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International College of Angiology

In conjunction with

PragueIntervention X
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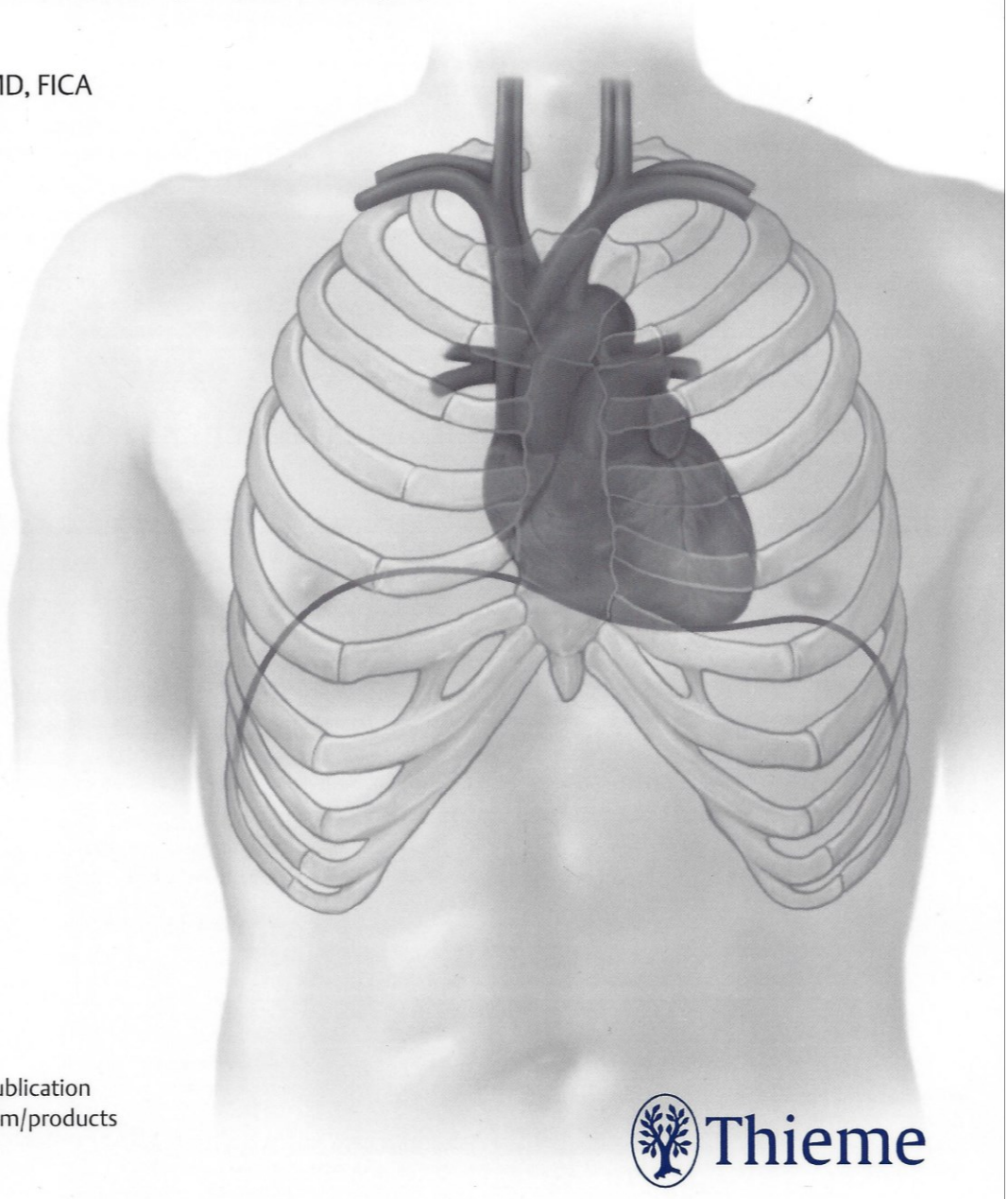

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International College of Angiology

Founding Fathers and Past Congresses

The founding fathers of the International College of Angiology were Dr. Saul Simon Samuels and Dr. Rene LeRiche. It was Dr. Saul Samuels who in 1942 coined the name "Angiology" from the Greek words meaning the "science of the blood vessels."

The International College of Angiology was organized and chartered in 1958, in order to encourage, support, and facilitate research and education in vascular diseases. It was the founding fathers of the International College of Angiology that have made our College unique, in that it integrates the discipline, knowledge, and skills of several specialties, which treat the many faceted illnesses that result from disorders of the vascular system.

Year		Venue
1958	1st Annual Meeting	Atlantic City, New Jersey
1959	2nd Annual Meeting	Mexico City, Mexico
1960	3rd Annual Meeting	
1961	4th Annual Meeting	
1962	5th Annual Meeting	Las Vegas, Nevada
1963	Caribbean Conference on Angiology	San Juan, Puerto Rico
1964	6th Annual Meeting	
1965	7th Annual Meeting	London, England
1966	8th Annual Meeting	Madrid, Spain
1967	9th Annual Meeting	Las Vegas, Nevada
1968	10th Annual Meeting	Geneva, Switzerland
1969	11th Annual Meeting	Rome, Italy
1970	12th Annual Meeting	Dublin, Ireland
1971	13th Annual Meeting	Copenhagen, Denmark
1972	14th Annual Meeting	London, England
1973	15th Annual Meeting	Lisbon, Portugal
1974	16th Annual Meeting	Montreal, Canada
1974	French Scientific Congress	Paris, France
1975	17th Annual Meeting	Herzalia, Israel
1976	18th Annual Meeting	Tucson, Arizona
1977	19th Annual Meeting	Dublin, Ireland
1978	20th Annual Meeting	Marbella, Spain
1979	21st Annual Meeting	St. Louis, Missouri
1980	22nd Annual Meeting	Vienna, Austria
1981	23rd Annual Meeting: Part I	Zurich, Switzerland
1981	23rd Annual Meeting: Part II	Lisbon, Portugal
1982	24th Annual Meeting	Antwerp, Belgium
1983	25th Annual Meeting	Killarney, Ireland
1984	26th Annual Meeting	San Antonio, Texas
1985	27th Annual Meeting	Hilton Head, South Carolina
1986	28th Annual Meeting	Nice, France
1987	29th Annual Meeting	Montreux, Switzerland
1988	30th Annual Meeting	Amsterdam, The Netherlands
1989	31st Annual Meeting	Rome, Italy
1990	32nd Annual Meeting	Toronto, Canada
1991	33rd Annual Meeting	Singapore
1992	34th Annual Congress	Budapest, Hungary
1993	35th World Congress	Copenhagen, Denmark
1994	36th World Congress	New York, New York
1995	37th World Congress	Helsinki, Finland
1996	38th World Congress	Cologne, Germany
1997	39th Annual World Congress	Istanbul, Turkey
1998	40th Annual World Congress	Lisbon, Portugal
1999	41st Annual World Congress	Sapporo, Japan
2000	42nd Annual World Congress	San Diego, California
2001	43rd Annual World Congress	Berlin, Germany
2002	44th Annual World Congress	New York, New York
2003	45th Annual World Congress	Indianapolis, Indiana
2004	46th Annual World Congress	Lexington, Kentucky
2005	47th Annual World Congress	Uncasville, Connecticut
2006	48th Annual World Congress	Charlotte, North Carolina
2007	49th Annual World Congress	Vancouver, Canada
2008	50th Golden Anniversary Congress	Tokyo, Japan
2009	51st Annual World Congress	Beijing, China
2010	52nd Annual World Congress	Lexington, Kentucky
2011	53rd Annual World Congress	Bali, Indonesia
2012	54th Annual World Congress	Innsbruck, Austria
2013	55th Annual World Congress	New Haven, Connecticut
2014	56th Annual World Congress	Columbus, Ohio
2015	57th Annual World Congress	Jakarta, Indonesia

58th Annual World Congress • ICA 2016
PragueIntervention X
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June 2, 3, 4, 2016

Scientific Program
Thursday, 2 June 2016
08.30 h.
Opening Ceremony and Introductions

Master of Ceremonies
Introduction By:

Prof. Josef Veselka, MD, PhD, FESC, FSCAI, FICA
Professor of Internal Medicine (Cardiology); Member and Secretary General, Board of Directors, Co-Chairperson, Scientific Committee and Chairman, Local Organizing Committee, 58th Annual World Congress, International College of Angiology; Chairman, Organizing Committee, PragueIntervention X; Member, Editorial Board, *International Journal of* Angiology; Head, Department of Cardiology, Motol University, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic.

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Welcome Address

Prof. Josef Veselka, MD, PhD, FESC, FSCAI, FICA
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Opening Address

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Thursday, 2 June 2016 (Continued)
08.45 h. – 09.45 h.
Congress Hal 1

Professor John B. Chang Memorial Lecture

Kailash Prasad, MBBS (Hons), MD, PhD, DSc, FRCPC, FACC, FIACS, FICA
Professor Emeritus, Department of Physiology, College of Medicine, University of Saskatchewan; Chairman, Board of Directors, International College of Angiology; Program Chairman, 58th Annual World Congress, International College of Angiology; Consulting Editor, *International Journal of Angiology;* Department of Physiology College of Medicine, University of Saskatchewan, Saskatoon, Saskatchewan, Canada.

09.45 h. – 10.00 h.

Posthumous ICA Lifetime Achievement Award to Professor John B. Chang

Presentation by:

Kailash Prasad, MBBS (Hons), MD, PhD, DSc, FRCPC, FACC, FIACS, FICA
Professor Emeritus, Department of Physiology, College of Medicine, University of Saskatchewan; Chairman, Board of Directors, International College of Angiology; Program Chairman, 58th Annual World Congress, International College of Angiology; Consulting Editor, *International Journal of Angiology;* Department of Physiology College of Medicine, University of Saskatchewan, Saskatoon, Saskatchewan, Canada.

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10.00 h. – 10.15 h. — COFFEE BREAK

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10.15 h. – 11.15 h.

Symposium 1 **Congress Hal 1**

PragueIntervention X
Fibrilace síní dnes
(Atrial Fibrillation Today)

Chairpersons:

Václav Durdil, MD
Department of Cardiology, Motol University Hospital, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic.
Assoc. Prof. Lucie Riedlbauchová, MD, PhD
Department of Cardiology, Motol University Hospital, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic.

•

10.15 **Katetrizační ablace—strategie a indikace: (Catheter Ablation—Strategies and Indications: Assoc. Prof. Lucie Riedlbauchová, MD, PhD,** Department of Cardiology, Motol University Hospital, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic.

10.30 **Okluze ouška levé síně: (Left Atrial Appendage Occlusion: Václav Durdil, MD,** Department of Cardiology, Motol University Hospital, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic.

10.45 **Nová antikogulancia v praxi—návod "jak na to:" (Novel Oral Anticoagulants in Practice—"How I Do It:" Jakub Honěk, MD,** Department of Cardiology, Motol University Hospital, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic.

11.00 h. – 11.15 h. – A Panel Discussion

Questions and Answers with Audience Participation

Thursday, 2 June 2016 (Continued)
11.15 h. – 12.30 h.

Symposium 2 **Congress Hal 1**

PragueIntervention X
Změna paradigmat v kardiovaskulární medicíně
(Change of Paradigms in Cardiovascular Medicine)

Chairpersons:

Assoc. Prof. Vilém Rohn, MD, PhD
Head, Department of Cardiovascular Surgery, Motol University Hospital, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic.
Prof. Josef Veselka, MD, PhD, FESC, FSCAI, FICA
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•

11.15 **Medikamentózní léčba měnící paradigmata v kardiovaskulární medicíně: (Drug Therapy Changing Paradigms in Cardiovascular Medicine): Cyril Štěchovský, MD,** Department of Cardiology, Motol University Hospital, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic.

11.30 **Katetrizační intervence měnící paradigmata v kardiovaskulární medicíně: (Transcatheter Therapy Changing Paradigms in Cardiovascular Medicine): Prof. Josef Veselka, MD, PhD, FESC, FSCAI, FICA,** Professor of Internal Medicine (Cardiology); Member and Secretary General, Board of Directors, Co-Chairperson, Scientific Committee, and Chairman, Local Organizing Committee, 58th Annual World Congress, International College of Angiology; Member, Editorial Board, *International Journal of Angiology;* Head, Department of Cardiology, Motol University Hospital, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic.

11.45 **Biodegradabilní stenty: (Biodegradable Stents*):* Assoc. Prof. Petr Hájek, MD, PhD, FICA; Martin Horváth, MD; Cyril Štěchovský, MD; R. Adlová, MD; Pavol Tomašov, MD;** Department of Cardiology, Motol University Hospital, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic; **Prof. Josef Veselka, MD, PhD, FESC, FSCAI, FICA,** Professor of Internal Medicine (Cardiology); Member and Secretary General, Board of Directors, Co-Chairperson, Scientific Committee and Chairman, Local Organizing Committee, 58th Annual World Congress, International College of Angiology; Chairman, Organizing Committee, PragueIntervention X; Member, Editorial Board, *International Journal of* Angiology; Head, Department of Cardiology, Motol University, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic.

Background
Bioresorbable vascular scaffold (BVS) are a new option in invasive treatment for coronary artery disease. They provide transient vessel support without long-term limitations of metallic cages.

Objectives
Out study sough to evaluate clinical and imaging outcomes 2 years after BVS implantation in our sample under investigation.

Methods
Single-center, prospective study, 14 consecutive patients (5 women, mean age ± SD 66±7years, 7/14 with acute coronary syndrome) with 14 BRS implanted (3-3, 5x18-23 mm; 6x RIA, 5x RCx, 3x ACD) were involved. The clinical control, coronary angiography (CA) and intravascular ultrasound studies were done at 6 and 24 months after BRS implantation. Mean follow-up (FU) was 29±6 months (m).

Results
The scaffold deployment was successful in all procedures without any complication. One patient died 10 m after initial procedure due to pneumonia, no myocardial infarction or target vessel revascularization occurred. Two patients underwent unplanned CA, one of them PCI on a non-target vessel.

Minimal luminal area (MLA) increased after PCI (mean MLA ± SD before PCI vs. post-PCI was 2.9 ± 0.5 vs. 6.5 ± 1.3mm^2; p<0.0001) without significant decrease during FU (mean ± SD MLA Post-PCI vs. MLA 6m vs. MLA 24m were 6.5 ± 1.3 vs. 6.2 ± 1.6 vs. 5.8 ± 2.0mm^2; P=ns). Moreover, we observed plaque decrease during FU (plaque burden ± SD before PCI vs. after PCI vs. 6m FU were 11.8 ± 1.9 vs. 9.0 ± 2.4 vs. 9.1 ± 1.8 vs. 8.0 ± 2.6mm^2; P=0.01).

Conclusion
Out study suggests feasibility, safety of BRS implantation in non-complex lesions with favorable long-term results and decrease of plaque burden.

What professional practice gap does this abstract address?
Use of percutaneous coronary angioplasty in treatment of coronary artery stenosis.

How will this abstract influence change in competence, performance or patient outcomes?
The results of our study confirm the use of bioresorbable scaffolds in current clinical practice as an alternative treatment strategy.

Thursday, 2 June 2016 (Continued)
11.15 h. – 12.30 h.

12.00 **Chirurgická léčba měnící paradigmata v kardiovaskulární medicíně: (Surgical Therapy Changing Paradigms in Cardiovascular Medicine): Assoc. Prof. Vilém Rohn, MD, PhD**, Head, Department of Cardiovascular Surgery, Motol University Hospital, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic.

12.30 h. – 13.30 h. Oběd (Lunch)

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13.30 h. – 14.30 h.

