Adv. Cardiology 2022

March30-31,
2022

Virtual Event

International Congress on

ADVANCED CARDIOLOGY & CARDIOVASCULAR RESEARCH

PEERS ALLEY
M E D I A

Peers Alley Media

1126 59 Ave East, V5X 1Y9
Vancouver BC, Canada
WhatsApp No: +1 873-889-8976

YOUR FIRST CHOICE FOR RESEARCH INGENUITY

PROGRAM-AT-A-GLANCE

ADV. CARDIOLOGY
2022

DAY 1
MARCH 30, 2022

Scientific
Program

GMT- Greenwich Mean Time

09:45-10:00	Opening Ceremony

Distinguished Speaker Talks

Sessions: Cardiology | Heart diseases | Hypertension | Electrocardiography | Cardio-Oncology | Interventional Cardiology | Pediatric Cardiology | Stroke | Cardiac Surgery | Cardiac Imaging | Cardiology Case Reports | Cardiovascular Disease | Congestive Heart Failure | Acute Coronary Syndrome

10:00-10:20	**Title: COVID-19 and Takotsubo syndrome** **Andrea Falcetta,** *S. Croce e Carle Hospital, Italy*
10:20-10:40	**Title: Measuring the responsiveness of the SF-36 in the Cardiac rehabilitation literature: Combined results of a comparative effectiveness review and meta-analysis** **Joan van Rotterdam,** *University of Newcastle, Australia*
10:40-11:00	**Title: How the UK achieves high influenza vaccination rates– including cardiovascular patients** **George Kassianos,** *National Immunisation Lead Royal College of General Practitioners, UK*
11:00-11:20	**Title: Relieving stress for the heart health: Sinus Tachycardia-Induced cardiomyopathy due to severe mental stress** **Abeer Mohamed Shawky,** *Al-Azhar University, Egypt*
11:20-11:30	**Title: Pharmacokinetics of 4-hydroxybenzaldehyde in normal and cerebral ischemia-reperfusion injury rats based on microdialysis technology** **Long Ning,** *Yunnan University of Chinese Medicine, China*
11:30-11:50	**Title: The relationship between menarcheal age and body mass index among different birth cohorts- A longitudinal cohort study** **Maryam Farahmand,** *Shahid Beheshti University of Medical Sciences, Iran*

Refreshment Break 11:50-12:10	
12:10-12:20	**Title: Effects of Gastrodia elata Blume GE2-1 on neurological function in rats following ischemic stroke** **Hang Sun,** *Yunnan University of Chinese Medicine, China*
12:20-12:30	**Title: Efficacy and cost-feasibility of the Timely Chest Compression Training (T-CCT): A contextualized cardiopulmonary resuscitation training for personal support workers participating during in-hospital cardiac arrests** **Catalina Sokoloff,** *CHUM Academy, Canada*
12:30-12:50	**Title: Abamectin poisoning with severely abnormal electroencephalogram: A case report** **Zhao-Yang Xing,** *Guangyuan First People's Hospital, China*
12:50-13:10	**Title: Infrared technology for vascular visualization with applications in IRT-based carotid artery stenosis and abdominal aortic aneurysm detection** **Eddie Yin Kwee Ng,** *Nanyang Technological University, Singapore*
13:10-13:30	**Title: Right-sided congenital diaphragmatic hernia associated with hepatopulmonary fusion and congenital pulmonary malformation** **Athary Fahad Nasser Saleem,** *Kuwait University, State of Kuwait*
Lunch Break 13:30-14:30	
14:30-14:50	**Title: Complex cardiac vascular malformation: Natures own CABG** **Shah Omair,** *Sheri Kashmir Institute of Medical Sciences, India*
14:50-15:10	**Title: The difference in hemodynamic changes when using pron-position in patients with COVID-19 on different respiratory support** **Shilin Dmitriy Sergeevich,** *City Clinical Hospital № 1, Russian Federation*
15:10-15:30	**Title: Association between platelet membrane fatty acid spectrum and oxidative stress in healthy and post myocardial infarction men** **Inga Bikulčienė,** *Vilnius University, Lithuania*
15:30-15:50	**Title: Donepezil attenuates injury following ischaemic stroke by stimulation of neurogenesis, angiogenesis, and inhibition of inflammation and apoptosis** **Mahdi Saberi Pirouz,** *Iran University of Medical Sciences, Iran*

Refreshment Break 15:50-16:20

| 16:20-16:40 | **Title: The use of artificial hypoxia in endurance training in patients after myocardial infarction**
Agata Nowak-Lis, *Jerzy Kukuczka's Academy of Physical Education in Katowice, Poland* |

| 16:40-17:00 | **Title: Evidence-based tools for patient behavior change: A guide for cardiology providers**
Valerie J. Hoover, *Stanford University, USA* |

| 17:00-17:20 | **Title: Autoantibody generation during atherosclerosis in mice and man**
Robert W. Maul, *National Institutes of Health, USA* |

| 17:20-17:40 | **Title: Correlation of two methods of left atrial measurements during stress echocardiography: Linear vs Planimetric methods**
Luisa Maria Camarozano Machado, *Pontifical Catholic University of Paraná (PUC PR), Brazil* |

| 17:40-18:00 | **Title: Venous thromboembolism after ultrasound guided foam sclerotherapy**
Eduardo T de Aguiar, *University of São Paulo, Brazil* |

| 18:00-18:20 | **Title: Acute hemodynamic compromise following superior vena cava stent placement: A case report**
Anahita Dabo-Trubelja, *Memorial Sloan Kettering Cancer Center, USA* |

Panel Discussion

End of Day 1

• •

DAY 2
MARCH 31, 2022

Scientific
Program

GMT- Greenwich Mean Time

09:55-10:00	**Introduction**

Distinguished Speaker Talks

Sessions: Cardiology | Heart diseases | Hypertension | Electrocardiography | Cardio-Oncology | Interventional Cardiology | Pediatric Cardiology | Stroke | Cardiac Surgery | Cardiac Imaging | Cardiology Case Reports | Cardiovascular Disease | Congestive Heart Failure | Acute Coronary Syndrome

10:00-10:20	**Title: Effects of sacubitril/valsartan combination in an experimental model of heart failure** **Donato Cappetta,** *University of Campania 'Luigi Vanvitelli', Italy*
10:20-10:40	**Title: Computational intelligence in diagnosis of prenatal congenital heart defects from ultrasound images** **Kavitha D,** *RV College of Engineering, India*
10:40-11:00	**Title: Deep statistical analysis of ECG** **Tigran Hovhannisyan,** *Yerevan State University, Armenia*
11:00-11:20	**Title: Impact assessment following implementation of a vascular access team** **MI Corcuera Martínez,** *Hospital Universitario de Navarra, Spain*
11:20-11:40	**Title: Artificial intelligence towards heart stroke prediction based on GUI** **P.Muthu,** *SRM Institute of Science and Technology, India*

Refreshment Break 11:40-12:10

12:10-12:30	**Title: mHealth & digitization in cardiology lab medicine** **Pradeep Kumar Dabla,** *G.B.Pant Institute of Postgraduate Medical Education & Research (GIPMER), India*

12:30-12:50	**Title: A rare case of endolymphatic sac tumour: Clinical, radiological, pathological & immunohistochemical findings with review of literature** Tarang Patel, *All India Institute of Medical Sciences, India*
12:50-13:10	**Title: Bilateral diabetic papillopathy developed after starting insulin treatment. Potential toxic effect of insulin? A case report** Marco Mafrici, *Ales Cevennes Hospital, France*
13:10-13:30	**Title: 5D cardiac model** Houneida SAKLY, *University of Mannouba, Tunisia*
13:30-13:50	**Title: Blood flow restricted exercise training: What is it and what is the evidence on vascular health?** Elisio Alves Pereira-Neto, *University of South Australia, Australia*
Lunch Break 13:50-14:30
14:30-14:50	**Title: Diabetes mellitus: Diabetic cardiomyophathy, cardiac cell stiffness and actin cytoskeleton** Juan C. Benech, *Clemente Estable Biological Research Institute, Uruguay*
14:50-15:10	**Title: Memantine and its benefits for cardiovascular diseases** Hamid Soraya, *Urmia University of Medical Sciences, Iran*

Panel Discussion

End of Day 2

PEERS ALLEY
M E D I A

Virtual Event

International Congress on ADVANCED CARDIOLOGY AND CARDIOVASCULAR RESEARCH

March 30-31, 2022

ADV. CARDIOLOGY 2022

Covid-19 and Takotsubo syndrome

Falcetta A.[1], Bonfanti E.[2] and **Lauria G.[1]**
[1]*S. Croce e Carle Hospital, Italy*
[2]*Città della Scienza e della Salute, Italy*

Covid-19 may complicate with cardiovascular manifestations, including the development of Takotsubo syndrome (TTS).

TTS is an acute cardiac syndrome characterized by typical regional wall motion abnormalities that reflect impairment of myocardial contractility that leads to acute heart failure in the absence of culprit epicardial coronary artery disease. Clinical presentation may be similar to acute myocardial infarction (AMI): chest pain and/or dyspnea, ST-segment elevation or depression and/or T-wave inversion on the resting electrocardiogram (ECG), and elevation of serum cardiac troponin are typical features of this syndrome.

