE ROLE OF INTEGRATIVE MEDICINE TO IMPROVE THE HEALTH OF THE HEART AND OF THE CARDIOVASCULAR SYSTEM

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“We are to our best when we allow the doctor inside to go to work.” Albert Schweitzer

Across the history of civilization, human beings have improved the level of their lives but have forgotten how to maintain their health.

Actually, it is a reality that the progress realized at the scientific and technical level increases the level of stress, anxiety, depression, isolation, non-communicability, anger, revenge, suspicions, factors which perturb at an invisible and invisible level the functions of our entire being.

In this context, Integrative medicine, using different technics such as music, meditation, Ayurvedic medicine, traditional Chinese medicine, tai-chi, su-jok, yoga, prayers, hypnosis, respiratory exercises, diet, has an important in the improvement not only of the condition of our heart and of the cardiovascular system, but also our entire health. Integrative medicine includes elements which stimulate our energy for establishing the harmony for our whole being, harmony between the physical body, the psychological balance, his spirit, mind, and soul.

The studies made in many hospitals and medical institutes across the world where Integrative medicine was applied reveal that these technics have a great role in establishing and maintaining the psychophysiological balance of the human being, which means improving the quality of one's health and life.

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