Symposium 3 **Congress Hal 1**

PragueIntervention X
Moderní diagnostické trendy v kardiovaskulárni medicíně
(Modern Diagnostic Trends in Cardiovascular Medicine)

Chairpersons:

Assoc. Prof. Petr Hájek, MD, PhD, FICA
Department of Cardiology, Motol University Hospital, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic.
Pavol Tomašov, MD
Department of Cardiology, Motol University Hospital, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic.

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13.30 **Význam genetického vyšetření: kdy a proč? (Genetic Examination: Why and How?): Pavol Tomašov, MD,** Department of Cardiology, Motol University Hospital, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic.

13.45 **CT a MR v kardiovaskulární medicíně: (CT and MRI in Cardiovascular Medicine): Theodor Adla, MD**, Department of Imaging Methods, Motol University Hospital, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic.

14.00 **Endovaskulární diagnostika: (Endovascular Diagnostics): Martin Horváth, MD,** Department of Cardiology, Motol University Hospital, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic.

14.15 h. – 14.30 h. – A Panel Discussion with Questions and Answers

14.30 h. — 14.45 h. — COFFEE BREAK

Thursday, 2 June 2016 (Continued)
14.45 h. – 16.45 h.

Symposium 4 **Congress Hal 1**

Special Lectures

14.45 h. – 15.15 h.

ICA Lifetime Achievement Award—2015
Does Oxidative Stress Play a Role in the Added Sugar-Induced Cardiovascular Disease?

Introduction by:

Prof. John A. Elefteriades, MD, FACS, FICA
William W.L. Glenn Professor of Cardiothoracic Surgery; Vice Chairman and Member, Board of Directors, International College of Angiology; Co-Chairperson, Scientific Committee, International College of Angiology; Editor-in-Chief, *International Journal of Angiology;* Director, Aortic Institute at Yale-New Haven, Yale University School of Medicine, New Haven, Connecticut, USA.

Presentation by:

Kailash Prasad, MBBS (Hons), MD, PhD, DSc, FRCPC, FACC, FIACS, FICA
Professor Emeritus, Department of Physiology, College of Medicine, University of Saskatchewan; Chairman, Board of Directors, International College of Angiology; Program Chairman, 58th Annual World Congress, International College of Angiology; Consulting Editor, *International Journal of Angiology;* Department of Physiology College of Medicine, University of Saskatchewan, Saskatoon, Saskatchewan, Canada; **Gudrun Caspar-Bell, MD, FRCPC,** Department of Physiology and Medicine and Royal University Hospital, College of Medicine, University of Saskatchewan, Saskatoon, Saskatchewan, Canada.

Background: Added sugar in the diet have been implicated in the development of atherosclerosis, coronary artery disease, hypertension, heart failure, cardiomyopathy, and cardiac arrhythmias. It is hypothesized that oxidative stress is involved in added sugar-induced cardiovascular disease.

Objectives: The objectives are to see; (a) if sugars increase the oxidative stress; (b).Mechanism of sugar-induced increase in the generation of reactive oxygen species (ROS); and (c) if levels of ROS are elevated in the cardiovascular disease.

Methods: Literature search and our own work related to ROS and cardiovascular diseases.

Results: Glucose is known to generate ROS through mitochondria, nicotinamide adenine dinucleotide phosphate (NADPH)-oxidase, sorbitol pathway, activated glycation (advanced glycation end products), insulin, and uric acid. Advanced glycation end products interacts with its cell receptor RAGE) to produce ROS and increase the expression of cell adhesion molecules and monocyte chemoattractant protein-1. ROS also increase the expression of cell adhesion molecules and oxidizes the LDL. All these attributes of ROS and AGE-RAGE interaction could lead to development of atherosclerosis. Oxidative stress is elevated in cardiovascular diseases. Cardiovascular disease have been shown to be associated with high consumption of sugars.

Conclusion These data suggest that oxidative stress may be involved in added sugar-induced cardiovascular diseases.

What professional practice gap does this abstract address? Physicians and other health care professionals should advise patients to reduce their consumption of sugars. The American Heart Association recommends 24 gm of added sugar/day for women and 36 gm of sugar/day for men.

How will this abstract influence change in competence, performance or patient outcomes? Reduction in consumption of sugars would reduce the development of cardiovascular disease.

Thursday, 2 June 2016 (Continued)

15.15 h. – 15.45 h.

Development of Oral Anticoagulation—A Special Lecture

Introduction by:

Prof. Otmar M. Pachinger, MD, FESC, FAHA, FICA
Professor Emeritus, Distinguished Professor of Cardiology, Medical University of Innsbruck, Innsbruck, Austria; Member, Board of Directors, International College of Angiology; Co-Chairperson, Scientific Committee, International College of Angiology; Senior Editor, *International Journal of Angiology;* President, Austrian Heart Foundation, Innsbruck, Austria.

Presentation by:

Prof. Berndt Lüderitz, MD, PhD, MD (Hon), EFESC, FACC, FAHA, FHRS
Professor of Medicine, Head, Emeritus, Department of Medicine and Cardiology, University of Bonn, Bonn, Germany.

Oral Anticoagulation – today most frequently Novel Oral Anticoagulants (NOACs) or Direct Oral Anticoagulants (DOACs) – has a long and fascinating history. It started all with salicylic acid from the Egyptian willow (salix alba) – originally against rheumatic disease; in common use since the time of the Egyptians and Greeks, also in Mesopotamia. Leeches were already used for more than 3000 years (Hirodo officinalis); while sucking saliva is delivered leading to anticoagulation. Many years later the chemist Felix Hoffmann in cooperation with the almost forgotten Arthur Eichengrün, headed by Carl Duisberg synthesised acetylsalicylic acid (German Patent 1897) the active ingredient in Aspirin, the most used drug in cardiology. Pivotal was the year 1915 when Jay Mc Lean found Heparin ("Cumarin") in the dog liver; then in 1941 Karl Link performed the isolation of the vitamin K antagonist Warfarin. Finally, new oral anticoagulants were developed namely dabigatran, apixaban, rivaroxaban and edoxaban.

The ideal goals of these substances are – particularly in atrial fibrillation: once daily oral administration at a fixed dosage without adjustment for body weight, potent antithrombotic activity, quick onset of action, broad therapeutic window, no routine coagulation monitoring and long-term anticoagulation from hospital to home.

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15.45 h. – 16.15 h.

Stroke Prevention in Atrial Fibrillation—Practical Issues with NOAC's

Introduction by:

Kailash Prasad, MBBS (Hons), MD, PhD, DSc, FRCPC, FACC, FIACS, FICA
Professor Emeritus, Department of Physiology, College of Medicine, University of Saskatchewan; Chairman, Board of Directors, International College of Angiology; Program Chairman, 58th Annual World Congress, International College of Angiology; Consulting Editor, *International Journal of Angiology;* Department of Physiology College of Medicine, University of Saskatchewan, Saskatoon, Saskatchewan, Canada.

Presentation by:

Prof. Otmar M. Pachinger, MD, FESC, FAHA, FICA
Professor Emeritus, Distinguished Professor of Cardiology, Medical University of Innsbruck, Innsbruck, Austria; Member, Board of Directors, International College of Angiology; Co-Chairperson, Scientific Committee, International College of Angiology; Senior Editor, *International Journal of Angiology;* President, Austrian Heart Foundation, Innsbruck, Austria.

Stroke prevention is central in the management of atrial fibrillation (AF), irrespective of a rate or rhythm control strategy. The key questions have to address prediction of stroke and bleeding risk (CHADS2- VASc and HAS-BLED Score). NOAC's (factor IIa and Xa inhibitors) differ in efficiency and bleeding risk. However, no studies directly compared the new agents. Evidence for patients undergoing invasive procedures, switching among anticoagulant therapies, and when and how to start after a bleeding complication is insufficient. The bridging problem seems to be solved!

Antidots will be on the market soon and for dabigatran this is already the case. The type of bleeding complication differs between NOAC`s and Vit K antagonists. NOAC `s show early promise of reducing stroke and bleeding.

Key questions in pts with AF remain:

1. Prediction of thromboembolic and bleeding risk
2. Safety and effectiveness of combination with antiplatelet therapies and procedural interventions
3. Switching between warfarin and NOAC`s
4. Safety for resuming anticoagulation following a hemorrhagic event.
5. Reductions in both stroke and bleeding translate into important benefits for patients
6. Most bleeding can be managed without specific antidots
7. Education to overcome the fear of bleeding as a barrier to appropriate anticoagulant use important
8. NOAC´s provide opportunity to minimize growing burden of potentially preventable thromboembolism (especially AF)

Thursday, 2 June 2016 (Continued)
16.15 h. – 16.45 h.

Stroke in the Modern Era of Endovascular Therapy

Introduction by:

Prof. Josef Veselka, MD, PhD, FESC, FSCAI, FICA
Professor of Internal Medicine (Cardiology); Member and Secretary General, Board of Directors, Co-Chairperson, Scientific Committee and Chairman, Local Organizing Committee, 58th Annual World Congress, International College of Angiology; Chairman, Organizing Committee, PragueIntervention X; Member, Editorial Board, *International Journal of* Angiology; Head, Department of Cardiology, Motol University, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic.

Presentation by:

Martin Šrámek, MD
Department of Neurology, Motol University Hospital, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic.

Friday, 3 June 2016
08.30 h. – 09.10 h.

Symposium 5 **Congress Hal 1**

ICA Special Lectures

08.30 h. – 08.50 h.

Professor Otmar M. Pachinger Oration Lecture— New Perspectives in Interventional Cardiology

Introduction by:

Prof. Thomas F. Whayne, Jr., MD, PhD, FICA
Professor of Medicine (Cardiology); Vice President, International College of Angiology; Gill Heart Institute, University of Kentucky, Lexington, Kentucky, USA.

Presentation by:

Prof. Josef Veselka, MD, PhD, FESC, FSCAI, FICA
Professor of Internal Medicine (Cardiology); Member and Secretary General, Board of Directors, Co-Chairperson, Scientific Committee and Chairman, Local Organizing Committee, 58th Annual World Congress, International College of Angiology; Chairman, Organizing Committee, PragueIntervention X; Member, Editorial Board, *International Journal of* Angiology; Head, Department of Cardiology, Motol University, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic.

Friday, 3 June 2016 (Continued)
08.50 h. - 09.10 h.

How to Individualize Treatment for Stable Multivessel Coronary Artery Disease?

Introduction by:

Prof. John A. Elefteriades, MD, FACS, FICA
William W.L. Glenn Professor of Cardiothoracic Surgery; Vice Chairman and Member, Board of Directors, International College of Angiology; Co-Chairperson, Scientific Committee, International College of Angiology; Editor-in-Chief, *International Journal of Angiology;* Director, Aortic Institute at Yale-New Haven, Yale University School of Medicine, New Haven, Connecticut, USA.

Presentation by:

Prof. Otmar M. Pachinger, MD, FESC, FAHA, FICA
Professor Emeritus, Distinguished Professor of Cardiology, Medical University of Innsbruck, Innsbruck, Austria; Member, Board of Directors, International College of Angiology; Co-Chairperson, Scientific Committee, International College of Angiology; Senior Editor, *International Journal of Angiology;* President, Austrian Heart Foundation, Innsbruck, Austria.

The debate on the role of CABG or PCI versus medical management of stable coronary artery disease is still ongoing. The evidence of all randomized studies carries major limitations: Randomization after cath leads to selection bias; threshold for ischemia was not required; complete revascularization was not protocol specific; Revascularization (CABG and PCI) was guided by angiography which implies anatomic and not functional ischemic revascularization. In addition all major studies used first generation DES.

Moreover, by incorporating FFR-guided PCI and utilizing newer generation DES with lower complication rates (TLR, stent thrombosis and restenosis) the perspective between CABG and PCI could change. Optimizing medical therapy since the time of COURAGE would contribute to the changing landscape.

Complex disease will remain a limitation for PCI and medical treatment and long term outcome in diabetics will continue to be a challenge.

Individualization is most important because some selected pts will do fine or even better with PCI with DES and some pts will do better with CABG. Ongoing studies such ISCHEMIA might influence the discussions and debate.

Friday, 3 June 2016 (Continued)
09.10 h. – 10.15 h.

Symposium 6 **Congress Hall 1**

ICA Concurrent Session — Thoracic Aortic Aneurysms

Chairpersons:

Prof. Sibu P. Saha, MD, MBA, FICA
Professor of Surgery and Bioengineering; Member, Board of Directors and Scientific Committee, International College of Angiology and Member, Editorial Board, *International Journal of Angiology;* Chief, Division of Cardiovascular and Thoracic Surgery, University of Kentucky, Lexington, Kentucky, USA.

Prof. Wei Zhou, MD, FICA
Professor of Surgery, Department of Vascular and Endovascular Surgery, Stanford University School of Medicine, Stanford, California, USA; Faculty Senate Representative, Alternate, Cardiovascular Institute, Stanford University, Stanford, California, USA; Chief, Department of Vascular Surgery, VA Hospital, Palo Alto, California, USA; Member and Associate Treasurer, Board of Directors, International College of Angiology; Co-Chairperson, Scientific Committee, International College of Angiology; Member, Editorial Board, *International Journal of Angiology.*

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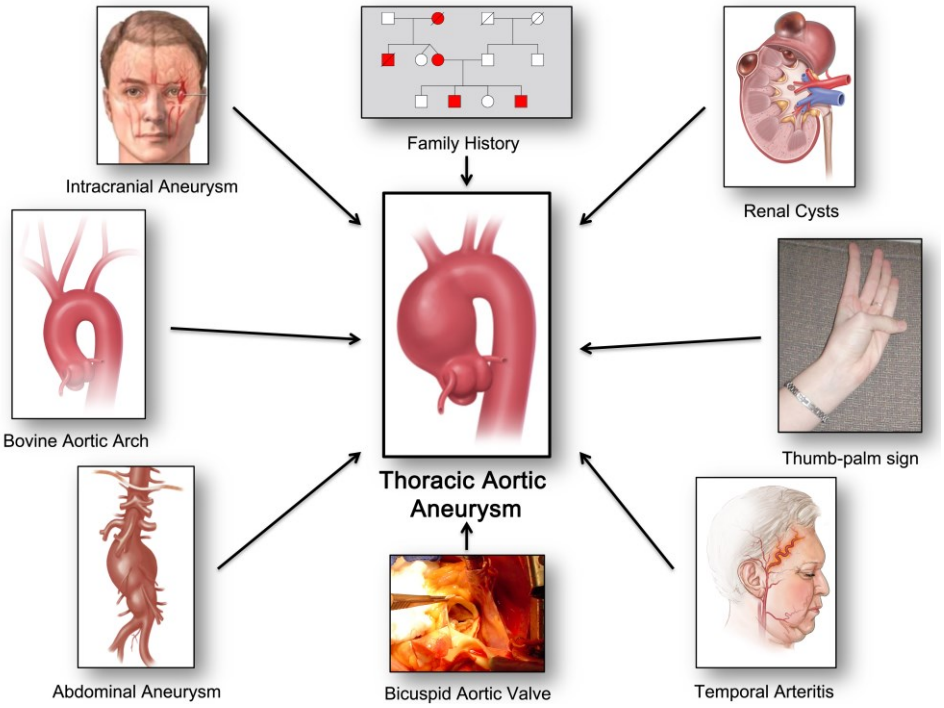
09.10 **Paradigm for Detecting Silent Thoracic Aneurysm Disease: Prof. John A. Elefteriades, MD, FACS, FICA,** William W.L. Glenn Professor of Cardiothoracic Surgery; Vice Chairman and Member, Board of Directors, International College of Angiology; Co-Chairperson, Scientific Committee, International College of Angiology; Editor-in-Chief, *International Journal of Angiology;* Director, Aortic Institute at Yale-New Haven, Yale University School of Medicine, New Haven, Connecticut, USA.