Although the Intertak diagnostic score can differentiate TTS from AMI with sensitivity and specificity values of 89% and 91% respectively, coronary angiography remains the gold standard in its diagnosis.

Pathophysiology of development of TTS during Covid-19 is not fully elucidated. It is supposed cytokine storm, sympathetic nervous system surge and microvascular dysfunction are three main factors that may trigger this syndrome. The former, the second and the latter may act by impairing the myocardial contractility as a consequence of the high values of proinflammatory factors leading to cell apoptosis, through catecholamine-induced myocardial stunning and inflammation, and by the formation of microthrombi with myocardial microinfarctions during a state of hypercoagulability secondary to the systemic inflammatory response, respectively.

Nowadays no prospective randomized clinical trials have been performed on TTS, so guidelines regarding its management are lacking and therapeutic strategies are based on clinical experience and expert consensus. In mild cases medical therapy (based on angiotensin-converting-enzyme inhibitor or angiotensin-receptor blocker, beta blockers, diuretics and/or nitroglycerine also depending on the left ventricle ejection fraction and the left ventricular outflow tract obstruction) may be sufficient. In in severe cases complicated by progressive circulatory failure and cardiogenic shock, early mechanical support, in addition to the medical therapy, should be considered as a bridge-to-recovery.

PEERS ALLEY
M E D I A

Measuring the responsiveness of the SF-36 in the Cardiac rehabilitation literature: Combined results of a comparative effectiveness review and meta-analysis

Joan van Rotterdam, Michael J. Hensley and **Michael Hazelton**
University of Newcastle, Australia

Objective: To investigate the responsiveness of Patient Outcome Measures (POMs) which are essential to map treatment effectiveness of Cardiac (CR) rehabilitation programs, this is an area often overlooked and may be an influence in the variability of evidence currently available.

Data Source: A comparative effectiveness literature review was conducted of studies with a pre to post POM assessment of responsiveness (change in health status over time). This was followed by a meta-analysis whose purpose was to gather pooled information on the responsiveness of the main POMs in CR.

Methods: A quality review of this literature not only included RCTs but also parallel studies as well as all observational and retrospective trials. This review included a list of articles and their characteristics, a quality assessment of the literature and a list of POMs utilised in this setting were assessed for responsiveness. For the meta-analysis a correlation analysis was undertaken between SF-36 pre and post "within" mean scores in the CR literature to define the degree to which the two sets of variables were related, this was for each domain of the SF-36 and for the PCS and MCS scores.

Results: There was inconsistency in the literature with the measurement of responsiveness or effect-size. The most commonly used POM was the SF-36 with the SF-36 PCS domain being the most responsive of the composite SF-36 domains, however the PCS shows less ability to discriminate in the higher SF-36 scores. In the individual domains Role Physical, Role Emotional and Physical function are closely grouped as being the most responsive.

Conclusion: The surveyed literature found no "gold standard" POM for CR. The domains of the SF-36 are not responsive to CR, and the PCS of the SF-36 appears not to be as responsive particularly in the area of more severe disease.

Biography

I commenced a Postgraduate Diploma in Epidemiology (1993) that I later translated to a Masters in Medical Science (Clinical Epidemiology), which was completed in 2003. Between 2002 and 2003 I undertook a part-time position with the Newcastle Institute of Public Health (NIPH) as a manager of a research project entitled "An Evaluation of the Hunter Chronic Disease Rehabilitation Program". Then in 2006 I commenced my PhD candidature on a part-time basis and I completed this in April 2019. I have also collaborated on other research projects with the charity Hands on Health Australia (HoHA), this group provides health care for disadvantaged communities.

How the UK achieves high influenza vaccination rates– including cardiovascular patients

George Kassianos
National Immunisation Lead Royal College of General Practitioners, London
Board Member European Scientific Working Group on Influenza
President British Global & Travel Health Association
Chair RAISE Pan-European Group on Influenza

The UK achieves consistently high influenza vaccination rates. In the UK, there are three foundations that are very important in achieving high vaccination rates. They are the Government, Primary Care where vaccinations take place, and Patients. These three foundations work in synchrony, which enables the population that are at greater risk of influenza, such as cardiovascular patients, to get vaccinated. The involvement of Pharmacists for vaccination of adults has given patients greater access to vaccination. Both General Practitioners and Pharmacists are remunerated, and this helps organising their campaigns in a way that more patients get vaccinated. Another important point is that important decisions on vaccination are taken not by the Government but by a committee of Experts, the Joint Committee on Vaccinations and Immunisations (JCVI). The influenza vaccination rates will be presented too.

Biography

George Kassianos is a General Practitioner (Family Doctor) and has been the National Immunisation Lead for the Royal College of General Practitioners since 1996, of which he is a Fellow, as well as President & Fellow of the British Global & Travel Health Association. He is a Fellow of the European Society of Cariology and the British & Irish Hypertension Society. Dr Kassianos is also Fellow of the Faculty of Travel Medicine Royal College of Physicians & Surgeons of Glasgow, Higher Education Academy, Academy of Medical Educators, and The International Society of Travel Medicine. He chairs the Pan- European Group on influenza RAISE (*Raise Awareness of Influenza Strategies in Europe – 19 European countries and Israel*) and is Board Member of the European Working Group on Influenza (ESWI). Her Majesty the Queen has awarded Dr Kassianos the CBE (Commander of the British Empire) for services to Primary Care and Travel medicine.

Relieving stress for the heart health: Sinus Tachycardia-Induced cardiomyopathy due to severe mental stress

A. Shawky
Al-Azhar University, Egypt

Background: Tachycardia induced cardiomyopathy (TICM) is a reversible form of myocardial dysfunction generally because of tachyarrhythmias. Therefore, it is very important to identify arrhythmias in any patient presenting with myocardial dysfunction without any apparent etiology.

Case: Herein, we present a case of severe mental stress with bouts of persistent sinus tachycardia; averaging >130 beats per minute before abdominal operations for more than one time in a few months with a particularly dynamic ventricular stunning that partially normalised in one day once relieving tension and reducing heart rate; then complete normalization of ventricular function was observed after five months of maintaining normal heart rate. The present case was initially missed due to its paroxysmal nature and was later on cured with maximum tolerated dose of beta blockers, anti-failure, and anxiolytic agents.

Discussion: Sinus tachycardia is often considered a physiological response to mental stress that may cause cardiac injury apparently related to a prolonged stress response. Treatment of stress sinus tachycardia induced cardiomyopathy (stress sinus tachycardia-ICM) leads to recovery of myocardial function. The literatures do not clearly recommend controlling heart rates in patients with persistent sinus tachycardia preoperatively, but it is a therapeutic option that should be considered in preparing patients for operation. Successfully, beta blockers were used in our patient and should be considered in similar scenarios. It is of value to keep in our mind, relieve stress is important for the heart health!

Biography

Dr.Abeer M Shawky is currently working as a lecturer of cardiology and consultant non-invasive cardiology at the faculty of medicine, Al-Azhar University, Cairo, Egypt. She got her PhD, master and doctorate from the faculty of medicine, Al-Azhar university. Her Job involves preparing seminars and teaching undergraduate and postgraduate students both theoretical and practical curricula. Also, She helps design and supervises postgraduate research studies and monitor clinical work. She collaborates in several research projects with colleagues in her department and colleagues from different disciplines. She is serving as a reviewer and has many publications in reputed national and international journals.

Pharmacokinetics of 4-hydroxybenzaldehyde in normal and cerebral ischemia-reperfusion injury rats based on microdialysis technology

Long Ning, Qing Lin, Hang Sun, Jin Feng, Qian Yang, Chunping Xu and **Mingli Yan**
Yunnan University of Chinese Medicine, China

Introduction: 4-Hydroxybenzaldehyde (4-HBd) is the main active compound in the traditional Chinese medicinal herb Gastrodia elata Blume and is known to have neuroprotective effects on cerebral ischemic-reperfusion injury (CIRI).

Aim: 4-Hydroxybenzaldehyde (4-HBd) is the main active compound in the traditional Chinese medicinal herb Gastrodia elata Blume and is known to have neuroprotective effects on cerebral ischemic-reperfusion injury (CIRI).

Methods: In the current study, we investigated the pharmacokinetic features of 4-HBd in sham-operated and CIRI rats after single-dose oral administration, with the subsequent simultaneous collection of blood, feces, and urine using microdialysis. The pharmacokinetic parameters were determined using high-performance liquid chromatography with diode-array detection (HPLC-DAD) and 4-HBd metabolites were determined using ultra-performance liquid chromatography-mass spectrometry (UPLC-MS).