Thoracic aortic aneurysms (TAA) pose a serious detection challenge due to the clinically silent nature. Only a small fraction of TAAs cause symptoms in patients. However, the mortality burden of this disease in the population is significant, given the high lethality of such complications as aortic rupture and dissection. Widespread screening for TAA has not been shown to be cost-effective. Therefore, currently the majority of patients with a TAA are identified incidentally during an imaging study conducted for other reasons. Once a TAA diagnosis is established, prophylactic surgical treatment can safely be performed for aneurysms of the ascending aorta, aortic arch, and descending/thoracoabdominal aorta, thus preventing aneurysm-related death. To facilitate early detection of TAA, recent studies have identified several "associates" of TAA that may be useful in making a timely diagnosis. These "associates" include intracranial aneurysm, aortic arch anomalies, abdominal aortic aneurysm, simple renal cysts, bicuspid aortic valve, temporal arteritis, a positive family history of aneurysm disease, and a positive thumb-palm sign (see **Figure 1**), among others. Although for many of these "associates" the underlying mechanism that would explain the association remains to be elucidated, the clinical correlation data is strong enough to suggest screening patients with these findings for TAA. This presentation will introduce the "Guilt by Association" paradigm for detection of silent thoracic aortic disease based on detection of clinical markers associated with this condition.

Figure 1. "Guilt by Association" paradigm for detection of clinically silent thoracic aortic aneurysm. [Modified with permission from Elefteriades JA, Sang A, Kuzmik G, Hornick M. Guilt by association: paradigm for detecting a silent killer (thoracic aortic aneurysm). *Open Heart* 2015;2:e000169]



Friday, 3 June 2016 (Continued)
09.10 h. – 10.15 h.

Symposium 6 **Congress Hall 1**

ICA Concurrent Session — Thoracic Aortic Aneurysms

09.25 Open Surgery for Descending Thoracic Aortic Aneurysm—Still Needed? Assoc. Prof. Vilém Rohn, MD, PhD, Head, Department of Cardiovascular Surgery, Motol University Hospital, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic.

Background
Pathological processes affecting descending and/or thoracoabdominal aorta could be treated by open surgery or thoracic endovascular repair (TEVAR). TEVAR quickly gained popularity for its low procedural mortality and morbidity and completely changed the decision making process.

Objectives
Open surgery is less frequently used in recent times which has an impact on surgical skills and readiness to perform this surgery.

Methods
A total of 99 patients undergoing open surgery from 2003 – 2015 were identified from the institutional database. Our ten-year results are compared with published results of TEVAR.

Results
Fifty-one patients were operated on for aortic aneurysm and 48 for aortic dissection Stanford type B. The mean age was 62.2 $\pm$ 13.6 in the aneurysm group and 57.5 $\pm$ 13.1 in the dissection group. On an urgent or emergent basis, 18% of the aneurysm patients and 79% of the dissection patients underwent surgery. The 30-day mortality was 11.7% for the aneurysm patients and 20.8% of the dissection patients. None of the patients had para paresis/paraplegia in the aneurysm group, versus 3 patients (6.25%) in the dissection group. Major bleeding requiring re-operation occurred in 16% and 21% respectively.

Conclusion
Operations on the descending thoracoabdominal aorta could be performed with good results (with worse results for dissection). Surgery is justified (necessary) in indicated cases. Further decreasing number of patients for open surgery, but more complex and challenging cases could be expected.

Friday, 3 June 2016 (Continued)
09.10 h. – 10.15 h.

Symposium 6 **Congress Hall 1**

ICA Concurrent Session — Thoracic Aortic Aneurysms

09.40 **Changing Paradigms in the Treatment of Complex Aortic Aneurysms: J. Falkensammer, MD,** Vienna, Austria.

09.55 **Whole Exome Sequencing for Thoracic Aortic Aneurysm: Prof. John A. Elefteriades, MD, FACS, FICA,** William W.L. Glenn Professor of Cardiothoracic Surgery; Vice Chairman and Member, Board of Directors, International College of Angiology; Co-Chairperson, Scientific Committee, International College of Angiology; Editor-in-Chief, *International Journal of Angiology;* Director, Aortic Institute at Yale-New Haven, Yale University School of Medicine, New Haven, Connecticut, USA.

Background:
Hereditary factors play an important etiologic role in thoracic aortic aneurysm and dissection (TAAD), with a number of genes proven to predispose to this condition. We initiated a clinical program for routine genetic testing of individuals for TAAD via whole exome sequencing (WES). Here we present our initial results.

Methods:
WES was performed in 102 patients (mean age 56.8 years, range 13-83, 70 males (68.6%)) with TAAD. The following 21-gene panel was tested via WES: ACTA2, ADAMTS10, COL1A1, COL1A2, COL3A1, COL5A1, COL5A2, ELN, FBLN4, FLNA, FBN1, FBN2, MYH11, MYLK, NOTCH1, PRKG1, SLC2A10, SMAD3, TGFB2, TGFBR1, TGFBR2.

Results:
Seventy-four patients (72.5%) had no medically important genetic alterations. Four patients (3.9%) had a deleterious mutation identified in the FBN1, COL5A1, MYLK, and FLNA genes. Twenty-two (21.6%) previously unreported suspicious variants of unknown significance were identified in one or more of these genes: FBN1 (n=5), MYH11 (n=4), ACTA2 (n=2), COL1A1 (n=2), TGFBR1 (n=2), COL3A1 (n=1), COL5A1 (n=1), COL5A2 (n=1), FLNA (n=1), NOTCH1 (n=1), PRKG1 (n=1), and TGFBR3 (n=1). Identified mutations had implications for clinical management.

Conclusions:
Routine genetic screening of patients with TAAD provides information that enables genetically personalized care and permits identification of novel mutations responsible for aortic pathology. Analysis of large data sets of variants of unknown significance that include associated clinical features will help define the mutational spectrum of known genes underlying this phenotype and potential identify new candidate loci.

10.10 h. – 10.15 h.— Panel Discussion and Questions & Answers

Friday, 3 June 2016 (Continued)
09.10 h. – 10.15 h.

Symposium 7 **Congress Hal 2**

PragueIntervention X Concurrent Session
New Perspectives in Endovascular Diagnostic and Therapeutic Techniques

Chairpersons:

Rajinder P. Sharma, MD, FSIR, FICA
Clinical Associate Professor of Radiology, Wayne State University School of Medicine, Detroit, Michigan, USA; Former Senior Staff, Interventional Radiology, Henry Ford Hospital, Detroit, Michigan, USA; Member and President Board of Directors and Co-Chairperson, Scientific Committee, International College of Angiology; Editor, *International Journal of Angiology.*
Prof. Thomas F. Whayne, Jr., MD, PhD, FICA
Professor of Medicine (Cardiology); Vice President, International College of Angiology; Gill Heart Institute, University of Kentucky, Lexington, Kentucky, USA.

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09.10 Vulnerable Atherosclerotic Plaque—New Insights from NIRS-IVUS: Cyril Štěchovský, MD,

Department of Cardiology, Motol University Hospital, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic; Young Investigator.

Background/Introduction
Atherosclerotic carotid artery disease is a common determinant of thromboembolic stroke. However, limited insights in vivo into the composition of carotid stenosis are available. Prediction of lesion-related athero-embolic potential and selection of patients who would benefit most from carotid endarterectomy or carotid stenting (CAS) is challenging.

Purpose
To describe size and distribution of lipid core plaques in atherosclerotic internal carotid artery (ICA) stenoses and changes of LCP after CAS using near-infrared spectroscopy (NIRS) and intravascular ultrasound (IVUS).

Methods
We performed NIRS-IVUS during 77 CAS procedures in 73 patients (men 66%, age 67.4 ± 8.3 years) with ICA stenosis 84 ± 9% on angiography. We measured minimal luminal area (MLA), plaque burden (PB), lipid core burden index (LCBI), maximal lipid core burden index in any 4mm segment of the artery (LCBImax) and lipid core burden index in 4mm segment at the site of MLA (LCBImla). Three NIRS-IVUS pullbacks were performed: at baseline, after stent implantation and after balloon post-dilatation.

Results
The IVUS cross-sectional frame with the maximal LCBI was localized 2.87mm (95% CI: 5.01 – 0.72) proximally from the site of MLA (Figure). Plaque burden at the site of MLA was 88.9 ± 4.7% compared to 62.8 ± 20.4% at the site of maximal LCBI ($p< 0.01$). Lipid rich plaques were significantly more frequent elsewhere than at the site of MLA (LCBImax at baseline 346.6 ± 209.0 vs. LCBImla at baseline 219.6 ± 237.5, $p< 0.01$). Minimal luminal area increased significantly both with stent implantation and post-dilatation (Table) but the effect of post-dilatation on MLA was larger (Table). Mean LCBI, LCBImla and LCBImax decreased significantly after stent implantation (Table). Post-dilatation of the stent had no further significant effect on LCBI, LCBImla and LCBImax (Table).

	Baseline (A)	After stent implantation (B)	After postdilatation (C)
MLA (mm^2)	4.01 ± 1.73*+	6.00 ± 2.70*#	12.81 ± 3.83#+
LCBI	97.7 ± 86.7*+	31.3 ± 43.8*	31.9 ± 48.6+
LCBImla	219.6 ± 237.5*+	24.2 ± 81.6*	23.4 ± 64 ± 7+
LCBImax	346.6 ± 209.0*,+	143.8 ± 147.1*	138.3 ± 139.0+
*p<0.01 (A vs. B), #p<0.01 (B vs. C), +p<0.01 (A vs. C)			

Conclusions
The highest lipid pool of the plaque was localized proximally from the site of MLA. Implantation of the self-expandable carotid stent alone led to significant decrease of lipid core size. On the contrary, post-dilatation of the stent led to larger acute lumen expansion.

Friday, 3 June 2016 (Continued)
09.10 h. – 10.15 h.

Symposium 7 **Congress Hal 2**

PragueIntervention X Concurrent Session
New Perspectives in Endovascular Diagnostic and Therapeutic Techniques

09.25 **Atherosclerotic Plaque—New Insights from CT and MRI: Theodor Adla, MD,** Department of Imaging Methods, Motol University Hospital, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic.

09.40 **Biodegradable Coronary Stents: Martin Horváth, MD**; **Assoc. Prof. Petr Hájek, MD, PhD, FICA; Pavol Tomašov, MD; Radka Adlová, MD;** Department of Cardiology, Motol University Hospital, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic; Young Investigator; **Prof. Josef Veselka, MD, PhD, FESC, FSCAI, FICA,** Professor of Internal Medicine (Cardiology); Member and Secretary General, Board of Directors, Co-Chairperson, Scientific Committee and Chairman, Local Organizing Committee, 58th Annual World Congress, International College of Angiology; Chairman, Organizing Committee, PragueIntervention X; Member, Editorial Board, *International Journal of* Angiology; Head, Department of Cardiology, Motol University, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic.

Background
Bioresorbable vascular scaffolds (BVS) are a modern alternative in the treatment of coronary atherosclerotic lesions. Their distinguishing feature is the disappearance of the foreign implant in two years, bringing the potential benefits of eliminating the risk of late stent thrombosis and the restoration of physiological vasomotion. Due to the limited experience with BVS, it is not yet clear what will be the further development of the initially treated atherosclerotic plaque after removing the mechanical support of a stent. Here we provide new, unique data from a 2-year clinical and imaging follow-up.

Objectives
To verify the technique of BVS implantation, to monitor the clinical state of the patients after implantation of BVS and to observe the development of the atherosclerotic plaque at the site of BVS implantation using repeated intravascular ultrasound examinations.

Methods
This prospective study enrolled a total of 14 consecutive patients (5 women, mean age 66 $\pm$ 7 years, 7/14 with acute coronary syndrome, 2/14 with diabetes mellitus) that were treated with a total of 14 BVS (3-3.5 x 18-23 mm; 6x LAD, 5x LCx, 3x RCA). All patients were examined with IVUS during the percutaneous coronary intervention (PCI) and after 6 and 24 months. Additionally, near-infrared spectroscopy data was obtained.

Results
The procedural success rate was 100%. No peri-procedural complications were noted. The median follow-up was 29 $\pm$ 6 months. One patient died during the follow-up due to complications from pneumonia 10 months after PCI. We did not encounter any myocardial infarction. No re-intervention at the culprit site was required during the course of the study. Two patients underwent an unplanned coronary angiography and one of them subsequently underwent a PCI outside of the originally intervened segment.

We documented a statistically significant increase in the mean minimal lumen area after PCI (2.9 $\pm$ 0.5 vs. 6.4 $\pm$ 1.3 mm^2; $p<0.0001$). A total of 8 patients underwent follow-up IVUS examination at 6 and 24 months. A statistically significant reduction of MLA was observed (MLA after 6 months = 6.3 $\pm$ 1.6 mm^2, MLA after 24 months = 5.8 $\pm$ 1.9 mm^2). In 3/8 cases, we observed late lumen enlargement y 5-8%, while 6/8 cases, we observed signs of constrictive remodeling. Neointimal proliferation participated in the final MLA 3-11%.

Conclusion
Peri-procedural and medium-term clinical outcomes proved to be highly safe in the use of BVS. Intracoronary ultrasound results further suggest that a significant proportion of reduction in the lumen area is due to constrictive remodeling, while neointimal proliferation contributed minimally.

What professional practice gap does this abstract address?
It provides data on the clinical and imaging follow-up of patients after the implantation of bioresorbable vascular scaffolds (BVS).

How will this abstract influence change in competence, performance or patient outcomes?
This data may provide new insights on the efficacy of BVS. The study is somewhat unique, since some patients in the study underwent repeated imaging examinations with intravenous ultrasound and the more recent method of near-infrared spectroscopy. This provides interesting data on the development of atherosclerotic plaque after BVS implantation.

10.05 h. – 10.15 h.— Panel Discussion and Questions & Answers

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10.15 h. – 10.30 h. – COFFEE BREAK

Friday, 3 June 2016 (Continued)

10.30 h. – 11.30 h.

Symposium 8 **Congress Hal 1**

ICA Special Lectures

10.30 h. – 11.00 h.

Professor Kailash Prasad Oration Lecture—Short Stature in Men is Associated with Peripheral Arterial Disease

Introduction by:

Prof. Semih I. Barlas, MD, FSTS, FEACTS, FICA
Professor of Cardiovascular Surgery; Vice President, International College of Angiology; Member, Editorial Board, *International Journal of Angiology;* American Hospital and VKV Koc University School of Medicine, Istanbul, Turkey.

Presentation by:

Prof. Pertti Aarnio, MD, PhD, FICA
Emeritus Professor of Surgery, University of Turku, Pori, Finland; Emeritus, Chief, Department of Surgery, Satakunta Central Hospital, Pori, Finland; Member, Board of Directors and Co-Chairperson, Scientific Committee, International College of Angiology, Senior Editor, *International Journal of Angiology;* **Arto Heikkilä, MD [1], Maarit Venermo, MD [2], Hannu Kautiainen,MD[3], Päivi Korhonen, MD [1,4];** [1]Department of General Practice, University of Turku, Turku, Finland; [2]Department of Vascular Surgery, Helsinki University Central Hospital, Helsinki, Finland; [3]Department of General Practice and Primary Health Care, University of Helsinki, Helsinki, Finland; [4]Central Satakunta Health Federation of Municipalities, Harjavalta, Finland.

Peripheral arterial disease (PAD) affects approximately 202 million individuals around the world and associates with a high risk of myocardial infarction, stroke and death. Although there is a clear inverse association between adult height and the risk of cardiovascular disease, little is known about the relationship between height and PAD. The aim of our study was to assess the relationship between PAD and height. A cross-sectional cardiovascular risk factor study was conducted in southwestern Finland from 2005 to 2006. Ankle-brachial index (ABI) and other risk factors were measured from a total of 972 cardiovascular risk subjects derived from general population. None of them had previously diagnosed diabetes, cardiovascular or renal disease or intermittent claudication. Subjects with an ABI ≤ 0.90 were categorized as having PAD. The average age of the study subjects was 58.1 ± 6.7 years for men and 58.8 ± 6.9 years for women. The prevalence of PAD among men was 5% (95% CI 3-7%) and among women 5% (95% CI 3-7%). The mean ABI was 1.09 ± 0.12 and 1.08 ± 0.12, respectively. In men, there was an inverse association between height and prevalence of PAD ($p < 0.001$) along with a positive association between height and ABI values ($p < 0.001$). The associations remained significant after adjusting potential cofounders but did not exist among women. In conclusion, short stature in men is associated with PAD and lower ABI values.

Friday, 3 June 2016 (Continued)
11.00 h. – 11.30 h.

Neurocognitive Effects of Carotid Interventions—What Do We Know Now and Where Do We Go from Here?

Introduction by:

Prof. Josef Veselka, MD, PhD, FESC, FSCAI, FICA
Professor of Internal Medicine (Cardiology); Member and Secretary General, Board of Directors, Co-Chairperson, Scientific Committee and Chairman, Local Organizing Committee, 58th Annual World Congress, International College of Angiology; Chairman, Organizing Committee, PragueIntervention X; Member, Editorial Board, *International Journal of* Angiology; Head, Department of Cardiology, Motol University, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic.

Presentation by:

Prof. Wei Zhou, MD, FICA
Professor of Surgery, Department of Vascular and Endovascular Surgery, Stanford University School of Medicine, Stanford, California, USA; Faculty Senate Representative, Alternate, Cardiovascular Institute, Stanford University, Stanford, California, USA; Chief, Department of Vascular Surgery, VA Hospital, Palo Alto, California, USA; Member and Associate Treasurer, Board of Directors, International College of Angiology; Co-Chairperson, Scientific Committee, International College of Angiology; Member, Editorial Board, *International Journal of Angiology.*

Friday, 3 June 2016 (Continued)
10.30 h. – 11.30 h.

Symposium 9 **Congress Hal 2**

PragueIntervention X Concurrent Session — The Resuscitated Patient

Chairpersons:

Prof. John A. Elefteriades, MD, FACS, FICA
William W.L. Glenn Professor of Cardiothoracic Surgery; Vice Chairman and Member, Board of Directors, International College of Angiology; Co-Chairperson, Scientific Committee, International College of Angiology; Editor-in-Chief, *International Journal of Angiology;* Director, Aortic Institute at Yale-New Haven, Yale University School of Medicine, New Haven, Connecticut, USA.

Prof. Otmar M. Pachinger, MD, FESC, FAHA, FICA
Professor Emeritus, Distinguished Professor of Cardiology, Medical University of Innsbruck, Innsbruck, Austria; Member, Board of Directors, International College of Angiology; Co-Chairperson, Scientific Committee, International College of Angiology; Senior Editor, *International Journal of Angiology;* President, Austrian Heart Foundation, Innsbruck, Austria.

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10.30 **LUCAS-Related Cardiac Contusion in Resuscitated Patients: Cyril Štěchovský, MD,** Department of Cardiology, Motol University Hospital, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic; Young Investigator.

10.45 **Mild Hypothermia in the Treatment of Resuscitated Patients: Jiří Bonaventura, MD,** Department of Cardiology, Motol University Hospital, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic; Young Investigator.

In spite of many years of development and implementation of pre-hospital advanced life support programs, the survival rate of out-of-hospital cardiac arrest (OHCA) used to be very poor. Neurologic injury from cerebral hypoxia is the most common cause of death in patients with OHCA. In the past two decades, post-resuscitation care has developed many new concepts aimed at improving the neurological outcome and survival rate of patients after cardiac arrest. Systematic post-cardiac arrest care after the return of spontaneous circulation (ROSC), including induced mild therapeutic hypothermia (TH) in selected patients is directed to significantly improve rates of long-term neurologically intact survival. This review summarizes the current knowledge in the field of mild TH (now called targeted temperature management) after OHCA.

11.00 **Secondary Prevention of Sudden Cardiac Death: Assoc. Prof. Lucie Riedlbauchová, MD, PhD,** Department of Cardiology, Motol University Hospital, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic.

11.15 h. – 11.30 h.— Panel Discussion and Questions & Answers

Friday, 3 June 2016 (Continued)
11.30 h. – 12.30 h.

Symposium 10 **Congress Hal 1**

ICA Special Lectures

11.30 h. – 12.00 h.

2016 Professor John B. Chang Research Achievement Award
Historical Milestones in Interventional Therapy of Hypertrophic Obstructive Cardiomyopathy

Introduction by:

Prof. Otmar M. Pachinger, MD, FESC, FAHA, FICA
Professor Emeritus, Distinguished Professor of Cardiology, Medical University of Innsbruck, Innsbruck, Austria; Member, Board of Directors, International College of Angiology; Co-Chairperson, Scientific Committee, International College of Angiology; Senior Editor, *International Journal of Angiology;* President, Austrian Heart Foundation, Innsbruck, Austria.

Presentation by:

Prof. Josef Veselka, MD, PhD, FESC, FSCAI, FICA
Professor of Internal Medicine (Cardiology); Member and Secretary General, Board of Directors, Co-Chairperson, Scientific Committee and Chairman, Local Organizing Committee, 58th Annual World Congress, International College of Angiology; Chairman, Organizing Committee, PragueIntervention X; Member, Editorial Board, *International Journal of* Angiology; Head, Department of Cardiology, Motol University, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic.

Friday, 3 June 2016 (Continued)
12.00 h. – 12.30 h.

Acute Myocardial Infarction System of Care in Indonesia: Learning from the Jakarta Acute Coronary Syndrome (JAC) Registry

Introduction by:

Prof. Josef Veselka, MD, PhD, FESC, FSCAI, FICA
Professor of Internal Medicine (Cardiology); Member and Secretary General, Board of Directors, Co-Chairperson, Scientific Committee and Chairman, Local Organizing Committee, 58th Annual World Congress, International College of Angiology; Chairman, Organizing Committee, PragueIntervention X; Member, Editorial Board, *International Journal of* Angiology; Head, Department of Cardiology, Motol University, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic.

Presentation by:

Iwan Dakota, MD, PhD, FIHA, FAPSIC, FICA, FACC, FESC, FSCAI
Vice President and Regional Secretary, International College of Angiology; Member, Editorial Board, *International Journal of Angiology;* Head, Peripheral Vascular Intervention, Vascular Division, Department of Cardiology and Vascular Medicine, University of Indonesia, School of Medicine, Jakarta, Indonesia; Director of General Affairs and Human Capital, National Cardiovascular Center, Harapan Kita Hospital, Jakarta, Indonesia; **Surya Dharma, MD, PhD, FICA, FSCAI; Sunarya Soerianata, MD, FSCAI,** National Cardiovascular Center, Harapan Kita Hospital, Jakarta, Indonesia.

Background
We studied the characteristics of ST-elevation myocardial infarction (STEMI) patients from a local acute coronary syndrome (ACS) registry in order to find and build an appropriate acute myocardial infarction (AMI) system of care in Jakarta, Indonesia.

Methods
Data was collected from the Jakarta Acute Coronary Syndrome (JAC) registry from 2008–2009, which contained 2103 ACS patients, including 654 acute STEMI patients admitted to the National Cardiovascular Center Harapan Kita, Jakarta, Indonesia.

Results
The proportion of patients who did not receive reperfusion therapy was 59% in all STEMI patients and the majority of them (52%) came from inter-hospital referral. The time from onset of infarction to hospital admission was more than 12 h in almost 80% of the cases and 60% had an anterior wall MI. In-hospital mortality was significantly higher in patients who did not receive reperfusion therapy compared with patients receiving acute reperfusion therapy, either with primary percutaneous coronary intervention (PPCI) or fibrinolytic therapy (13.3% vs 5.3% vs 6.2%, $p<0.001$).

Conclusion
The Jakarta Cardiovascular Care Unit Network System was built to improve the care of AMI in Jakarta. This network will harmonize the activities of all hospitals in Jakarta and will provide the best cardiovascular services to the community by giving two reperfusion therapy options (PPCI or pharmaco-invasive strategy) depending upon the time needed for the patient to reach the cath-lab.

Keywords
ST-elevation myocardial infarction, System of care, Pharmaco-invasive strategy

Friday, 3 June 2016 (Continued)
12.30 h. – 13.30 h.

Symposium 11 **Congress Hall 1**

Endovenous Truncal Radiofrequency Ablation of Proximal GSV/SSV and Simultaneous Ambulatory Phlebectomy with Adjuvant Doppler Guided Chemical Ablation to the Distal Segments in Single/Multivessel Reflux—How I Do It—A Special Luncheon Lecture

Introduction by:

Prof. Pertti Aarnio, MD, PhD, FICA
Emeritus Professor of Surgery, University of Turku, Pori, Finland; Emeritus, Chief, Department of Surgery, Satakunta Central Hospital, Pori, Finland; Member, Board of Directors and Co-Chairperson, Scientific Committee, International College of Angiology, Senior Editor, *International Journal of Angiology.*

Presentation by:

Prof. Semih Barlas, MD, FSTS, FEACTS, FICA
Professor of Cardiovascular Surgery; Vice President, International College of Angiology; Member, Editorial Board, *International Journal of Angiology;* American Hospital and VKF Koc University School of Medicine, Istanbul, Turkey.

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13.30 h. – 14.00 h.

Symposium 12 **Congress Hal 1**

ICA Special Lectures

13.30 h. – 13.45 h.

Catheter-Based Endovenous Laser Ablation of Saphenous Veins in the Treatment of Symptomatic Patients

Introduction by:

Jakub Honěk, MD
Department of Cardiology, Motol University Hospital, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic.

Presentation by:

Vojtěch Horváth, MD
Department of Vascular Surgery, Hospital Na Homolce, Prague, Czech Republic
Assoc. Prof. Tomáš Honěk, MD, PhD
Department of Cardiology, Motol University Hospital, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic.

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13.45 h. – 14.00 h.

Professor Hans J. Hachen Memorial Lecture
The Current State and the Future of Interventional Radiology—Constantly Evolving and Fostering Innovation

Introduction by:

Kailash Prasad, MBBS (Hons), MD, PhD, DSc, FRCPC, FACC, FIACS, FICA
Professor Emeritus, Department of Physiology, College of Medicine, University of Saskatchewan; Chairman, Board of Directors, International College of Angiology; Program Chairman, 58th Annual World Congress, International College of Angiology; Consulting Editor, *International Journal of Angiology;* Department of Physiology College of Medicine, University of Saskatchewan, Saskatoon, Saskatchewan, Canada.

Presentation by:

Rajinder P. Sharma, MD, FSIR, FICA
Clinical Associate Professor of Radiology, Wayne State University School of Medicine, Detroit, Michigan, USA; Former Senior Staff, Interventional Radiology, Henry Ford Hospital, Detroit, Michigan, USA; Member and President Board of Directors and Co-Chairperson, Scientific Committee, International College of Angiology; Editor, *International Journal of Angiology* and **Rajiv Sharma MD.**

Interventional radiology continues to remain vital to the field of medicine providing a variety of vascular and non-vascular interventions. These interventions, many of which are life-saving, include pulmonary embolism thrombolysis for massive and sub-massive pulmonary embolism, transjugular intrahepatic portosystemic shunt (TIPS) creation for recurrent variceal bleeding and refractory ascites, uterine artery embolization for uterine fibroids or postpartum hemorrhage, and visceral artery embolization for acute gastrointestinal bleeding.

The field continues to pioneer minimally invasive, image guided therapies. For example, in the last few years, the role of the interventionalist in the treatment of the oncology patient has grown rapidly and irreversible electroporation, a recently developed ablative technique, will be highlighted. In addition, concepts that are currently permeating the interventional radiology literature such as prostatic artery embolization (PAE) for benign prostatic hypertrophy and left gastric artery embolization as a tool to combat obesity and endovascular robotic-assisted procedures will be addressed.

The outlook for the field is bright and is highlighted in these innovative concepts that are being utilized in a multi-disciplinary approach to improve and to optimize medical care today.

Friday, 3 June 2016 (Continued)
14.00 h. — 14.15 h. — COFFEE BREAK

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14.15 h. – 15.15 h.
Congress Hal 1

ICA Young Investigator's Award Competition

Chairpersons/Judges:

Prof. Otmar M. Pachinger, MD, FESC, FAHA, FICA
Professor Emeritus, Distinguished Professor of Cardiology, Medical University of Innsbruck, Innsbruck, Austria; Member, Board of Directors, International College of Angiology; Co-Chairperson, Scientific Committee, International College of Angiology; Senior Editor, *International Journal of Angiology;* President, Austrian Heart Foundation, Innsbruck, Austria.

Rajinder P. Sharma, MD, FSIR, FICA
Clinical Associate Professor of Radiology, Wayne State University School of Medicine, Detroit, Michigan, USA; Former Senior Staff, Interventional Radiology, Henry Ford Hospital, Detroit, Michigan, USA; Member and President Board of Directors and Co-Chairperson, Scientific Committee, International College of Angiology; Editor, *International Journal of Angiology.*

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14.15 **Identifying Mutation Carriers in Hypertrophic Cardiomyopathy in the Absence of Genetic Testing: Pavol Tomašov, MD,** Department of Cardiology, Motol University Hospital, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic; Young Investigator; **Marek Minárik, MD,** Laboratory for Molecular Genetics and Oncology, Genomac Research Institute, Prague, Czech Republic; **Karol Čurila, MD,** III Department of Internal Medicine, Department of Cardiology, University Hospital Kralovske Vinohrady, 3rd Medical School, Charles University, Prague, Czech Republic; **Prof. Josef Veselka, MD, PhD, FESC, FSCAI, FICA,** Professor of Internal Medicine (Cardiology); Member and Secretary General, Board of Directors, Co-Chairperson, Scientific Committee and Chairman, Local Organizing Committee, 58th Annual World Congress, International College of Angiology; Chairman, Organizing Committee, PragueIntervention X; Member, Editorial Board, *International Journal of* Angiology; Head, Department of Cardiology, Motol University, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic.

Background
Hypertrophic cardiomyopathy (HCM) is the most common monogenic cardiac disease with vast genetic heterogeneity. First degree relatives of patients with HCM are in 50 % risk of inheriting the disease-causing mutation. Genetic testing is helpful in identifying the relatives harboring the mutations. When genetic testing is not available or inconclusive, relatives need to be examined regularly.

Objectives
To determine echocardiographic variables helpful in identifying relatives carrying mutations before the development of left ventricular hypertrophy.

Methods
We tested a cohort of 99 unrelated patients with HCM for mutations in *MYH7*, *MYBPC3*, *TNNI3* and *TNNT2* genes. In families with identified mutation, we performed genetic and clinical examination in relatives to study the usefulness of echocardiographic criteria for distinguishing relatives with positive and negative genotype.

Results
We identified 38 genetic variants in 47 patients (47 %). Fifteen of these variants in 21 patients (21 %) were known pathogenic mutations. We performed genetic testing in 52 relatives (18 of them (35%) yielding positive results). None of the studied echocardiographic criteria were significantly different between relatives with positive and negative genotype with the exception of a combined echocardiographic score (genotype positive vs. genotype negative, 3.316 vs. -0.489, p=0.01).

Conclusion
Our study of HCM patients and their relatives confirmed the role of genetic testing in the management of the relatives and found a limited benefit of the proposed echocardiographic parameters in identifying disease-causing mutation carriers.