Results: Based on analysis, 4-HBd exhibited an absolute bioavailability of 5.33%; however, after intragastric administration of 4-HBd in normal and MCAO/R rats, the excretion of 4-HBd in feces accounted for 0.0181% and 0.0091% of the dosage, and in urine accounted for 0.0077% and 0.0274% of the dosage, respectively. Furthermore, 4-HBd was rapidly metabolized into 4-hydroxybenzoic acid (4-HBA) after administration in both the control and MCAO/R groups. Compared with the control group, the peak time of 4-HBd plasma concentration in the MCAO/R rats decreased from 10.67 min to 8.83 min, the area under the curve decreased significantly, and the half-life increased from 31.81 min to 78.85 min. Thus, based on our results, 4-HBd shows rapid absorption, low absolute bioavailability, low fecal and urinary excretion, and a distinct metabolic end-product (4-HBA).

Conclusion: This study provides a foundation for further research on the pharmacological effects of 4-HBd. The CIRI pathological state affected the absorption and metabolic rate of 4-HBd, suggesting that the brain protective effects of this compound may be related to its metabolism.

The relationship between menarcheal age and body mass index among different birth cohorts- A longitudinal cohort study

M. Farahmand[1], F. Ramezani Tehrani[1], D. Khalili[2,3], L. Cheraghi[3] and **F. Azizi[4]**

[1]Reproductive Endocrinology Research Center, Research Institute for Endocrine Sciences, Shahid Beheshti University of Medical Sciences, Iran

[2]Prevention of Metabolic Disorders Research Center, Research Institute for Endocrine Sciences, Shahid Beheshti University of Medical Sciences, Iran

[3]Department of Epidemiology and Biostatistics, Research Institute for Endocrine Sciences, Shahid Beheshti University of Medical Sciences, Iran

[4]Endocrine Research Center, Research Institute for Endocrine Sciences, Shahid Beheshti University of Medical Sciences, Iran

Aim & Objective: Body mass index (BMI) has been related to menarcheal age (MA). This longitudinal study aimed to evaluate the trend of BMI and its relation with MA in a community-based population in Iran.

Methods: All women, participated in Tehran Lipid and Glucose study, whose age was≥10 years and were post-menarcheal at the time of entering the study 6818 ones were included, and their MAs were 8-18 years. The study subjects were divided into three groups via tertiles birth cohort (borne in ≤1939, 1940-1969, and ≥1970) and MA (≤11, 12-15 and, ≥16year). The Generalized Estimating Equations analysis was carried out to assess the relationship between trends of BMI in different birth cohorts with MA groups.

Results: In all participants, the means of MA and BMI were 13.5±1.4year and 26.6±5.3 kg/m2, respectively. According to birth cohort grouping, the mean BMI was 28.8±4.4, 28.6± 4.7, and 23.5±4.6 kg/m2, and the mean MA were 13.7±1.4, 13.6±1.5, 13.4±1.4, respectively. A significant increase was observed in the trend of mean BMI and early MA (≤11year) compared to all other MA groups. A significant adverse relation was observed between the trend of the mean BMI and the mean of the birth cohort. The trend of mean BMI had a negative association between MA and birth cohort groups after adjusting for potential confounders.

Conclusions: Among older women was observed an inversely stronger relationship between the trend of mean BMI and MA.

Biography

Assistant Professor, Reproductive Endocrinology Research Centre, Research Institute for Endocrine Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Researcher, Reproductive Endocrinology Research Centre, Research Institute for Endocrine Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Reviewer, Iranian Journal of Endocrinology, Physiology Pharmacology, Journal of Nursing Practice Today, Hayat, Journal of Biological Trace Element Research, Journal of Diabetes & Metabolism

Educator, University of Applied science and Technology, Department of Health and Family planning Tehran, Iran.

Educator, Islamic Azad University, Department of Health and Family planning Tehran, Iran

Educator,Tarbiat Moalem Center, Department of Health and Family planning Tehran, Iran

Family health expert, North Health Center of Tehran.

Effects of Gastrodia elata Blume GE2-1 on neurological function in rats following ischemic stroke

F. Hang Sun, Qing Lin, Long Ning, Qian Yang, Chun-ping Xu, Ming-li Yan and **Xue-lan Song**
Faculty of Chinese Materia Medic, Yunnan University of Chinese Medicine, China

Objective: Ethanol extract of Gastrodia elata Blume(GE2-1) is one of the effective parts of Gastrodia elata Blume against IS, which can be used as a candidate active extract for improving IS prognosis. Based on the Stroke Therapy Academic Industry Roundtable (STAIR) standards, the neurological function of GE2-1 (262.3mg/kg) in rats following ischemic stroke (IS) was studied.

Methods: Both permanent middle cerebral artery occlusion (pMCAO) and transient middle cerebral artery occlusion (tMCAO) model rats were replicated by the suture method. GE2-1 was administered continuously for 28 d after operation. At 7, 14, 21, and 28 d, changes in behavior, brain pathology (H&E staining), and neuronal injury (Nissl staining) were used to evaluate the effects of GE2-1 on IS prognosis and to provide an experimental basis for its pharmacodynamics. The effect of GE2-1 was also evaluated at 3h and 6h after modeling, and behavioral changes (Longa 5-point method) and cerebral infarct volume were the main observations at 24h after modeling to evaluate the effect of GE2-1 on the therapeutic effects of IS in the ultra-early and acute phases.

Results: After intervention with GE2-1 in IS model rats for 14 d, neurological deficits improved significantly, behavioral scores decreased, Nissl bodies in brain tissue increased, and degree of ischemic pathological injury in brain tissue was alleviated. No increase in the risk of hemorrhage was found after administration of GE2-1 in the acute stage.

Conclusions: GE2-1 promoted the repair of neurological function in IS model rats during the recovery stage and improved IS prognosis.

Efficacy and cost-feasibility of the Timely Chest Compression Training (T-CCT): A contextualized cardiopulmonary resuscitation training for personal support workers participating during in-hospital cardiac arrests

Catalina Sokoloff[2,3,4], Christian Vincelette[1,2], Nathalie Nadon[2], Pierre Desaulniers[3] and **François Martin Carrier[5,6]**

[1]Faculty of Medicine and Health Sciences, School of Nursing, Université de Sherbrooke, Canada
[2]Learning and Simulation Center, CHUM Academy, Canada
[3]Department of Emergency Medicine, CHUM, Canada
[4]Critical Care Division, Department of Medicine, CHUM, Canada
[5]Critical Care Division, Department of Anesthesiology and Medicine, CHUM, Canada
[6]Centre de Recherche du Centre Hospitalier de l'Université de Montréal (CRCHUM), Canada

Objectives: The Timely Chest Compression Training (T-CCT) was created to promote more frequent training in chest compressions for personal support workers. This study aims to assess the efficacy of the T-CCT on the chest compression performance and to examine costs related to this intervention.

Methods: A prospective single group, before-after study was conducted at a university-affiliated hospital. The T-CCT is adapted for support workers and lasts 20 min during working hours. Guided by peer trainers, live feedback devices and mannikins, the T-CCT targets chest compression training. Using an algorithm, chest compression performance scores were gathered before and after the intervention.

Results: Of 875 employed support workers, 573 were trained in 5 days. Prior to the intervention, the median performance score was 72%. Participants significantly improved after the intervention ($p < 0.001$) and the median of the differences was 32% (95% CI 28.5–36.0). Support workers in critical care units and those with an active basic life support (BLS) certification performed better at baseline and were less inclined to have large changes in performance scores after the intervention. When compared to basic life support training, the T-CCT is over three times less expensive.

Conclusions: The T-CCT was an effective and low-cost initiative that allowed to train a large group of support workers in a short amount of time. Since they are actively involved in resuscitation efforts in Quebec (Canada), it may promote the delivery of high-quality compressions during in-hospital cardiac arrests. Our inquiry can incite and guide other organizations in the implementation of similar interventions.

Abamectin poisoning with severely abnormal electroencephalogram: A case report

Zhao-Yang Xing
Department of Critical Medicine, Guangyuan First People's Hospital, China

Abamectin is a kind of insecticide with broad spectrum, high efficiency and less pollution to the environment. In recent years, abamectin has been widely used in agricultural production in China. At the same time, more patients with oral abamectin pesticide poisoning were admitted to the hospital.Patients with abamectin poisoning show serious disorders of consciousness, and aspiration failure is the main cause of death. Among them, severe brain function loss, such as deep coma or mydriasis, can easily lead to doctors or relatives of patients to give up treatment. The author recently treated a patient with oral concentration of 5% abamectin pesticide 400ml, the patient was in severe coma, pupil dilation, absence of deep reflexes and superficial reflexes , severe abnormal EEG.After treatment the patient recovered and discharged.The patient had no neurological sequelae half a year later follow-up. Discussion: Abamectin pesticide poisoning can lead to severe disorders of consciousness in patients with severe abnormal electroencephalogram(EEG), but also has the possibility of recovery.Conclusion: Do not easily give up treatment of patients with abamectin pesticide poisoning, even deep coma with severe abnormal EEG, because the patients may be recovered.

Biography

Zhaoyang Xing, deputy chief physician of critical care specialty, member of Sichuan critical care specialty committee and vice chairman of Guangyuan critical care specialty committee, has been engaged in critical care specialty for 16 years, received multiprofessional critical care review course training, and mastered respiratory support, circulatory support, nutritional support, blood purification treatment Various life support technologies such as analgesia and sedation. He published 1 SCI paper as the first author, 5 papers in Chinese core journals, and obtained 4 national patents.