What professional practice gap does this abstract address?

In spite of the fact that genetic testing of HCM patients is becoming more available, a considerable proportion of patients do not have their disease-causing mutation identified. When examining relatives of these patients without overt left ventricular hypertrophy, several echocardiographic parameters may predict their genotype status. Although these variables do not reach the accuracy of genetic testing, they may be useful in selecting individuals for a closer follow-up.

H**ow will this abstract influence change in competence, performance or patient outcomes?**

Implementing a routine measurement of echocardiographic parameters detecting genotype positive relatives of HCM patients may lead to faster diagnosis of HCM in these individuals and provide them with sudden death risk stratification.

Friday, 3 June 2016 (Continued)
14.15 h. – 15.15 h.
Congress Hal 1

ICA Young Investigator's Award Competition

14.30 **Long-Term Outcome of Alcohol Septal Ablation in Patients > 60-Years of Age: Denisa Jahnlová, MD,** Young Investigator; **Pavol Tomašov, MD, Radka Adlová, MD, Jaroslav Januška, MD, Jan Krejčí, MD, PhD, Maciej Dabrowski, MD, PhD,** Department of Cardiology, Motol University Hospital, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic; **Prof. Josef Veselka, MD, PhD, FESC, FSCAI, FICA,** Professor of Internal Medicine (Cardiology); Member and Secretary General, Board of Directors, Co-Chairperson, Scientific Committee and Chairman, Local Organizing Committee, 58th Annual World Congress, International College of Angiology; Chairman, Organizing Committee, PragueIntervention X; Member, Editorial Board, *International Journal of* Angiology; Head, Department of Cardiology, Motol University, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic.

Background
The clinical outcome of patients ≥ 60 years of age after alcohol septal ablation (ASA) for obstructive hypertrophic cardiomyopathy (HCM) remains unresolved. In this international study we sought to determine the long-term survival and the causes of death in this group.

Methods and Results
We enrolled 156 consecutive patients (69 ± 6 years, 69% women and follow-up 4.8 ± 3.5 years) who underwent ASA at ≥ 60 years of age. Thirty-day mortality rate was 1.3%. At the last check-up, 81% of patients were in NYHA class ≤ 2 and 76% had a left ventricular outflow tract gradient (LVOG) ≤ 30 mmHg. Considering the first appropriate implantable cardioverter-defibrillator (ICD) discharge as an equivalent of sudden death (SD), 39 patients died (51% of cardiovascular causes, 44% of non-cardiovascular causes, 5% of unknown causes) during the 734 patient-years. The annual sudden mortality, the sudden mortality including appropriate ICD discharge and the all-cause mortality rates were 0.5%, 1.1% and 4.8%, respectively. The all-cause mortality was higher compared to age- and sex-matched general population (p = 0.002).

Conclusion
In patients with obstructive HCM ≥ 60 years of age, ASA was a safe and effective procedure in the long-term follow-up. This study population showed a reduced life expectancy compared to age- and sex-matched general population. Mortality was determined almost equally by cardiovascular and non-cardiovascular causes of death.

What professional practice gap does this abstract address?
This abstract addresses the very specific cohort of elderly patients with hypertrophic cardiomyopathy that underwent alcohol septal ablation. There are very scarce data on the outcome of these patients to date.

How will this abstract influence change in competence, performance or patient outcomes?
As was mentioned above we are lacking good data on this specific population of patients. Hence, our study may help ameliorate the care of elderly HCM patients.

Friday, 3 June 2016 (Continued)
14.15 h. – 15.15 h.
Congress Hal 1

ICA Young Investigator's Award Competition

14.45 **Patent Foramen Ovale in Divers—An Important and Largely Unrecognized Problem: Jakub Honěk, MD[1,2],** Young Investigator; **Aleš Tomek, MD, PhD3; Martin Šrámek, MD[2,3]; Luděk Šefc, PhD[2]; Jaroslav Januška, MD, PhD[4]; Jiří Fiedler, MD[1]; Martin Horváth, MD[1]; Štěpán Novotný, MD[5]; Tomáš Honěk, MD, PhD[1];** [1]Department of Cardiology, Motol University Hospital, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic; [2]Ústav patologické fyziologie, 1. LF UK, Prague, Czech Republic; [3]Neurologická klinika 2.LF UK a FN Motol, Prague, Czech Republic; [4] Kardiocentrum, Nemocnice Třinec Podlesí a.s., Třinec, Czech Republic; [5] Hyperbarická komora, Oblastní nemocnice Kladno a.s., Kladno, Czech Republic; **Prof. Josef Veselka, MD, PhD, FESC, FSCAI, FICA,** Professor of Internal Medicine (Cardiology); Member and Secretary General, Board of Directors, Co-Chairperson, Scientific Committee and Chairman, Local Organizing Committee, 58th Annual World Congress, International College of Angiology; Chairman, Organizing Committee, PragueIntervention X; Member, Editorial Board, *International Journal of* Angiology; Head, Department of Cardiology, Motol University, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic.

Background
Decompression sickness (DCS) is caused by nitrogen bubbles formed during the ascent from a dive. The probability of bubble formation increases with higher tissue saturation (i.e. greater depth-time exposure) and with shorter decompression time. Violation of decompression regimen advised to recreational divers thus increases the risk of DCS. However, a small amount of bubbles forms even after a properly performed recreational dive. It has been postulated that patent foramen ovale (PFO) could increase the risk of DCS due to paradoxical embolization of bubbles and might cause unprovoked DCS events (i.e. without decompression regimen violation).

Objectives
The aim of the study was to assess whether PFO is a risk factor for unprovoked DCS in recreational divers.

Methods
A total of 489 divers were screened for the presence of PFO from January 2006 to January 2014 by means of transcranial color-coded sonography. Divers were questioned about their diving and medical history including the history of unprovoked DCS. Survival analysis was used to determine the risk factors for unprovoked DCS.

Results
A total of 489 divers (35.53 ± 8.95 yrs., 86.5% men) were screened, 36 (7%) divers suffered from unprovoked DCS. The risk of unprovoked DCS was significantly higher in divers with a PFO according to the results of the log-rank test of the Kaplan-Meier analysis: $\chi 2$ (1) = 49.068, $p < 0.001$ (Fig. 1). Hazard ratio (HR) for unprovoked DCS in divers with a PFO was 52.371 (95% CI 7.173 - 382.382, $p < 0.001$). The prevalence of PFO was 97.2% in divers with a history of unprovoked DCS and 35.5% among divers with no history of unprovoked DCS, respectively ($p < 0.001$). There was no difference in sex, age, body mass index, prevalence of smoking, and total number of dives between the respective groups.

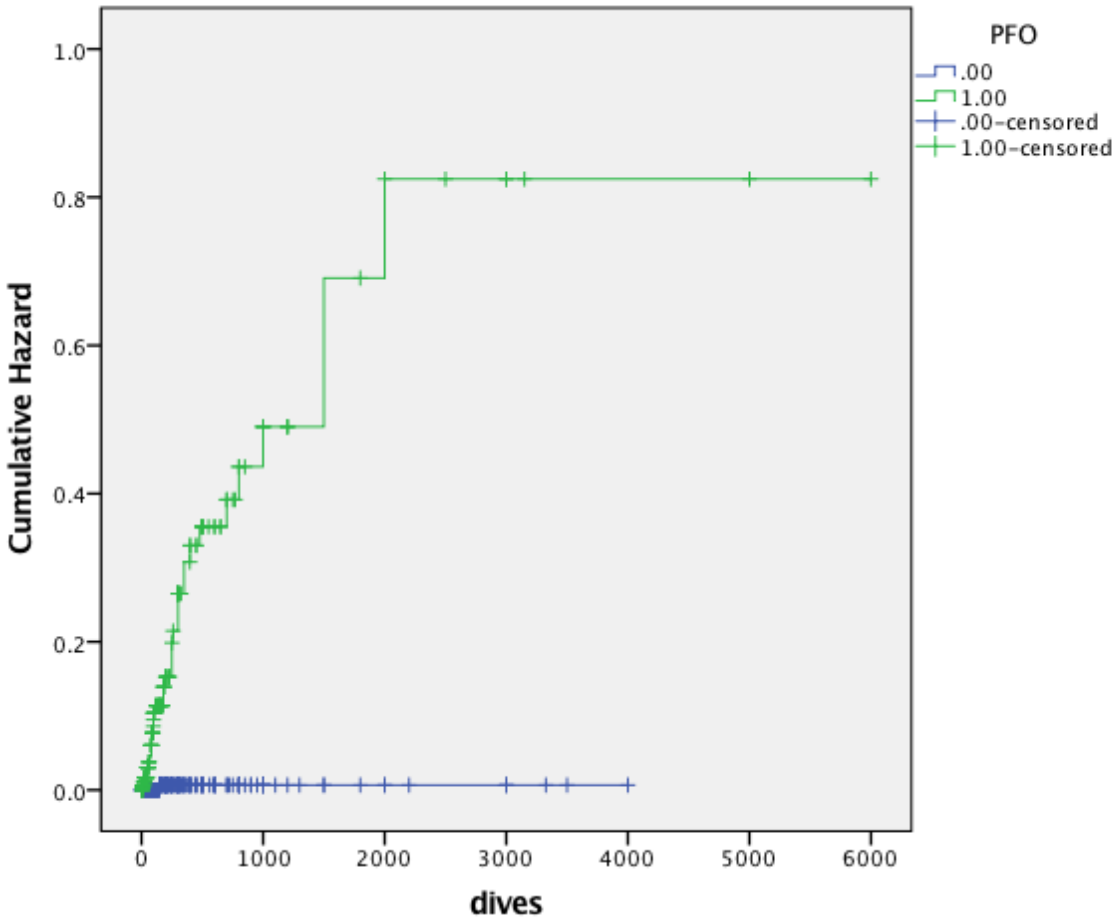
Conclusion
The results of this retrospective analysis suggest that divers with a PFO have a higher risk of unprovoked DCS. Taking in account that the number of divers worldwide is in the millions, such occurrence of unpredictable events would be a major challenge in DCS prevention.

What professional practice gap does this abstract address?
It is not known whether recreational divers with a PFO, complying with all rules are at risk of unprovoked decompression sickness. This abstract shows that a minority of patients suffered from unprovoked DCS and that PFO was the only independent risk factor.

How will this abstract influence change in competence, performance or patient outcomes?
The results of this analysis support the fact that PFO might be a major DCS risk factor and that screening of divers for the presence of a PFO might be justifiable.

Friday, 3 June 2016 (Continued)
14.15 h. – 15.15 h.
Congress Hal 1

ICA Young Investigator's Award Competition



Friday, 3 June 2016 (Continued)
15.15 h. – 15.45 h.
Congress Hal 1

ICA Poster Presentations

Chairpersons/Judges:

Prof. Otmar M. Pachinger, MD, FESC, FAHA, FICA
Professor Emeritus, Distinguished Professor of Cardiology, Medical University of Innsbruck, Innsbruck, Austria; Member, Board of Directors, International College of Angiology; Co-Chairperson, Scientific Committee, International College of Angiology; Senior Editor, *International Journal of Angiology;* President, Austrian Heart Foundation, Innsbruck, Austria.

Prof. Sibu P. Saha, MD, MBA, FICA
Professor of Surgery and Bioengineering; Member, Board of Directors and Scientific Committee, International College of Angiology and Member, Editorial Board, *International Journal of Angiology;* Chief, Division of Cardiovascular and Thoracic Surgery, University of Kentucky, Lexington, Kentucky, USA.

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15.15 Hybrid Therapy for a Huge Common Femoral Artery Aneurysm in an Active Vasculo-Behçet's Disease Patient: Keita Hayashi, MD Hideaki Obara, MD, PhD, FICA, Kentaro Matsubara, MD, PhD, Tatsuya Shimogawara, MD, Yuko Kitagawa, MD, PhD; Department of Surgery, Keio University School of Medicine, Tokyo, Japan.

Background
Behçet's disease is classified as an inflammatory vascular disease. It is known to have not only a potential risk of systemic aneurysmal formation but also a possibility of causing life-threatening event when ruptured.

Objective
We report a successfully treated case of huge common femoral artery (CFA) aneurysm associated with Vasculo-Behçet's disease.

Method
A 30-year-old male presented with 3 weeks history of left groin pain and 1 week history of genital ulcer, visual loss and high fever. Computed tomography angiography revealed a localized huge saccular CFA aneurysm (90 x 85mm) and deep vein thrombosis in left lower extremity. Simultaneously, active Vasculo-Behçet's disease was diagnosed according to the national clinical criteria. Conservative medical management was considered as the initial therapy due to his active systemic inflammatory condition and stable hemodynamic state. Pre-operative 3-day course of pulse steroid therapy and subsequent 1 week immunosuppressive therapy diminished the inflammatory markers to normal range. Less invasive open surgical management was planned concerning the high risk of post-operative anastomotic complications.

Results
The hybrid therapy of stent graft placement in non-diseased left iliac artery and the peripheral prosthetic bypass with aneurysm resection was performed simultaneously. Immunosuppressive therapy was given continuously after the surgery and the post-operative course was uneventful. There were no signs of recurrence or anastomotic complications during 6-month follow-up.

Conclusion
Hybrid therapy using stent graft may be considered as one of the various surgical options to reduce the postoperative complications including anastomotic leakage and pseudoaneurysm.

Friday, 3 June 2016 (Continued)
15.15 h. – 15.45 h.
Congress Hal 1

ICA Poster Presentations

15.22 Common Hepatic Artery and Mesenteric Artery Stenosis as a Presentation of Systemic Lupus Erythematosus Vasculitis in a Female Patient—A Case Report: Indra S.M. Manullang, MD, FICA, Todung D.A. Silalahi, MD, FICA, Cardiovascular Division, Department of Internal Medicine, Cikini Hospital, Jakarta, Indonesia.

Introduction
Systemic lupus erythematosus (SLE) is an autoimmune inflammatory disease characterized by the presence of a plethora of autoantibodies and immune complex formation. Virtually every system and organ can be affected by SLE. Gastrointestinal symptoms are common in SLE patients, and more than half of them are caused by adverse reactions to medications and viral or bacterial infections.

Case Report
A 49 year-old female was admitted to the ER with upper abdominal pain radiating to the back. Three months prior to hospitalization she had pain and swelling of both legs and was diagnosed with DVT and given anticoagulants. She has underlying controlled hypertension and systemic lupus erythematosus for the last 25 years, and is currently receiving Methyl Prednisolon 1x4 mg per day and Mycophenolate Mofetil 2 x 1000 mg per day. Patient's complaint of nausea and bloated feeling in her abdomen. Physical examination showed normal vital signs, tenderness in the epigastric region and a positive Homan's sign in the lower extremity. Laboratory findings showed increased ESR (Erythrocyte Sedimentation Rate), normal liver and kidney function and prolonged aPTT due to anticoagulation. Platelet count, d-dimer and fibrinogen levels are within normal limits. Hepatitis B, C, and HIV examination were negative. Platelet aggregation test indicated hypo-aggregation; Lipid profile indicated mild increase in LDL level and an increase of Lp(a) level. ANA and anti-ds-DNA examinations were negative. C3 level was increased and a low level of C4.C-reactive protein was normal. Radiologic examination indicated normal chest x-ray. Cervical spine revealed herniated disk at C2-3 which irritates the right radix and a bulging disc at C3-4 which irritates the dura. Thoraces vertebra examination indicated spondylosis with hypertrophy of posterior ligament which compresses dura at the level of the Th. 4-5-6 and Th.7-8. Echocardiography indicated normal structure and function of the heart with 74% of ejection fraction. DSA examination indicated stenosis of mesenteric inferior artery and the common hepatic artery.

Friday, 3 June 2016 (Continued)
15.15 h. – 15.45 h.
Congress Hal 1

ICA Poster Presentations

15.29 Successful Revascularization of a Chronically Total Occluded Profunda Femoralis Artery by Antegrade Percutaneous Transluminal Angioplasty (PTA): Todung D.A. Silalahi, MD, FICA, Cardiovascular Division, Department of Internal Medicine, Communion of Church in Indonesia (CCI), Cikini Hospital, Jakarta, Indonesia.

Introduction
Peripheral vascular disease (PVD) is commonly referred to as peripheral artery disease (PAD). This is due to a variety of occlusive atherosclerotic disease in peripheral arteries such as the abdominal artery, iliac, femoral, popliteal and tibial arteries. With an age-adjusted prevalence of approximately 12%, PAD affects at least 8 to 12 million Americans. The disease prevalence increases with age and 12% to 20% of Americans age 65 and older (4.5 to 7.6 million) have PAD. As the population ages, the prevalence could reach 9.6 to 16 million in those age 65 and older and 19 million overall by 2050. PAD is a major risk factor in lower limb amputation. PTA of arteries of the lower limbs may thus be regarded as a valid complementary treatment to vascular surgery in patients with occlusive disease of the peripheral arteries.

Case Report
A 61-year-old man was first presented at the hospital with pain in the right leg for 4 months ago and intensified in the last month, particularly in the first and second digits. The pain worsened when walking and improved when resting (Rutherford stage 4, Fontaine 2).

From the physical examination, artery pulsation of right lower extremity was not palpable. Doppler ultrasound showed PAD of the right leg and CT angiography obtained, indicated total occlusion of the femoral artery causing obstruction from the profunda and superficial femoral arteries to the right popliteal.

We performed a right common iliac artery angiography and PTA intervention with a contralateral antegrade technique. After three days a secondary CT scan angiography showed flow improvement of right femoral artery and branches.

Conclusion
Patients with total occlusion of the right profunda femoral artery can achieve good revascularization with an antegrade PTA technique.

Keywords
Peripheral arterial disease (PAD), chronic total occlusion of the right profunda femoral artery, antegrade percutaneous transluminal angioplasty (PTA).

Saturday, 4 June 2016
08.30 h. – 10.15 h.

Symposium 13 **Congress Hal 1**

ICA Special Lectures

08.30 h. – 09.00 h.

Professor Albert Senn Memorial Lecture
Anti-Atherosclerotic Effect of Pentoxifylline may be of Benefit in Patients with Peripheral Arterial Disease

Introduction by:

Prof. Pertti Aarnio, MD, PhD, FICA
Emeritus Professor of Surgery, University of Turku, Pori, Finland; Emeritus, Chief, Department of Surgery, Satakunta Central Hospital, Pori, Finland; Member, Board of Directors and Co-Chairperson, Scientific Committee, International College of Angiology, Senior Editor, *International Journal of Angiology.*

Presentation by:

Kailash Prasad, MBBS (Hons), MD, PhD, DSc, FRCPC, FACC, FIACS, FICA
Professor Emeritus, Department of Physiology, College of Medicine, University of Saskatchewan; Chairman, Board of Directors, International College of Angiology; Program Chairman, 58th Annual World Congress, International College of Angiology; Consulting Editor, *International Journal of Angiology;* Department of Physiology College of Medicine, University of Saskatchewan, Saskatoon, Saskatchewan, Canada.

Background
Pentoxifylline (PTX) and Cilostazol are used for the treatment of intermittent claudication. In total of 17 studies which compared PTX with placebo, the difference in the % improvement in total walking distance and pain free walking distance with PTX compared to placebo ranged from 1.2% to 155.9% and from -33% to 73.9% respectively. PTX inhibits cytokines generation and the action of platelet-activating factor (PAF) on neutrophils. Cytokines and PAF increase the generation of reactive oxygen species.

Objectives
The objectives were to determine (a) if PTX suppresses the development of hypercholesterolemia-induced atherosclerosis, and (b) if the suppression of atherosclerosis is associated with reduction in oxidative stress**.**

Methods
The studies were conducted on hypercholesterolemic rabbits. Serum lipids, index of oxidative stress (serum and aortic malondialdehyde, and aortic antioxidant reserve) and the extent of atherosclerosis in aorta were measured.

Results
Serum lipids were not affected by PTX. Serum and aortic MDA were reduced. Aortic chemiluminescence, a measure of antioxidant reserve were normalized. PTX treatment reduced the development of hypercholesterolemic atherosclerosis by 38%.

Conclusion
PTX reduced the development of atherosclerosis and this effect was associated with reduction in oxidative stress. These attributes could be of benefit to the patients with peripheral vascular disease.

What professional practice gap does this abstract address?
The clinicians use pentoxifylline (PTX) only to decrease blood viscosity, improve red cell flexibility and increase microcirculatory flow. However, PTX may also prevent the development of atherosclerosis which is the main reason of peripheral vascular disease.

How will this abstract influence change in competence, performance or patient outcomes?
It will make the physician aware of the other attributes of Pentoxifylline which may be helpful in peripheral arterial diseases.

Saturday, 4 June 2016 (Continued)
08.30 h. – 10.15 h.

Symposium 13 **Congress Hal 1**

ICA Special Lectures

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09.00 h. – 09.15 h.

Motion of Venous Valves—A New Discovery. Its Historical Mystery

Introduction by:

Prof. Pertti Aarnio, MD, PhD, FICA
Emeritus Professor of Surgery, University of Turku, Pori, Finland; Emeritus, Chief, Department of Surgery, Satakunta Central Hospital, Pori, Finland; Member, Board of Directors and Co-Chairperson, Scientific Committee, International College of Angiology, Senior Editor, *International Journal of Angiology.*

Presentation by:

Dinker B. Rai, MD, FACS, FRCS(C), FICA
Chairman, Department of Surgery, Interfaith Medical Center, Brooklyn, New York, USA; Visiting Associate Professor of Surgery, SUNY Brooklyn, Brooklyn, New York, USA; Visiting Professor of Surgery, Rajeev Gandhi University, Bangalore, India; Member, Editorial Board, *International Journal of Angiology.*

This presentation involves the new discovery of the motion of venous valves in human beings and is being presented with video tape recording.

The author will provide research of venous valves history starting from the time of Hippocrates, followed by the first discovery and recording of the existence of venous valves by Charles Estienne (1504-1564) and discovery of the function of venous valves by Fabricius Acquapedente (1537-1619).

Sir William Harvey (1576-1652) who became his student, and in his letter to the Chemist Charles Boyle acknowledged why it was instrumental in his discovery of the systolic function of the heart. Five-hundred years later, the author's discovery of the motion venous valves plays an important role and motivates him to perform experimental work on the atrial diastole and revelation of mechanical function of the diastole of the heart.

The author finds this mysterious link to the venous valves behind all the ground breaking findings of the forces governing circulation of blood.

Saturday, 4 June 2016 (Continued)
09.15 h. – 09.45 h.

Is There an Ideal Low-Density Lipoprotein Cholesterol (LDL-C) Level? Confusion Regarding Guidelines, Targets and Medical Management

Introduction by:

Prof. Sibu P. Saha, MD, MBA, FICA
Professor of Surgery and Bioengineering; Member, Board of Directors and Scientific Committee, International College of Angiology and Member, Editorial Board, *International Journal of Angiology;* Chief, Division of Cardiovascular and Thoracic Surgery, University of Kentucky, Lexington, Kentucky, USA.

Presentation by:

Prof. Thomas F. Whayne, Jr., MD, PhD, FICA
Professor of Medicine (Cardiology); Vice President, International College of Angiology; Gill Heart Institute, University of Kentucky, Lexington, Kentucky, USA.

Background
The 2013 ACC/AHA Cholesterol Guideline was intended as definitive management for high risk cardiovascular (CV) patients with elevated low-density lipoprotein cholesterol (LDL-C). First, there were published conflicts of interest for over 50% of the committee. Second, the key guideline of high dose statin for high CV risk without an LDL-C target is controversial.

Objectives
When and how to achieve LDL-C reduction are objectives of this talk including when to use the latest therapies.

Methods
Synthesis of the International Atherosclerosis Society, American Assoc. of Clinical Endocrinologists, National Lipid Assoc., European Society of Cardiology, and European Atherosclerosis Society recommendations shows support of a low LDL-C goal in opposition to the 2013 Guideline. Evaluation of a recommended tailoring of LDL-C management *vs.* a specific long-promoted LDL-C target still not adequately followed by clinicians has also been assessed.

Results
The lipid hypothesis that LDL-C reduction is beneficial is still not fully accepted and a quantum change from target to tailored approach is not indicated and may cause inadequate CV risk management. It appears best to consider each individual patient and then tailor a targeted LDL-C reduction based on starting LDL-C level and CV risk perception. There is ample evidence-based data to support that lower LDL-C as best for CV risk. With genetically low LDL-C, there is basically no coronary artery disease. Accepting lower LDL-C as better leads to how best to achieve that goal. Use of a statin, with ezetimibe or other pharmaceutical when needed, remains standard of care. However, for the statin-intolerant patient or when a reasonable tailored target is not attained, the new pro-protein convertase subtilisin/kexin type 9 (PCSK9) inhibitors offer exciting results with minimal risk. Despite the high price, careful patient selection in 40 cases shows almost 100% pharmacy benefit approval and 50% LDL-C reductions with negligible side effects.

Conclusion
We are on the verge of another quantum leap in CV risk reduction, initially started by understanding LDL receptors and increasing their activity by statins.

What professional practice gap does this abstract address?
The content of this abstract addresses the major practice gap of failing to accept the lipid hypothesis of cardiovascular risk reduction by decreasing the low-density lipoprotein cholesterol and then addresses the standard of care with statins and the major addition to care offered by the availability of PCSK9 inhibitors.

How will this abstract influence change in competence, performance or patient outcomes?
Further awareness of the standard of care, statins as a gold standard, targets for low-density lipoprotein cholesterol, and increased awareness of when to consider use and possible referral for the latest therapies will contribute significantly to improved patient care and outcomes.

Saturday, 4 June 2016 (Continued)
09.45 h. – 10.15 h.

UK Healthcare, A Rising Star among UHC: A Critical Analysis of Success

Introduction by:

Prof. Thomas F. Whayne, Jr., MD, PhD, FICA
Professor of Medicine (Cardiology); Vice President, International College of Angiology; Gill Heart Institute, University of Kentucky, Lexington, Kentucky, USA.

Presentation by:

Prof. Sibu P. Saha, MD, MBA, FICA
Professor of Surgery and Bioengineering; Member, Board of Directors and Scientific Committee, International College of Angiology and Member, Editorial Board, *International Journal of Angiology;* Chief, Division of Cardiovascular and Thoracic Surgery, University of Kentucky, Lexington, Kentucky, USA; **Michael Karpf, MD,** Division of Cardiovascular and Thoracic Surgery, University of Kentucky, Lexington, Kentucky, USA.

Introduction

UK Hospital has undergone a transformative change in the last 10 years. UHC recently gave its "shining star" award to UK Healthcare for its success. This study looked into factors that brought about this impressive change.

Methods

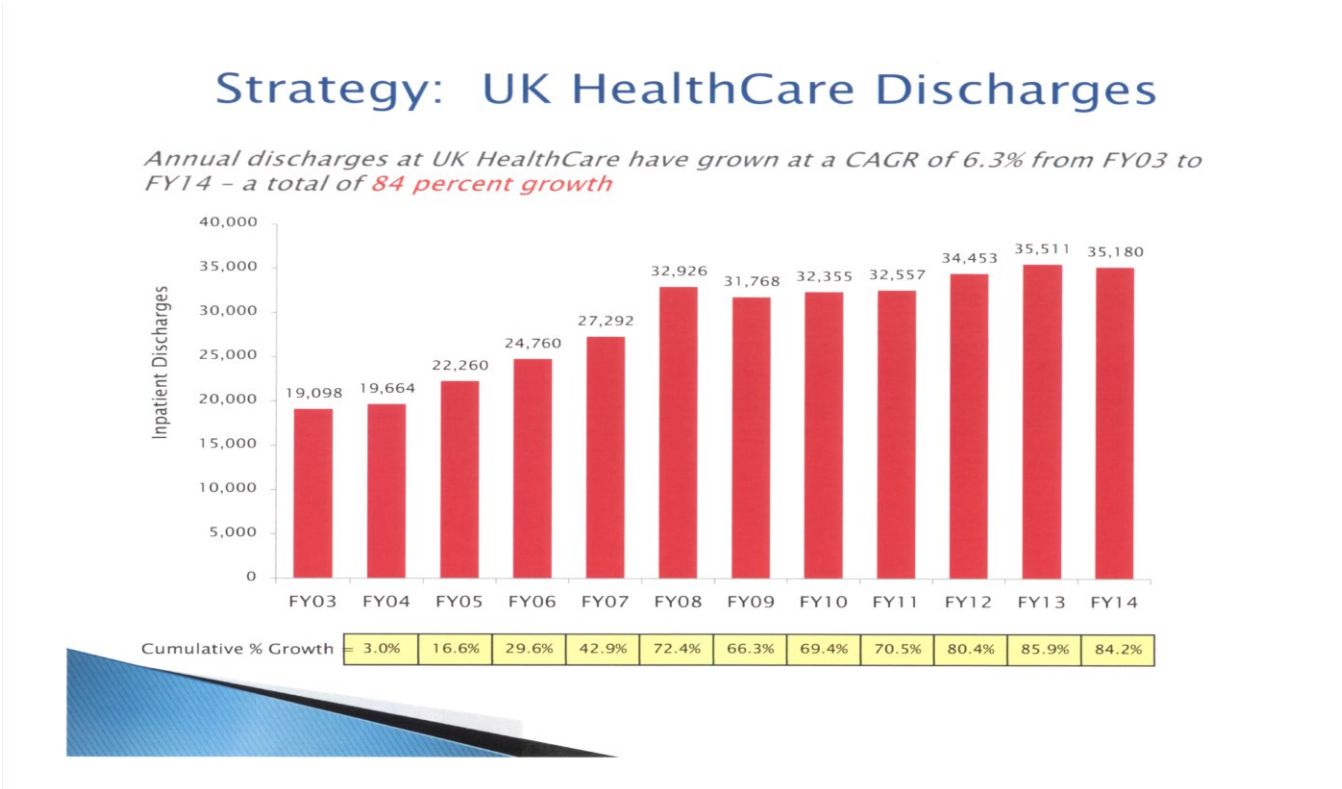
We critically analyzed the process including recruitment, administrative changes, and other methods that were employed to bring about the change. Initial step was to develop an integrated healthcare enterprise with common vision, shared goals, and effective decision making process. Clinical and research scientists with a strong academic background we recruited to meet the needs of the institution and the community. A new hospital has been built to accommodate our growth. Partnering with other healthcare providers across the state was an important strategy.

Results

Annual discharges have grown at a CAGR of 6.3% from FY03 to FY14 with a total of 84% growth. Surgical volume has near doubled. All leading business indicators are up. In 2013, UK Healthcare was ranked 12th in UHC in quality and accountability assessment. Research funding had an annual growth of 6%. UK has invested more than $1.6 billion in facilities, program development and new technology to support the mission.

Conclusion

Integrated healthcare enterprise has been the key to its success. Accountable leadership has brought this phenomenal change to serve our community.



Saturday, 4 June 2016 (Continued)
09.45 h. – 10.15 h.

UK Healthcare, A Rising Star among UHC: A Critical Analysis of Success

Saturday, 4 June 2016 (Continued)
10.30 h. – 11.15 h.