Infrared technology for vascular visualization with applications in IRT-based carotid artery stenosis and abdominal aortic aneurysm detection

Eddie Yin Kwee Ng and **Ashish Saxena**
School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore

We have developed a new infrared imaging tool that could lead to cheap, handy, non-contact & non-invasive visualization of vascular vessels for real-time vein puncturing procedure [1], screening modality for possible carotid artery stenosis (CAS) [2] as well as a potential diagnostic feature for abdominal aortic aneurysm (AAA) [3].

In the past few decades, imaging has been developed to a high level of sophistication. Improvement from one-dimension (1D) to 2D images, and from 2D images to 3D models have revolutionized the field of imaging. This not only helps in diagnosing various critical and fatal diseases in the early stages but also contributes to making informed clinical decisions on the follow-up treatment profile. Carotid artery stenosis (CAS) for example may potentially cause debilitating stroke, and its accurate early detection is therefore important. While the existing imaging modalities include Duplex Ultrasound (DUS), Computed Tomography Angiography (CTA) and Magnetic Resonance Angiography (MRA) are useful but only available in established hospitals and expensive.

Infrared (IR) thermal camera is used to map the functional temperature of the target skin surface and the resulting thermal image is evaluated with novel in-house developed algorithm for 3 Software copyrights with NTUitive Pte. Ltd. on tissue activity ratio (TAR) for the presence of viens, carotid artery stenosis (CAS) and abdominal aortic aneurysm (AAA). In the presence of such diseased arteries or aneurysm, abnormal temperature maps are expected to occur on the external skin surface, which could be captured and quantified using sufficient high thermal resolution IR active dynamic thermography (ADT). Duplex Ultrasound (DUS) examination was used to establish the ground truth. In each patient, the background subtracted thermal image, referred as full thermal image, was used to extract novel parametric cold thermal feature images. From these images, statistical features, viz., correlation, energy, homogeneity, contrast, entropy, mean, standard deviation (SD), skewness, and kurtosis, are calculated and the two groups of patients (control and diseased) are classified successfully. This preliminary study proves the potential of IR thermography as a possible screening tool for CAS/AAA patients or even as vein viewer for the first ADT-based vein visualization image projection method in real-time puncturing procedure for human subject using IRTP technique.

Biography

Eddie is elected as:

- Academician for European Academy of Sciences and Arts (EASA, EU);
- Fellow of the American Society of Mechanical Engineers (FASME, USA);
- Fellow of Institute of Engineering and Technology (FIET, United Kingdom);
- Fellow of International Engineering and Technology Institute (FIETI, Hong Kong),
- Distinguished Fellow for Institute of Data Science and Artificial Intelligence,
- (DFIDSAI, China), and,
- Academician for Academy of Pedagogy and Learning, (USA).

Right-sided congenital diaphragmatic hernia associated with hepatopulmonary fusion and congenital pulmonary malformation

Athary Saleem[1], Amar A. A. Alnaqi[2] and **Esmaeel A. Taqi[3]**
[1]Faculty of Medicine, Kuwait University, State of Kuwait
[2]Surgery Department, Faculty of Medicine, State of Kuwait
[3]Pediatric Surgery, Ibn Sina Hospital, State of Kuwait

Background: Congenital diaphragmatic hernia is defined as patent pleuroperitoneal canal through the diaphragm. CDH can be divided into two types, anterimedial retrosternal hernia (Morgagni hernia), and the posterolateral hernia (Bochdalek hernia). Right-sided CDH that is associated with hepatopulmonary fusion is considered as rare congenital anomaly. In the literature review, there is only 32 reported cases of hepatopulmonary fusion. The prevalence of hepatopulmonary fusion in right sided congenital diaphragmatic hernia is 3 in 1000 infants.

Case summary: A 5 days old baby boy, was born full term to a 41-year-old mother. He was delivered by spontaneous vaginal delivery with birth weight of 3.4 kg and the (APGAR) scores was 7 and 9. Immediately after delivery, he developed respiratory distress and admitted to neonatal intensive care unit. The infant was treated with nasal oxygenation, intravenous fluids, and parenteral antibiotics. Then, chest X-ray was done, showing right-sided CDH. Computed tomography was done to differentiate between CDH and eventration. Chest fluoroscopy was performed and suspicion raised between right-sided CDH and right eventration. After patient stabilization, right thoracoscopy was performed during which the right lung found to be adherent to the liver. Thoracoscopy was carried out and there were many adhesions. So, it was decided to proceed to thoracotomy to separate the liver from lung, which was technically challenging. There was also shared vasculature between the liver and the lung in addition to the fusion. The atelectatic part of the lung was dissected with the rim of the liver in order to be able to repair CDH. Gore-Tex mesh was used in order to close the huge diaphragmatic defect.

Conclusion: The detection of the right hepatopulmonary fusion that is combined with right-sided CDH was considered as novel intraoperative finding in the presence of Bochdalek hernia.

Biography

Ms. Athary Saleem is graduated of bachelor degree of medical sciences from faculty of medicine, Kuwait University. Currently, she is final year medical student who will be awarded her doctor of medicine degree on December 2021. Ms. Saleem is interested in genetics, surgery, neurology and cardiology and involved in research projects related to those fields such as thyroid carcinogenesis, cardiac physiology, and pediatric surgery. She is member of medical education and leadership club at Kuwait university. Also, she was participated in various scientific and academic events and presented many posters. Ms. Saleem had published a case report in Journal of Pediatric Surgery Case reports. Beside research and clinical activities, she volunteers in health awareness campaigns related to cardiovascular diseases, breast cancer, and other chronic conditions. She plans to continue her role with enthusiasm as a health educator, research leader, and lifelong learner for better patient's care.

Complex cardiac vascular malformation: Natures own CABG

Shah Omair and **Choh Naseer**
Sheri Kashmir Institute of Medical Sciences, India

True cardiac arteriovenous malformations are rare anomalies that may be acquired or congenital in origin. These anomalies are well demonstrated by Multi Detector Computed Tomography (MDCT) with much higher clarity and anatomic detail than invasive angiography. We report a case of large complex cardiac vascular malformation involving feeders from systemic (internal mammary artery, right inferior phrenic artery), coronary (left anterior descending), and pulmonary arterial and venous systems using a 64 slice MDCT scanner. Cardiac AV malformations have previously been described using MDCT, but this case is unique in terms of its large size, extensive involvement of systemic, coronary and pulmonary vascular connections, and mild clinical symptomatology.
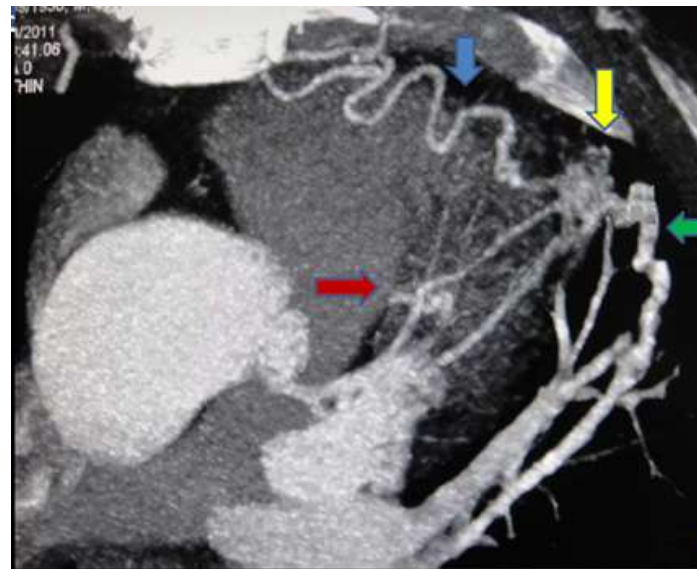

Fig 3: Oblique axial MIP image showing the tortuous internal mammary feeder (blue arrow), the diagonal branch of LAD (red arrow) and left superior pulmonary artery and vein (green arrow) connected to the vascular malformation (yellow arrow) that is seen as a vascular tangle.

Biography

The author is MD Radiodiagnosis and imaging with more than 6 years of experience of working in a high load center with both diagnostic as well as interventional cases. Interventional procedures performed include PTBD, PCN, endovascular embolizations, neuro DSA, biopsies, drainages etc.

The difference in hemodynamic changes when using pron-position in patients with covid-19 on different respiratory support

Shilin D.S.[1,2] and **K.G. Shapovalov K.G.**[1,2]
[1]*City Clinical Hospital № 1, Russian Federation*
[2]*Chita State Medical Academy, Russian Federation*

Background: Various methods of respiratory support in combination with prone positioning have been used during the COVID-19 pandemic. The effects of combination of these two factors on hemodynamics are of interest for clinical practitioners.

Aim: The aim of the study was to evaluate the effect of prone positioning on hemodynamics in COVID-19 patients depending on the method of respiratory support.

Materials and methods: The study included 85 patients of both sexes diagnosed with COVID-19-associated community-acquired polysegmental viral and bacterial pneumonia with progressive respiratory failure. The study consisted of two measurements.The first measurement was performed when the patient was on his back, the second after the application of the prone-position. The patients were divided into 3 groups according to the type of respiratory support. The first group was insufflated with moistened oxygen (39 subjects) , the second group received non-invasive ventilation (25 subjects), and the third group received invasive ventilation (21 subjects).

The measurements were performed using a technique of volumetric compression oscillometry on a non-invasive hemodynamic monitoring system KAP CG osm Globus (Russia).

Results: It was found that when performing the prone-positioning in patients with severe COVID-19 on oxygen support compared with NIV, the diastolic blood pressure difference modulus changed from 5.0 [3.0; 8.5] to 10.0 [7.0; 14.0] (p>0.005). The modulus of lateral arterial pressure in these groups also changed from 6.0 [2.5; 11.0] to 10.0 [6.0; 15.0] (p=0.034).

When comparing the modulus of difference in patients on oxygen support and mechanical ventilation, changes in lateral arterial pressure of 6.0 [2.5; 1.0] to 10.0 [5.0; 21.0] were revealed (p=0.048).

Conclusions: Patients with community-acquired polysegmental viral and bacterial pneumonia associated with COVID-19 demonstrated changes in diastolic blood pressure and lateral blood pressure, performing prony-positioning, depending on the type of respiratory support.

Biography

PROFESSIONAL EXPERIENCE:

- 2019-Physical education teacher, Chita Medical Academy
- 2019-Anesthesiologist, Intensive care department and intensive care for patients with cerebrovascular accident City Hospital №1

- 2016-2019 Nurse, Intensive Care and Cardiology Department City Hospital №1
- 2014-2016 Chef, Chitter Pizza
- 2013 Male nurse, Admission staff department of City Maternity hospital
- 2010-2016 Track athletics -instructor, Sports School No. 5

EDUCATION:
- 2020 Modern approaches in the design of physical education of students, Zabaykalsky State University
- 2018-2020 Residency in Anesthesiology-Intensive Care
- 2012 - 2018 Medical Faculty, Chita Medical Academy
- 2012 Graduated from school 5

MEMBERSHIPS AND ASSOCIATIONS:
- Member of the Zabaikal Society of Anesthesiologists and Resuscitators

HONORARY TITLES:
- Record holder of the Zabaykalsky region at distances of 200, 300 meters 4X400
- 2016 Candidate for Master of Sports Track athletics at distance 200 m.
- 2015 Masters of Sports in polyathlon
- 2008 Candidate for Master of Sports in polyathlon

.

Association between platelet membrane fatty acid spectrum and oxidative stress in healthy and post myocardial infarction men

I. Bikulčienė[1], N. Garjonytė[1], V. Žėkas[1], R. Matuzevičienė[1], Ž. Žymantienė[2], A. Baublytė[3], V. Hendrixson[1], D. Karčiauskaitė[1], A. Utkus[4] and **A. Kaminskas[1]**

[1]Institute of Biomedical Sciences, Department of Physiology, Biochemistry, Microbiology and Laboratory Medicine, Vilnius University, Lithuania
[2]Consultation and Diagnostic Center, Vilnius District Central Polyclinic, Lithuania
[3]Clinical Diagnostic Laboratory, Vilnius District Central Polyclinic, Lithuania
[4]Institute of Biomedical Sciences, Department of Human and Medical Genetics, Faculty of Medicine, Vilnius University, Lithuania

Background: Phospholipids in cell membranes, especially their polyunsaturated fatty acids (PUFAs), are sensitive to oxidative stress (OS) and lipid peroxidation. OS is known to be associated with increased platelet activation and thrombosis. Moreover, platelet–leukocyte aggregates (PLAs) contribute to advanced endothelial injury and atherogenesis leading to cardiovascular lesions in the future.

The Aim: of this study was to investigate how changes in the composition of fatty acids (FAs) in the platelet phospholipid membrane correlate with OS in healthy men and in men who have experienced a myocardial infarction (post-MI) men.

Material/Methods: FA methyl esters from the platelet phospholipid membrane of 79 apparently healthy and 20 post-MI men were identified using gas chromatography/mass spectrometry. Malondialdehyde (MDA) was measured in the blood serum using high-performance liquid chromatography, and PLAs were analysed based on whole-blood flow cytometry. The composition of platelet membrane FAs was compared to MDA concentration (µg/l) and the percentage of PLA formation between healthy men and individuals who had suffered a myocardial infarction (MI).

Results: Statistically, post-MI patients had a significantly higher concentration of blood serum MDA than those in the control group ($p = 0.000$). The level of PUFAs was also higher in the platelet phospholipid membrane of post-MI patients than in healthy individuals ($p = 0.016$). The total sums of saturated FAs and monounsaturated FAs separately did not differ comparing healthy individuals to post-MI patients ($p = 0.547$; $p = 0.469$). However, the percentage of PLA formation was lower in patients than in the control group ($p < 0.05$).

Conclusions: A higher level of blood serum MDA concentration due to OS stimulates platelets to incorporate more PUFAs into the phospholipid membrane, thereby affecting platelet activation which may lead the individual to develop cardiovascular diseases in the future.

Biography

Inga Bikulčienė MD, PhD is specialized in laboratory medicine and biochemistry. She is also working as an assistant at Vilnius University, Lithuania. Her research areas of interest are mechanisms of the pathogenesis of atherosclerosis due to the environment and metabolism. Research activities: determination and assessment of the composition of cell membrane phospholipid fatty acids in human and animal models. Inga Bikulčienė is a full member of European Atherosclerosis Society, European Federation of Clinical Chemistry and Laboratory Medicine Academy and Lithuanian Society of Laboratory Medicine.

Donepezil attenuates injury following ischaemic stroke by stimulation of neurogenesis, angiogenesis, and inhibition of inflammation and apoptosis

Mahdi Saberi Pirouz[1], Arian Madani Neishaboori[1], Solmaz Nasseri Maleki[1], Sara Golmohammadi[1], Donya Nazarinia[2] and **Nahid Aboutaleb[1]**

[1]Department of Physiology, Iran University of Medical Sciences, Iran
[2]Department of Physiology, School of Paramedical Sciences, Dezful University of Medical Sciences, Iran

Donepezil has proven to be an effective drug to reduce neuronal death and subsequently injury in neurodegenerative diseases. The current study evaluated the neuroprotective effects of donepezil in a rat model of ischaemic stroke and explored possible mechanisms which by this drug may reduce cell death. Temporary middle cerebral artery occlusion (tMCAO) was exerted for 45 min to induce ischaemic stroke. The animals were assigned into five groups: sham, control, and three groups treated with different doses of donepezil. Donepezil was intraperitoneally (IP) injected 4 h after reperfusion for 10 consecutive days. Infarct size was determined using TTC staining. The expression of proteins was evaluated using immunohistochemistry assays. Compared with the control group, infarct size was significantly reduced in tMCAO rats treated with different doses of donepezil. Moreover, our results showed significant decreased expression levels of apoptotic markers and pro-inflammatory mediators after treatment with different doses of donepezil for 10 days ($P < 0.05$). Likewise, significant increase of brain-derived neurotrophic factor (BDNF) and peroxisome proliferator-activated receptor gamma coactivator 1-alpha (PGC-1α) proteins were found in tMCAO rats treated with donepezil compared with the control group ($P < 0.05$). Collectively, our findings show the validity of donepezil as a new therapeutic agent for attenuation of injury following ischaemic stroke through attenuation of inflammation and improvement of mitochondrial function, neurogenesis, and angiogenesis.

Biography

Mahdi Saberi Pirouz is a senior medical student of Iran University of Medical Sciences (IUMS). He is assistant researcher in the field of neuroscience and cardiology focusing on stroke and heart failure at physiology department of IUMS. Experienced in both animal and clinical studies. Expert in Middle Cerebral Artery Occlusion (MCAO) technique. Familiar with different laboratory techniques such as western blotting, immunohistochemistry, cell culture, and tissue staining such as H&E, Masson trichrome, TTC. 4th International congress of physiology and Pharmacology on October 2021 was His last contribution in a congress. The next step of his research career will be dedicated to neuroscience and cardiac pathology.

The use of artificial hypoxia in endurance training in patients after myocardial infarction

Agata Nowak-Lis[1], Zbigniew Nowak[1], Anna Konarska[1], Dominika Ganszczyk[1] and **Tomasz Gabryś[2]**

[1]Department of Physiotherapy, Jerzy Kukuczka's Academy of Physical Education in Katowice, Poland
[2]University of West Bohemia, Czech Republic

The effectiveness of training under normobaric hypoxia has been confirmed many times, not only in sports, but also in clinical trials of overweight patients, geriatric patients, and sedentary patients. The aim of the study was to assess the effect of endurance training conducted under normobaric hypoxia in patients after myocardial infarction on the level of exercise tolerance and hemodynamic parameters of the left ventricle. Thirty-five patients aged 43-74 (60.48 ± 4.36) years who underwent angioplasty with stent implantation were examined. The program included 21 training units lasting about 90 minutes. The following procedure was carried out before commencing the training program and immediately after its completion: electrocardiographic submaximal exercise test on a treadmill, blood analysis, lacid acid concentration, two-dimensional ultrasound heart test

Results: A statistically significant improvement in exercise tolerance assessed with the cardiopulmonary exercise test (CPET) was observed: test duration ($p < 0.001$), distance covered ($p < 0.001$), HRmax ($p = 0.039$), SBPmax ($p = 0.044$), VE ($p = 0.004$) and breathing frequency (BF) ($p = 0.044$). Favorable changes in left ventricular hemodynamic parameters were found for LVEDD ($p = 0.002$), LVESD ($p = 0.015$), LVEF ($p = 0.021$), lateral e' ($p < 0.001$), septal e' ($p = 0.001$), and E/A ($p = 0.047$).