Symposium 14 **Congress Hal 1**

Management and Treatment of Complications Associated with Cardiovascular Diseases

Chairpersons:

Malka Yahalom, MD, DSc, FICA
Member, Editorial Board, *International Journal of Angiology;* Heart Institute, HaEmek Medical Center, Afula, Israel.
Prof. Thomas F. Whayne, Jr., MD, PhD, FICA
Professor of Medicine (Cardiology); Vice President, International College of Angiology; Gill Heart Institute, University of Kentucky, Lexington, Kentucky, USA.

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10.30 **Cardiomyopathy Associated with Trace Element Deficiency Post-Bariatric Surgery: Malka Yahalom, MD, DSc, FICA**, Member, Editorial Board, *International Journal of Angiology;* Heart Institute, HaEmek Medical Center, Afula, Israel; **Ehud Rozner, MD,** Heart Institute, HaEmek Medical Center, Afula, Israel; **Yoav Turgeman, MD,** Heart Institute, HaEmek Medical Center, Afula, Israel and Rappaport Faculty of Medicine, Technion, Haifa, Israel.

Introduction
It has been shown, that non-compliance with vitamin and mineral supplement protocol, following bariatric surgery, may lead to true-element deficiency (such as Zn, Fe, Vitamin B and Selenium) and related complications, such as myocardial fibrosis, heart-failure and arrhythmias; a phenomenon that resembles Kashan disease in China (congestive cardiomyopathy, associated with endemic Selenium deficiency). True elements of deficiencies of Zn or Selenium (Se) were documented to participate in metabolic processes which induce oxidative stress. It has been proven d that such deficiencies, result in myocardial damage, fibrosis, CHF, arrhythmias and death.

Objectives
To raise awareness to the phenomenon and to emphasize preventive measures.

Case Report
A 30-year-old female, 1½ months after delivery was admitted to the Cardiology Department because of dyspnea and clinical evidence of heart failure. Her past history indicated morbid obesity and bariatric surgery, 15 and 5 years earlier respectively. Laboratory findings indicated evidence of anemia, proteinuria, Vitamin B12 and Zn deficiency. (Selenium levels could not be measured in our available laboratories).

Upon examination there were signs of left and right heart failure — tachycardia, rapid pulse and heart sounds, S3, jugular vein congestion, reduced breathing at the base of the lungs and severe sacral and leg edema. An echocardiogram revealed severely reduced function (LVEF=30%). The diagnosis was cardiomyopathy (peri-partum and trace-element deficiency). The patient was treated with anti-failure therapy (including diuretics and vasodilators agents, combined with dietary supplements). A 10 kilogram weight reduction was observed. Combined cardiology and nutritional treatment and follow-up were recommended.

Conclusions
Following bariatric surgery, patients should be treated by a joint cardiology and nutritional team in order to prevent cardiac deterioration, CHF and death.

10.40 Homeostatic Model Assessment Insulin Resistance (HOMA-IR) Index as a Predictor of Significant Coronary Artery Disease in Asymptomatic Diabetic Patients: Mineok Chang, MD; Yoon-Seok Koh, MD; Ki-Bae Seung, MD; Jong Min Lee, MD; Pum-Joon Kim, MD, PhD; Department of Cardiology, Seoul St. Mary's Hospital, The Catholic University of Korea, Seoul, South Korea.

Background
Insulin resistance (IR) is an important risk factor for cardiovascular disease.

Objectives
Using coronary CT angiography (CCTA), we evaluated the association between coronary artery disease (CAD) and homeostatic model assessment insulin resistance (HOMA-IR) in asymptomatic diabetic patients.

Methods
We analyzed 372 asymptomatic type 2 diabetic patients without known coronary artery disease who underwent 64-channel dual-source CCTA and laboratory measurement. Any presence of maximal intra-luminal stenosis ≥50% in major epicardial coronary artery was defined as obstructive CAD. For the prediction of obstructive CAD, the optimal cut-off value of HOMA-IR was derived from ROC curve analysis.

Results
Obstructive CAD was observed in 146 patients (39.2%) and the mean HOMA-IR was 5.44±4.86. The value of HOMA-IR ≥9.0 showed 24.0% of sensitivity and 88.9% of specificity in predicting the presence of obstructive CAD. After adjusting age, sex, hypertension and metabolic syndrome, multivariate logistic regression analysis showed that HOMA-IR≥9.0 was an independent risk factor for obstructive CAD (odds ratio 2.85, 95% confidence interval 1.56-5.18, p=0.001) in asymptomatic diabetic patients. In addition, HOMA-IR ≥9.0 was associated with an increased risk of all-cause death, myocardial infarction and stroke after adjusting for conventional cardiovascular risk factors (hazard ratio 2.159, 95% confidence interval 1.130-4.127, p=0.020).

Conclusions
Increased insulin resistance successfully identified high-risk individuals with obstructive CAD on CCTA and this may be a useful screening index in asymptomatic diabetic patients.

What professional practice gap does this abstract address?
Although coronary computed tomographic angiography (CCTA) provides comprehensive information with superior prognostic value than coronary artery calcium score, guidelines do not recommend routine cardiovascular screening in asymptomatic diabetic patients.

How will this abstract influence change in competence, performance or patient outcomes?
Considering diabetes mellitus as a CAD risk equivalent, early detection of significant CAD according to HOMA-IR will benefit for asymptomatic diabetic patients.

Saturday, 4 June 2016 (Continued)
10.30 h. – 11.15 h.

10.50 Alpha Lipoic Acid May be a Useful Pharmacologic Treatment for Orthostasis: Gary L. Murray, MD, FICA, Director, Cardiovascular Research, The Heart and Vascular Institute, Germantown, Tennessee, USA.

Background
Current pharmacologic therapy for orthostatic hypotension (OH, drop in standing blood pressure [BP] at least 20 mmHg systolic or 10 diastolic) frequently causes supine/sitting hypertension. Alpha lipoic acid (ALA), a natural antioxidant, can improve autonomic dysfunction, a common cause of OH.

Objectives
To observe and record changes in symptoms, BP, and autonomic function in 50 symptomatic patients (syncope, dizziness) with orthostasis (16 pts OH, 34 pts with fall in BP < 20/10mmHg).All had low sympathetic (S) tone assessed using an ANX 3.0 Autonomic Function Monitor.

Methods
Fifty symptomatic patients with orthostasis and low sympathetic tone (S) assessed by heart rate variability had open label ALA or r-ALA added to current therapy. Nine of 16 (56%) OH patients responded with standing change in BP -28.5/7.6 mmHg improving to +1.25/+2.25 mmHg without causing resting hypertension. Twenty-six of 34 patients (76%) with a drop in BP <20/10mmHg improved the standing change in BP from -12.4/+0.8 mmHg to +8.7/+5.8 mmHg) without causing resting hypertension. In responders the major change in autonomic function was a significant increase in sitting S and symptoms were relieved. Non-responders had no significant change in symptoms or standing BP.

Conclusion
ALA seems a safe pharmacologic therapy in patients with orthostasis and low S, which is common in this population. Even if autonomic testing is unavailable, a trial of ALA or rALA seems warranted.

What professional practice gap does this abstract address?
Current pharmacologic Rx for orthostasis frequently results in supine/sitting HTN, increasing the risk for stroke, congestive heart failure, and myocardial infarction. ALA avoids this complication by making autonomic control of BP more normal and also by an increase in eNOS, improving endothelial function.

How will this abstract influence change in competence, performance or patient outcomes?
By avoiding iatrogenic hypertension in the treatment of orthostasis, it is hoped that cardiovascular complications will be reduced.

11.00 h. – 11.15 h. - A Panel Discussion with Questions and Answers

Saturday, 4 June 2016 (Continued)
11.15 h. – 13.00 h.

Symposium 15 **Congress Hal 1**

Management of Renal and Venous Diseases

Chairpersons:

Prof. Sibu P. Saha, MD, MBA, FICA
Professor of Surgery and Bioengineering; Member, Board of Directors and Scientific Committee, International College of Angiology and Member, Editorial Board, *International Journal of Angiology;* Chief, Division of Cardiovascular and Thoracic Surgery, University of Kentucky, Lexington, Kentucky, USA.

Prof. Wei Zhou, MD, FICA
Professor of Surgery, Department of Vascular and Endovascular Surgery, Stanford University School of Medicine, Stanford, California, USA; Faculty Senate Representative, Alternate, Cardiovascular Institute, Stanford University, Stanford, California, USA; Chief, Department of Vascular Surgery, VA Hospital, Palo Alto, California, USA; Member and Associate Treasurer, Board of Directors, International College of Angiology; Co-Chairperson, Scientific Committee, International College of Angiology; Member, Editorial Board, *International Journal of Angiology.*

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11.15 Outcome of Surgical Treatment for Renal Artery Stenosis: Seung-Kee Min, MD; Ahram Han, MD; Sung Sin Cho, MD; Minji Cho, MD; Sang-Il Min, MD; Jongwon Ha, MD; Department of Surgery, Seoul National University College of Medicine, Seoul, South Korea.

Background
Optimal treatment for renal artery stenosis is in controversy yet.

Objectives
To evaluate the efficacy of open surgical treatment of renal artery stenosis.

Methods
Forty patients who underwent open surgery from January 1986 to January 2014 for renal artery stenosis were reviewed. Changes in blood pressure and serum creatinine levels after surgery, overall patency, mortality and morbidity were analyzed.

Results
Operations for 60 renal artery lesions on 40 patients were performed. Eighteen patients had atherosclerotic disease and 22 had non-atherosclerotic disease (12 Takayasu's arteritis, 8 fibromuscular dysplasia, 2 Moyamoya disease). Operations consisted of 34 bypass operations (31 aortorenal, 1 iliorenal, and 2 splenorenal bypasses), 11 autotransplantations, and 8 nephrectomies. Hypertension was cured in 19 (47.5%), improved in 8 (20%) and remained unchanged in 12 patients (32.5%). The patients with non-atherosclerotic disease showed significantly better blood pressure response rate than the patients with atherosclerotic disease (81.8% vs. 50%, p=0.033). Progression to end stage renal disease was observed in one patient, requiring dialysis 11 years after the operation. Early postoperative complications occurred in 4 patients, including 1 fatal myocardial infarction. Postoperative restenosis occurred in 3 and occlusion in 2 patients resulting in the overall patency rate of 87.5%**.**

Conclusion
Open surgery is a safe and durable treatment modality in managing hypertension due to renal artery stenosis. Further studies to identify specific patient groups who may benefit from primary surgical treatment are warranted.

What professional practice gap does this abstract address?
Long-term results of surgical treatment of renal artery stenosis is presented. Different etiologies of atherosclerosis or vasculitis influenced the outcome of the surgery.

How will this abstract influence change in competence, performance or patient outcomes?
In the endovascular era, renal artery angioplasty or stenting is preferred. However, in selected patients, surgical treatment including bypass or auto transplantation show good long-term results.

11.25 Report about the Present Condition of IPV (Insufficient Perforating Vein) Treatment in Japan: Naoki Haruta, MD, PhD, FICA, Member, Editorial Board, *International Journal of Angiology;* Chief, Director of Vascular Surgery; **Ryo Shinhara, MD, PhD; Masatoshi Kouchi, MD; Takuya Yano, MD;** Departments of Vascular and Endoscopic Surgery, Takanobashi Central Hospital, Jinyoukai Medical Corporation, Hiroshima, Japan.

Background
In Japan, SEPS (Subfascial Endoscopic Perforator Surgery) was authorized as the national advanced medical treatment by the Ministry of Health, Labor and Welfare in May, 2009 for the chronic venous insufficiency of C4b-C6 patients, according to the CEAP classification. From April 2014, SEPS has been fully covered by the national insurance system. In our country, SEPS procedures have been so simplified over the last 14 years by the Japanese Society for Endoscopic Therapy of Venous Disease (JSEPS).

Objectives
The aim of this study is to report about the present conditions of IPV (Insufficient Perforating Vein) treatments in Japan.

Methods
The clinical data which was compiled from 14 institutions to belong to JSEPS was analyzed.

Results
The clinical data of 1282 limbs (1068cases) was reviewed. Among these limbs, 27.2%, 349 limbs of 305 cases had active stasis ulcers (C6).In 33 cases, VAC® (Vacuum Assisted Closure) therapy or auto skin grafting were added as adjuvant therapy. The ulcer healing rate is 95.0% in 341 limbs those postoperative clinical courses were able to confirm. A median period until ulcer healing was 2.0 months by Kaplan-Meier analysis. Among the cases those postoperative clinical courses were able to followed up after the ulcer healing by SEPS, the recurrence rate was 11% (35/317 limbs). The average healing period was 36.8 months after the operation. The rate of adverse events with SEPS were as follows; numbness (2.1%), pain (1.5%), wound healing delay (1.2%), infection (0.6%), hematoma/fluid retention (0.3%). On the other hand, 94.1% (321/341 limbs) had no adverse events.

Conclusions
It is well known that SEPS can handle IPVs surely, and long-term results are superior and less complications of maneuver than the other methods. We conclude that SEPS is worth to be tried again as IPV handling method in the United States and Europe.

11.35 Chronic Limb Ischemia and Heart Failure in a Patient with Takayasu's Arteritis: M.R.J. Pasciolly, MD, FICA; S. Hidayat, MD; A. Purnomowati, MD; Department of Cardiology and Vascular Medicine, Padjadjaran University, Dr. Hasan Sadikin Hospital, Bandung, Indonesia.

Background
Takayasu's Arteritis (TAK) is a rare chronic inflammatory large vessel disease which frequently involves the aorta and/or its major branches. Progressive stenosis, occlusion and or dilatation on the vessels might result various complications such as stroke, myocardial infarction, heart failure, claudication, aortic aneurism, renal failure and pulmonary artery disease. The epidemiology of TAK is different in every country per year; USA has 2.6 cases/million, Japan 1/3000, while in Indonesia only a few were reported.

Methods
This observational study in Takayasu's arteritis found one case report per year in Dr. Hasan Sadikin Hospital. A 30-year old female, Indonesian nationality, Sundanese ethnic, without risk factors of peripheral artery disease. She had symptoms and signs of progressive claudication, pulseless extremity, dyspnea on effort, asymmetrical arm blood pressure, gangrene, and parese. Examination modalities were *a) An MSCT angiography of the inferior extremity* showed right posterior tibialis artery with reconstruction in the right ankle joint and one-third occlusion of half left posterior tibialis until left dorsalis pedia artery; *b) USG Doppler of legs* showed no flow right dorsalis pedia artery and minimal flow left dorsalis artery, and c) *Echocardiography* showed impaired systolic LV function (EF 38.7%) with akinetic of anteroseptal wall, hypokinetic of anterior and anterolateral walls. Based on the findings, she was diagnosed with Chronic Limb Ischemia Fontaine Stage III-IV, heart failure, sequelae of stroke infarct and hypertension. Therefore, amputation and anastomosis *bypass graft/reconstruction* of right femoralis artery to right posterior tibialis artery with saphena magna vein were done. The results of anatomic pathological femoralis artery were inflammation of tunica intima tissue followed by infiltration of fibrotic cells and calcification. The patient was treated with methotrexate, methylprednisolone, cilostazol, warfarin, bisoprolol, captopril and amlodipine.

Results
It is very difficult to diagnose TAK and currently angiography is the gold standard. Costs and facility limitations were our difficulties in diagnosing TAK in this patient. Early diagnosis in this patient was based on Sharma and ACR TAK criteria. Furthermore, she had amputated and anastomosis *bypass graft/reconstruction*, and anatomic pathological results confirmed TAK Type 3 Nasu criteria. Although the upper extremity/coronary angiography and carotid ultrasound were not examined, based on signs, symptoms and echocardiography might show abnormalities of the vessels in the aorta and/or branches of coronary artery, carotid artery, subclavian artery, brachiocephalica renalis arteries. The complications this patient had were heart failure, claudication, stroke, hypertension and asymmetrical different blood pressure. Despite claudication in the lower extremities, this is a unique sign in TAK diagnosis. Chronic limb ischemia with gangrene in the lower extremities is rare. In some claudication cases TAK more commonly occurs in the upper extremities rather than in the lower extremities and rarely causes gangrene.