Conclusion: Endurance training conducted in hypoxic conditions has a positive effect on the improvement of exercise tolerance and hemodynamic indicators of the left ventricle.

Biography

From 2016 Physical Doctor at the Department of Physiotherapy in Internal Medicine with Doctoral Thesis titled: Influence of hypoxy on patients with coronary disease. In 2015 made an intership in IRCCS San Raffaele Pisana, Rome (cardiac and pulmonary rehabilitation). Currently works as an Assistant at Department of Physiotherapy in Internal Medicine at The Jerzy Kukuczka Academy of Physical Education in Katowice. Head of Student's Research Group. Additionally works as a personal trainer and Fitness instructor (for 13 years). Participated in many international medical and sport's conferences. Private: proud mother of daughter Maja, owner of two beloved dogs and beginner student of Italian language.

Evidence-based tools for patient behavior change: A guide for cardiology providers

V. Hoover
Division of Cardiovascular Medicine, Stanford University, USA

Poor adherence to modifiable cardiac risk factors (e.g., medication or medical device non-adherence, unhealthy diet, physical inactivity, smoking, and substance use) is commonly encountered in the cardiology setting. Patients frequently display ambivalence about making important health behavior changes, despite often having awareness of the risks of unhealthy behaviors. In addition to worse health outcomes, patient non-adherence and inability/unwillingness to make behavioral changes can contribute to significant frustration and burnout in medical providers.

Cardiology providers are uniquely positioned to employ evidence-based techniques to move patients towards positive behavior change. This talk will 1) provide an overview of the current state of the literature regarding an evidence-based approach to health behavior change, and 2) provide practical tools that cardiology providers can start using immediately with their patients to effectively help them move in the direction of positive behavior change.

Biography

Valerie Hoover, PhD is a Clinical Assistant Professor in the Division of Cardiovascular Medicine at Stanford University, and a licensed clinical psychologist who specializes in working with cardiac patients. Areas of expertise include assessment and treatment of health anxiety, depression, medical PTSD, health behavior change, and other psychological factors interacting with cardiac diagnosis and treatment. Dr. Hoover completed her doctorate in Clinical Psychology with an emphasis in Health Psychology at the University of Florida, clinical residency at Rush University Medical Center in Chicago, and post-doctoral fellowship at the San Francisco VA Medical Center. Dr. Hoover is drawn to this line of work because of her passion for helping individuals to manage psychological distress and make enduring behavioral changes to improve their physical and emotional health.

Autoantibody generation during atherosclerosis in mice and man

Robert W. Maul[1], Mark A. Hutchinson[1], Han-Sol Park[1], Mingyi Wang[1], Edward G. Lakatta[1], Ying Wei Lum[2] and **Patricia J. Gearhart[1]**

[1]*National Institute on Aging, National Institutes of Health, USA*
[2]*Johns Hopkins University, USA*

During the development of arterial plaque, low-density lipoprotein (LDL) infiltrates the vascular cell wall. In this interstitial space, the LDL is oxidized producing a neoantigen (oxLDL) that drives immune cell recruitment to the tissue and activates the adaptive immune response. B lymphocytes are recruited to the adventitia, form germinal center reactions, and produce antibodies against the plaque. We have isolated germinal center B cells from aortic tissue from ApoE-/- mice and activated B cells from human tibial arteries. Analysis of the antibody repertoire revealed a biased antibody response consistent with antigen-driven selection. Cloning of single antibodies reveals that these antibodies are not directed against the oxLDL antigen. Several autoantigens include Calsequestrin 1 (CasQ1) and Potassium Voltage-Gated Channel Subfamily A Regulatory Beta Subunit 1 (KCNAB1), which are expressed by vascular smooth muscle cells. This data suggests that during plaque formation, autoantibodies are produced by alterations or cell death of vascular smooth muscle cells, leading to increased inflammation and potentially promoting plaque expansion. Redirecting the antibody response away from autoreactivity and towards oxLDL using ApoE-/- Aid-/- mice, decreased plaque accumulation by 80%. The specificity of these antibodies blocks macrophage accumulation and decreases inflammatory cytokine expression within the aorta. Thus, methods to fine-tune the antibody response could delay plaque expansion in high-risk patients.

Biography

Dr. Robert Maul is a staff scientist studying immunology at the National Institute on Aging, National Institutes of Health in Baltimore, MD, USA. His work focus' on B lymphocyte biology and antibody function, with a broad range on interests including molecular mechanisms of antibody maturation to clinical research on autoantibody generation during Lupus and Cardiovascular disease.

Correlation of two methods of left atrial measurements during stress echocardiography: Linear vs Planimetric methods

Marco Torres[1], Ana Camarozano[2] and **Luisa Camarozano[3]**

[1]*Federal University of Rio Grande do Sul, Brazil*
[2]*Federal University of Paraná, Brazil*
[3]*Pontifical Catholic University of Paraná (PUC PR), Brazil*

Background: The measurement of left atrium (LA) can be obtained with simple linear or more complex Simpson (S) method at rest and during stress echocardiography (SE). Although planimetric methods are more accurately assess resting LA volume, we sought to study if linear (L) methods can be equally valuable in assessing dynamic changes during SE.

Purpose: To assess feasible and accuracy of LA- SE with S compared to L method.

Methods: SE was performed in 95 patients (62 ± 11y) with known or suspected coronary artery disease. All referred for clinically-driven SE (dobutamine in 63, dipyridamole in 32). LA was measured at rest and peak stress with both methods: S biplane method; L method with measurement of anteroposterior diameter in M-mode paresternal view. Two independent observers measured the clips and repeated after 1 month.

Results: LA measurement was obtained 100% patients with L and 84% with S. The off-line analysis time (rest and stress) measured by stop-clock was 22s for L and 93s for S ($p < 0.001$). The intra-rater correlation coefficient for L was 0.96 for single measures and 0.98 for average measures. For S, it was 0.83 in single measures and 0.90 for average. The inter-rater correlation coefficient for L was 0.92 for single measures and 0.958 for average. For S it was 0.90 for single measures and 0.94 for average. With Pearson correlation statistics, absolute LA dimensions were moderately correlated between S and L at rest ($r=0.60$ $p < 0.0001$) and during stress ($r=0.60$ $p<0.0001$). Rest-stress variations were not correlated ($r=0.11$ $p=0.30$).

Conclusion: LA measurement is highly feasible during SE with L and S methods. L is more feasible, less time-consuming and more reproducible than S method, but absolute values with both are only moderately correlated at rest and stress and not correlated when only rest-to-stress variations are considered. L is less accurate than S method assessment of rest-stress LA dimensions in pharmacologic SE.

Biography

Marco Torres: Full Professor at the Department of Internal Medicine at the Faculty of Medicine of the Federal University of Rio Grande do Sul and Cardiologist at the Cardiology Service at Hospital de Clínicas de Porto Alegre (1989-2019). Graduated in Medicine from the Fluminense Federal University. Residency in Cardiology at the Hospital

dos Servidores do Estado (Ministry of Health), in Rio de Janeiro (1972 - 1973). ECFMG (1976) and hereinafter "Fellowship in Cardiology at Cedars-Sinai Medical Center - University of California", Los Angeles (UCLA) (1980 - 1983). Doctorate [PPG Cardiology (UFRGS), 1995], Sandwich-Doctoral Internship at the Istituto di Fisiologia Clinica del Consiglio Nazionale delle Ricerche, Pisa, Italy (1994 - 1995). Fellow of the European Association of CardioVascular Imaging (EACVI) - EACVI Silver Membership (ESC ID number: 13467), (2017 -).

Ana Camarozano: Professor of Cardiology at the Federal University of Paraná. Coordinator of the courses at Instituto Saber e Aprendiz. Coordinator of the Echocardiography sector at HNSG. PhD in Cardiology – Medical Sciences from the Federal University of Rio de Janeiro (UFRJ). Master in Cardiology – Medical Sciences from the Federal University of Rio de Janeiro (UFRJ). Fellowship in Echocardiography at the New England Medical Center – Tufts University (Boston/USA). Specialist in Cardiology by the National Institute of Cardiology-RJ and AMB/SBC. Specialist in Echocardiography by INRAD-FMUSP and AMB/SBC.

Luisa Camarozano: Student of the second period of Medicine at the Pontifical Catholic University of Paraná (PUC-PR), in Brazil. Interdisciplinary Bachelor of Health from PUC-PR in 2021. Presents an Associate of Science Degree from Kent State University, in Ohio, USA, in partnership with PUC-PR.

Venous thromboembolism after ultrasound guided foam sclerotherapy

Eduardo T de Aguiar[1,2,3], Jorgete B Dos Santos[3] and **Danielle D Carvalho[3]**

[1]Spaço Vascular, Brazil
[2]ABFL - Brazilian Association of Phlebology and Lymphology, Brazil
[3]University of São Paulo, Brazil

Objective: To analyze prevalence of venous thromboembolism (VTE) after ultrasound guided foam sclerotherapy.

Method: Clinical retrospective study with patients treated from 2004 to 2014. Charts with incomplete data and follow-up less than 60 days were excluded. Polidocanol foam (Tessari method) was used. The primary outcome was the prevalence of VTE and the secondary were possible risk factors. Chi-square test and Marascuillo prodecure were applied at a significance level of 5%.

Results: 2,616 patients were included with 4,712 lower limbs treated. The mean age was 50.7 ± 0.86, in majority female, 83.7%. VTE occurred in 0.49% (pulmonary embolism 0,3%) in a mean time of 44.0 ± 42.2 days. Male gender, personal or family history of phlebitis or DVT and high caliber varicose veins were significantly associated to VTE.

Conclusion: Incidence of VTE is low, male gender, personal or family history of VTE and caliber of varicose veins greater than 7 mm increased the risk.

PEERS ALLEY
MEDIA

Acute hemodynamic compromise following superior vena cava stent placement: A case report

Anahita Dabo-Trubelja[1,3,4], Vaibhav Anand[1], Majid Maybody[2] and **Gregory W. Fischer[1]**

[1]*Dept of Anesthesiology and Critical Care, Memorial Sloan Kettering Cancer Center, USA*
[2]*Interventional Radiology Training Program, Memorial Sloan Kettering Cancer Center, USA*
[3]*Perioperative Echocardiography and Ultrasound, Memorial Sloan Kettering Cancer Center, USA*
[4]*Onco-Anesthesia Fellowship, Memorial Sloan Kettering Cancer Center, USA*

Symptomatic relief of superior vena cava (SVC) syndrome caused by tumor obstruction is achieved by placement of a percutaneous superior vena cava stent. Complications are rare. Even more uncommon is acute hemodynamic compromise from acute hemopericardium during placement of an SVC stent. Point of care ultrasound (POCUS) in the interventional radiology (IR) suite allows for rapid diagnosis and guidance of pericardial drainage and hemodynamic management.

Biography

Anahita Dabo-Trubelja is currently Associate Member in the Department of Anesthesiology and Critical Care at Memorial Sloan Kettering Cancer Center in NY. She serves as Director of Onco-Anesthesia Fellowship Program and Director of Echocardiography and POCUS, both program she initiated. Her interest focuses on promoting Onco-Anesthesiology as a subspecialty and integrating POCUS into daily practice to guide management in the perioperative period.

SCIENTIFIC ABSTRACTS

DAY 2

PEERS ALLEY
M E D I A

Virtual Event

International Congress on ADVANCED CARDIOLOGY AND CARDIOVASCULAR RESEARCH

March 30-31, 2022

ADV. CARDIOLOGY 2022

Effects of sacubitril/valsartan combination in an experimental model of heart failure

D. Cappetta[1], K. Urbanek[2], L. Berrino[1] and
A De Angelis[1]

[1]Department of Experimental Medicine, University of Campania 'Luigi Vanvitelli', Italy
[2]Department of Experimental and Clinical Medicine, University 'Magna Graecia' of Catanzaro, Italy

Introduction: The majority of elderly patients with heart failure has a preserved ejection fraction (HFpEF) that constitutes a syndrome characterized by frequent hospitalizations and high mortality. Despite the growing social burden of HFpEF, the comprehension of its pathophysiology is incomplete, and treatment remains largely undefined. Aging itself may contribute independently to deterioration of diastolic function. A recent trial has demonstrated the efficacy of sacubitril/valsartan in reducing mortality and morbidity in patients with HF with reduced EF.

Methods: 18-month old female Fischer 344 rats were treated with oral administration of either sacubitril/valsartan (60 mg/kg/die, 1:1 ratio) or valsartan alone (30 mg/kg/die) for 12 weeks. Age-matched and 3-month old young animals were administered with vehicle, and served as controls. Tail-cuff method was used to monitor blood pressure weekly. Echocardiography and left ventricle catheterization were employed to assess systolic and diastolic function, at baseline, and before sacrifice. Cardiac tissue was used for molecular biology and histochemistry assays.

Results: Systolic function remained unaltered in all experimental groups. Tail-cuff analysis indicated a comparable decrease in blood pressure between treatments. Hypertrophy also showed a significant reduction with both treatments. On the contrary, myocardial function analysis demonstrated that no treatment was efficacy on diastolic dysfunction. The lack of improvement of cardiac function could be attributed to the inability of the treatments to counteract the accumulation of fibrotic tissue in the left ventricle, which, in turn, is attributable to the failure to reduce the inflammatory process and oxidative stress, and to the inability to modulate angiotensin II pathway.

Conclusion: Our results evidenced that both sacubitril/valsartan or valsartan treatment was able to improve diastolic function and pro-fibrotic remodeling, partly due to a lack of effect on classical and non-classical pathways of angiotensin II.Abstract should give clear indication of the objectives, scope, results, methods used, and conclusion of your work. One figure and one table can be included in your results and discussions.

Biography

Donato Cappetta graduated in Pharmaceutical Chemistry and Technology at University of Naples "Federico II". After receiving his doctorate in Pharmacology at Second University of Naples focusing on the role of cardiac progenitor cells in myocardial regeneration, he joined a stem cell laboratory at Brigham and Women's Hospital in Boston. Back in Naples, Donato carried out, with his current research group, studies on characterizing molecular and cellular aspects involved in drug cardiotoxicity, and onset and progression of heart failure.

Computational intelligence in diagnosis of prenatal congenital heart defects from ultrasound images

Kavitha D
RV College of Engineering, India

A congenital heart defect (CHD), also called as a congenital heart anomaly, is a defect associated with structure of the heart or functions of the great vessels present at birth. It is a birth defect that leads to a death of a child. Approximately 30 to 55% of these diseases fall under critical CHD, which needs early diagnosis in the first few months of the neonatal life. Early intervention will increase the mortality rate of the infant. Roughly 15% of present mortality is due to CHD alone, as surprisingly countless of child birth is happening at home without trained physicians or doctors. In India, 2-dimensional Ultrasonography, Color Doppler and Echocardiography are being used as a reliable tool for diagnosing CHD. The Ultrasound (US) modality has diverse merits like non-ionizing radiation, easily accessible, less expensive, non-invasive method and much more. The major demerit is the presence of speckle noise which is inherent in the image leads to missing boundaries in the biological structure of the US images. Manual investigations require lots of technical stuffs in the field of ultrasound and sonographic markers of the CHD.

A distinct set of progressive talents and special exposure in anatomy structure of fetal heart is needed for diagnose the PVSD from 4CV ultrasound images. Even though prenatal CHD diagnosis is a simple and time-consuming technique, the incidence of prenatal CHD diagnosis is still low. In spite of advance techniques available for screening prenatal cardiac diseases in clinical practice, the cause of CHD's continues to be the primary reason for birth malformations. As a result, a computational intelligent technique for diagnosing cardiac abnormalities from US image is desperately needed.

The main contribution of this research is the implementation of advance image processing and classifier algorithms, integrated to design a Graphic User Interface (GUI) that can aid in the automatic diagnosis of prenatal ventricular septal defects. The GUI model is developed to characterize the H-shaped sonographic biomarker of the PVSD CHD. The proposed method shows clinically diagnostic results with minimal user interactions. A database of 1210 2D 4 Chamber View (4CV) US image planes are used to test the proposed method. The proposed GUI design comprises of four stages, initially it starts with common pre-processing module contrived with Enhanced Perona Malik diffusion Filter (EPMDF), then robust segmentation module contrived with K-means Clustering algorithm (K-mc), followed by Morphological operations like erosion, compliment, thickening, thinning and cleaning to extract the image components and finally a novel classifier called Multilayer Deep Detection

Perceptron (MLDDP) is implemented to classify the abnormalities present in the images.

The EPMGF with the advancements in the stopping criteria will help in image denoising and edge preservation. Further to enhance the visual residue, the gaussian filtering intends to smoothen the image with different scale values, thereby minimizing the MSE. Thus, the proposed technique outperforms well when compared with the state-of-the-art despeckling methods and the user can recognize the precise details in the ultrasound images.

The proposed K-means clustering segmentation algorithm and morphological processing helps to identify the RVLV portions of the heart chambers, which will aid in the efficient detection of the H-shaped sonographic biomarker for PVSD. The experimental results proved that the K-mC outperforms well compared with the existing methods.