Conclusion
TAK is a rare vascular disease. TAK diagnosis is very difficult and needs many criteria for confirmation, one of which is through biopsy. Our case showed anatomical pathology Type 3 by Nasu TAK criteria. The unique condition in this case was chronic limb ischemia with gangrene on lower extremity, which is a rare TAK case in the world. Good management of TAK patients includes adherent treatment, prevention against progression of TAK disease and appropriate treatment to reduce mortality, morbidity, disability, recurrence and poor complications. Comprehensive management of various multidisciplinary will result a good prognosis.

Keywords
Takayasu's arteritis, anatomic pathology, chronic limb ischemia, heart failure

Saturday, 4 June 2016 (Continued)
11.15 h. – 13.00 h.

11.45 High Rates of Residual Venous Thrombosis (RVT) after 3-Months of Anticoagulant Treatment Associated with Increased Risk of Recurrence of Deep Vein Thrombosis (DVT) in Singapore Population: **Pankaj Handa, MBBS, MD, MRCP, FRCP, FAMS, FICA,** Senior Consultant; **Ashish Sule, MBBS, MD, MRCP, FRCP, FAMS, FICA,** Consultant; Department of General Medicine 2, Tan Tock Seng Hospital, Singapore.

Background
RVT is often considered as a prothrombotic state. It remains debatable whether RVT is a predictor of DVT recurrence.

Aim
To determine if RVT at the end of 3 months of anticoagulation is associated with increased risk of recurrence of DVT.

Methodology
All subjects with RVT after 3 months of anticoagulation were identified from the Vascular Diagnostic Laboratory, Tan Tock Seng Hospital, Singapore, between January 01, 2008 and December 31, 2013. Only those with follow-up at Vascular Medicine Clinics were included. Data including demographics, veins involved, etiology, duration of treatment and follow-up were recorded for retrospective analysis. Statistical analysis was performed using Stata / SE 13.1.

Analysis
Only 34 patients met the inclusion criteria of the study. Twenty-one patients (61.7%) had provoked DVT. In total, 6 (17.4%) patients developed DVT recurrence. Mean duration of anticoagulation was 24.5 months and that of follow-up was 25.4 months. One (18.2%) patient with common iliac vein (CIV) thrombosis, 4 (25%) patients with superficial femoral vein (SFV) and common femoral vein (CFV) thrombosis and 1 (33.3%) patient with calf veins thrombosis had DVT recurrence. DVT recurrence had significant association between thrombophilia (P = 0.0195) and malignancy (P = 0.020).

Conclusion
RVT should be checked after 3 months of anticoagulation (even in a setting of provoked DVT). It significantly increases the risk of recurrence of DVT after discontinuation of anticoagulation especially if the RVO is associated with SFV and CFV or background of malignancy and thrombophilia.

What professional practice gap does this abstract address?
There is conflicting evidence in literature on RVT as a predictor of DVT recurrence. However this study does show that it might be a good predictor of DVT recurrence in local population at Singapore.

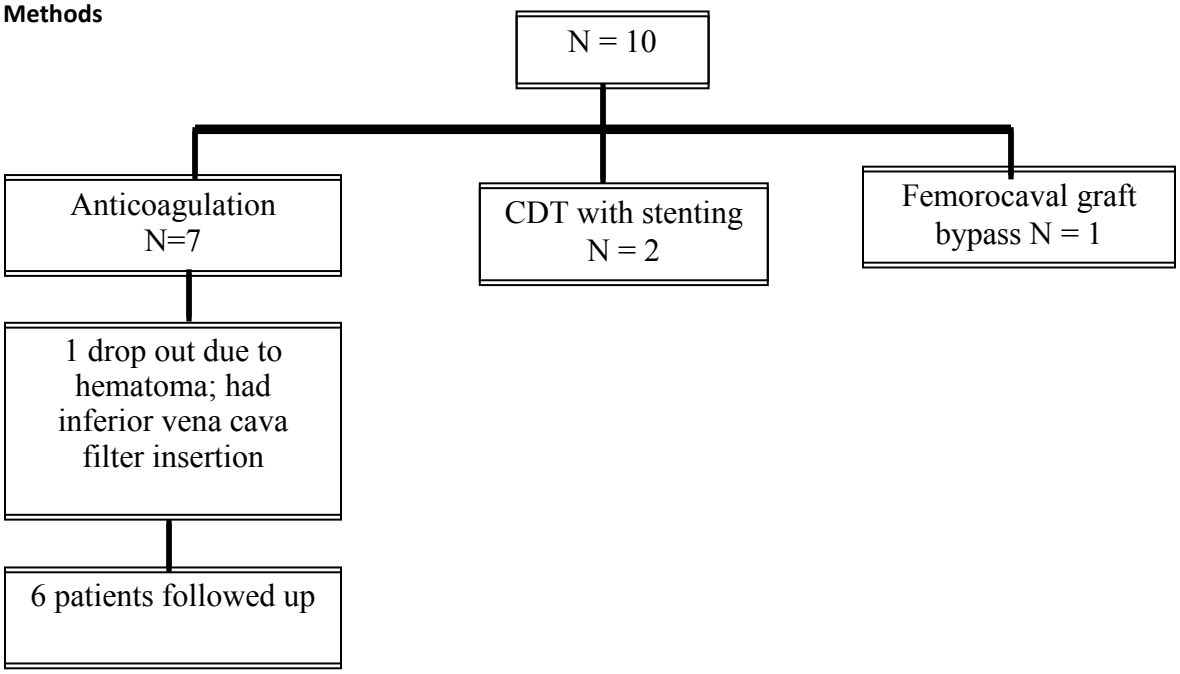
How will this abstract influence change in competence, performance or patient outcomes?
Practitioners vary on the importance of RVT. The evidence from our study might influence them to give more thought on duration of anticoagulation treatment based on RVT. This would ultimately change patient outcomes for the better.

11.55 Treatment Options for May-Thurner Syndrome (MTS)-Related Deep Venous Thrombosis (DVT) and their Treatment Outcome: Annamarie Borja, MD, AFICA; Aileen Alvarez-Tiu, MD; Penelope Casipit, MD; Ashish Anil Sule, MBBS, MD, FRCP, FAMS, FRCP, FICA; Department of General Medicine, Tan Tock Seng Hospital, Singapore.

Background
MTS have been found in 18%-46% of patients with left lower limb DVT. Anticoagulation, catheter-directed thrombolysis (CDT) with stenting, thrombectomy and bypass are among the treatment options being used to treat such condition.

Objectives
This paper aims to compare the treatment outcome of patients with MTS-related DVT who received different treatment options: anticoagulation, CDT with stenting and femorocaval graft bypass.

Methods



Results

	Anticoagulation	CDT with stenting	Graft bypass
Clinical outcome			
Pain	no	no	no
Swelling	no	no	no
PTS	1 out of 6	none	yes
Radiologic Outcome	Complete clearance=2 Residual thrombosis=2 No repeat scan=2	No repeat scan	Stable graft patency
Complication			
Bleeding	none	none	none

Conclusion:
Based on this study, CDT with stenting seems to be a more promising treatment option for MTS-related DVT. Although clinical improvement is generally about the same as with anticoagulation and bypass, the group who had CDT with stenting did not develop any PTS. Thus, it is recommended that CDT with stenting be done for patients with MTS-related DVT to correct the structural abnormality and possibly to avoid recurrence of DVT as well.

12.05 Anticoagulation versus Catheter-Directed Thrombolysis (CDT) with Stenting in Treating Patients with May-Thurner Syndrome (MTS)-Related Deep Vein Thrombosis (DVT): Penelope Casipit, MD, Annamarie Borja, MD, AFICA; Aileen Alvarez-Tiu, MD; MD; Ashish Anil Sule, MBBS, MD, FRCP, FAMS, FRCP, FICA; Department of General Medicine, Tan Tock Seng Hospital, Singapore.

Background
Various treatment options have been proposed in treating patients with MTS-related DVT. Anticoagulation is generally an acceptable choice although it does not treat the underlying anatomical abnormality. Thus, CDT with stenting have been done in some patients who do not have any contraindication for such procedure.

Objectives
This paper aims to compare the treatment outcome of patients with MTS-related DVT who received anticoagulation versus those who had CDT with stenting.

Methods
Eight patients who were found to have left leg DVT were noted to have MTS. Six patients were given anticoagulation and two underwent CDT with stenting. Five out of the six anticoagulated patients were given warfarin and their International Normalized ratio was kept between 2 and 3. The other patient was given rivaroxaban.

All patients were screened for risk factors. On follow up, clinical and/or sonographic changes were noted.

Results

	Anticoagulation Group	CDT with stent group
Population	N=6	N=2
Age (years)	Mean=75	Mean=71
Sex	Female=4; Male=2	Female=2
Race	Chinese=6	Chinese=2
Risk Factors	Malignancy=2 TCM use=1	Long haul flight=1

All patients who received anticoagulation were noted to have significant clinical improvement. Four of them had repeat left leg scan done. Two of these 4 patients showed clearance of DVT while the remaining 2 patients had persistent DVT. One of the total 6 patients developed post-thrombotic syndrome (PTS). No significant bleeding was noted. Two patients' d-dimer levels remained elevated despite showing clinical improvement.

From the group who underwent CDT, one patient was noted to have re-occlusion thrombosis after thrombolysis thus mechanical thrombectomy was done followed by stenting. The other patient initially had an inferior vena cava filter inserted for her left DVT with phlegmasia cerulea dolens. She subsequently underwent CDT with stenting. There was no significant peri-procedural bleeding noted. No repeat scan was done but clinical improvement have been noted with no development of PTS in both patients.

Conclusion
Patients with MTS-related DVT do fairly well with anticoagulation. Only one out of six patients developed PTS for whom compression stockings may be recommended.

12.15 Case Series: Recurrent Idiopathic Portal Vein Thrombosis in Young Patients—Should they be Placed on Long-Term Anticoagulation? **Peiyan Ho, MBBS; Ashish Anil Sule, MBBS, MD, FRCP, FAMS, FRCP, FICA;** Department of General Medicine (Vascular), Tan Tock Seng Hospital, Singapore.

Introduction
Portal vein thrombosis (PVT) can be divided into acute and chronic portal vein thrombosis. Of note, no cause is identified in more than 25% of patients. Extension of thrombus to its mesenteric venous arches may be fatal. Recanalization is a major goal for treatment. We report two cases with idiopathic recurrent portal vein thrombosis.

Case 1:
A 37-year old Chinese male presented with epigastric pain secondary to portal vein thrombosis in his left main portal vein. Computed tomography abdomen and pelvis (CTAP): Non-occlusive thrombus at the confluence of the splenic and superior mesenteric veins. Non-occlusive thrombus in the left main portal vein and the anterior sector division of the right portal vein. Hepatology and malignancy screen was negative. Thrombophilia screen was unremarkable.

Progress
He was started and completed three months of low molecular weight heparin and repeat CTAP three months later demonstrated partial recanalization of the left portal vein with secondary atrophy of the medial segment. Three years later, he was found to have new high grade extensive thrombosis of proximal superior mesenteric vein, main portal vein and right and left portal veins. He was then started on anticoagulation. His repeat thrombophilia screen was negative. However, in view of his recurrent portal vein thrombosis, he was placed on lifelong warfarin.

Case 2:
A 27-year old Malay male presented with epigastric pain secondary to chronic splenic, portal and superior mesenteric vein thrombosis. *CTAP:* chronic splenic, portal and superior mesenteric vein thrombosis. Hepatology and malignancy screen was negative. Immunological and thrombophilia screen was unremarkable.

Progress
He was not anti-coagulated and defaulted his follow-up. Nine years later, he re-presented with epigastric pain and was found to have extensive thrombosis of the splenic and portal veins with extension to the superior mesenteric veins. He was anti-coagulated for six months. Repeated Doppler ultrasound study a year later showed cavernous transformation of thrombosed portal veins. He subsequently presented two-and-a-half years later for acute left MCA territorial infarct secondary to occlusion of left ICA with right hemiplegia. As such, he was placed on lifelong warfarin.

Discussion
Early anticoagulation therapy aims to achieve recanalization which reduces recurrence of portal vein thrombosis. Studies have shown that anticoagulation should be initiated within 30 days of symptom onset to achieve optimal recanalization. Patients with incomplete or no recanalization have a higher rate of complications largely related to portal hypertension.

Conclusion
Young patients with recurrent idiopathic portal vein thrombosis should perhaps be placed on long term anticoagulation. Further studies are required in this group of patient as stopping anticoagulation can cause recurrence or thrombosis at other sites.

Saturday, 4 June 2016 (Continued)
11.15 h. – 13.00 h.

12.25 Risk of Anticoagulation and Bleeding in a Patient with Acute Idiopathic Portal Vein Thrombosis and Large Esophageal— Can These Patients be Anticoagulated? Benedict Azucena, MD, AFICA; Peivan Ho, MBBS, Ashish A. Sule, MBBS, MD, FRCP, FAMS, FRCP, FICA; Department of General Medicine (Vascular), Tan Tock Seng Hospital, Singapore.

Introduction
Portal vein thrombosis (PVT) is characterized by the narrowing or obstruction of the portal vein by a thrombus. It may result in non-cirrhotic portal hypertension which can develop esophageal varices as the left gastric vein acts as collaterals between the portal veins and lower esophagus venous system.

We described a case of a young male with previous right middle cerebral artery (MCA) infarct and a known hepatitis B carrier without cirrhosis who developed idiopathic extensive PVT thrombosis complicated by esophageal varices.

Case Report:
A 35-year old male, known hepatitis B carrier with a right MCA territory infarct secondary to right carotid artery stenosis presented with epigastric pain secondary to acute extensive thrombosis of portal vein, splenic vein, SMV and other branches. Computed tomography scan of the abdomen and pelvis (CTAP): Acute extensive thrombosis of portal vein, splenic vein, superior mesenteric vein and some of the mesenteric vein branches, the cause of which is not apparent in this study. There were no signs of malignancy or cirrhosis. Previous esophago-gastroduodenoscopy and colonoscopy were unremarkable. Immunological and thrombophilia screen negative.

Progress
Patient was started on warfarin. However, he subsequently developed an oesophageal variceal bleed and was found to have 4 columns of grade 2 varices with multiple red wale signs. A large amount of old blood with clots was seen coating the stomach and duodenum. He then underwent banding of the varices and was started on propanolol.

Despite this, the patient was restarted on anticoagulation in view of his previous extensive thrombosis of the portal venous system to prevent extension and/or recurrence of thrombosis. Follow-up CTAP 6 months and a year later showed no resolution or progression of thrombus.

Discussion
Acute PVT is a rare disorder that may cause chronic portal hypertension if recanalization is not obtained. As such, the main management goals of PVT are to recognize and treat underlying causes, prevention of thrombus extension and to achieve portal vein recanalization. Recent studies demonstrate a high recanalization rate with anticoagulation therapy in acute portal vein thrombosis in non-cirrhotic patient. However, it is not without any risk. In a patient with a high bleeding risk, risk of bleeding may outweigh the potential benefit from anticoagulation to prevent thrombus extension. A high bleeding risk is being defined as the presence of esophageal varices or thrombocytopenia less than 50 000/mm^3.

Conclusion
Anticoagulation therapy is the mainstay of PVT treatment to prevent portal hypertension and variceal bleeding. Balancing bleeding risk and anticoagulation therapy to achieve early recanalization is the key.

12.25 h. – 13.00 h. - A Panel Discussion with Questions and Answers

— CLOSE OF SCIENTIFIC SESSIONS —

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