Thus, the GUI model designed to diagnose the VSD is correlated with asymmetric visual perception of the heart example H-shaped RVLV chambers, has been implemented using MLDDP classifier. This proposed novel computational intelligence technique proves to be a satisfying algorithm in terms of error minimization, correlation connectivity between the hidden layers, root mean square error and accuracy of 94% in predicting of PVSD CHD which is more appropriate for disease diagnosing. This proposed GUI model is the first framework which will allow any new modules related to CHDs defect such as Atrial septal defect, Pulmonary artresia etc to get integrated in future, in such a way that it will yield good diagnostic efficiency and accuracy.

Deep statistical analysis of ECG

T. Hovhannisyan, B. Hovhannisyan, S. Khachunts and **A. Makaryan**
Yerevan State University, Armenia

Statistical processing methods are proposed and performed for ECG signal analysis. In order to identify the dynamic features of the heart behaviour spectral analysis of the electrocardiogram (ECG) is carried out using the sliding window method (time-frequency analysis). In addition to power spectrum, bispectrum of the ECG signal is also computed to obtain more comprehensive results. The registration of ECG signals is implemented by a system assembled for this purpose. Registered ECG signal is digitized and fed to the computer, which runs a software specifically designed to do the signal processing. 100 seconds long time interval of the ECG signal has been selected for the statistical analysis – power spectrum, bispectrum and heart rate variability have been computed. For time-frequency analysis time frame of a certain duration (10s – much greater than the heartbeat period) is formed and is analysed. Then the time frame is shifted forward along the time axis by one step ($\Delta t=100ms$ – much smaller than the heartbeat period) and then analysed again. The time-frequency diagram is shown in the Pic. 1. Diagram shows, that the power spectrum of the ECG signal is not steady, but varies over time, e.g., at near 30s and 65s the
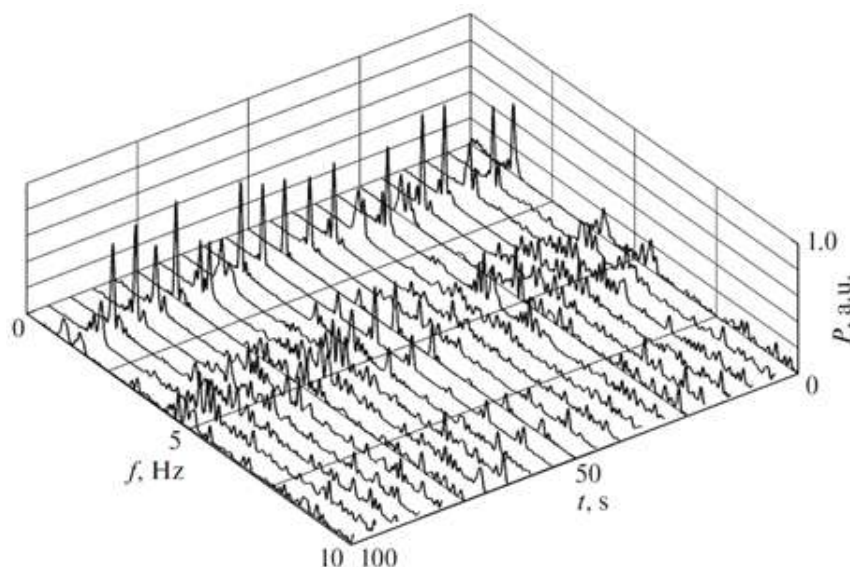
Picture 1. *Time-frequency diagram of ECG*

power spectrum around the main frequency is deviating. The results of the presented studies indicate that statistical analysis of the cardiac signal using the sliding window method can reveal features of the heart behaviour, that are not noticeable while using standard methods. We assume that the study of cardiograms of patients with various cardiac pathologies using the sliding window method will help to find a correlation between pathology and statistical analysis results, which, in combination with machine learning algorithms can result in automatic recognition of different pathologies in real time.

Biography

Tigran Hovhannisyan is currently MA student of Faculty of Radiophysics at Yerevan State University. He earned Bachelor of Physics degree at Yerevan State University in 2020. He is currently working in A. Makaryan's team. In recent years he studied the statistical analysis of electric cardiograms and other biosignals, as well as, registration and analysis of high frequency signals from the human brain.

Impact assessment following implementation of a vascular access team

**MI Corcuera Martínez[1], M Ferraz-Torres[1,2],
S Maali Centeno[1], M Aldonza Torres[1], AM Díez Revilla[1],
A Mañeru Oria[1], I Elizari Roncal[1], B Ibarra Marín[1],
MI Casado del Olmo[1]** and **R Escobedo Romero[1]**

[1]Hospital Universitario de Navarra, Spain
[2]Universidad Pública de Navarra, Spain

Introduction: After several years, working for the improvement of the process of cannulation and care of vascular accesses, in 2018 the Intravenous Therapy Unit (ITU) was create in our center. For this reason, the activity carried out is analyzed from a comprehensive perspective, taking into account the vascular access itself, the patient and the professional.

Goals: Record the level of rates and density of complications detected in users with PICC implanted by the ICU.To identify the total cost per PICC unit inserted by the ICU compared to those inserted by other professionals.To identify the perceived quality, by users and professionals, of the set of services offered by the ITU.

Material and Method: Prospective study for 9 months with a sample of 275 PICC in patients older than 16 years and implanted by the ICU. For the selection of the sample size, a discretionary non-probabilistic sampling representative of the study population (N= 960) was carried out, with a 95% confidence level and a margin of error of 5%. Includes the main variables of interest. For the analysis of patient satisfaction, a questionnaire was carried out using the validated QASICC survey. To know the satisfaction of professionals, a questionnaire was carried out. For the economic analysis, the total costs for the control group (CG: other professionals) and the intervention group (IG: ICU) were compared.

Results: A low level of total complications (9.1%) has been detected in relation to other studies. The total incidence density perceived in the devices implanted by the ICU presented 1.82x1000 days. The intervention group shows a saving of 61.81% over the cost of the control group. The analysis of the level of satisfaction perceived by the patients surveyed presented an average of 9.2 out of 10 and the surveys completed by health professionals an average of 8.1 out of 10.

Conclusions: The decrease in complication rates due to the implementation of the intravenous therapy unit is evident; being the cost reduction also visible. Perceived quality has detected a high level of overall satisfaction, which allows us to value the ICU as a recommended unit for the implementation of PICC with quality and a clear cost-economic benefit.

Table 1: *The univariate analysis of the association between the complications presented and the variables studied.1 Chi-square test; 2Fisher's exact test;*The number of individuals in the variables noted is less than the total number of the sample (275), due to incomplete data in the medical records.*

Variable	Category	Complications No	Complications Yes	p-value
Sex (n=275)	Male	111 (88.1%)	15 (11.9%)	0.592[1]
	Female	128 (85.9%)	21 (14.1%)	
Medical Specialism (n=274)*	Oncology-Haematology	165 (87.3%)	24 (12.7%)	0.748[1]
	Remainder	73 (85.9%)	12 (14.1%)	
Insertion site (n=275)	Right Arm	178 (86.8%)	27 (13.2%)	0.946[1]
	Left Arm	61 (87.1%)	9 (12.9%)	
Laterality (n=275)	Right-handed	236 (87.4%)	34 (12.6%)	0.129[2]
	Left-handed	3 (60.0%)	2 (40.0%)	
Insertion in dominant arm (n=275)	Yes	179 (86.9%)	27 (13.1%)	0.989[1]
	No	60 (87.0%)	9 (13.0%)	
Vein (n=275)	Basilic	202 (87.8%)	28 (12.2%)	0.253[1]
	Other (brachial, cephalic)	35 (81.4%)	8 (18.6%)	
Depth (n=274)*	<= 1 cm	180 (88.2%)	24 (11.8%)	0.393[1]
	> 1 cm	59 (84.3%)	11 (15.7%)	
Vein calibre (n=275)	Very good (<30%)/Good (30-40%)	201 (85.9%)	33 (14.1%)	0.235[1]
	Normal (41-44%)/Regular (45%)	38 (92.7%)	3 (7.3%)	
Catheter calibre (n=275)	4 FR	176 (89.3%)	21 (10.7%)	0.058[1]
	5/6 FR	63 (80.8%)	15 (19.2%)	
No. of Lumens (n=273)*	1 Lumen	176 (89.8%)	20 (10.2%)	0.025[1]
	2/3 Lumens	63 (79.7%)	16 (20.3%)	
No. of punctures (n=273)*	1 puncture	208 (86.0%)	34 (14.0%)	0.395[2]
	2 or more	29 (93.5%)	2 (6.5%)	
Dressing (n=275)	Gauze	4 (66.7%)	2 (33.3%)	0.178[2]
	Transparent	235 (87.4%)	34 (12.6%)	
Technique used (n=275)	IC-ECG	212 (88.0%)	29 (12.0%)	0.166[2]
	Other (X-ray/X-ray + IC-ECG)	27 (79.4%)	7 (20.6%)	

Table 2. *Multivariate logistical regression analysis of the variables with statistical significance.*

Variable	Category	OR (CI95%)	p-value
Age		0.965 (0.94-0.99)	0.002
Technique	IC-ECG	Reference	
	Other	3.28 (1.19-9.02)	0.021

Complication	No. of events	No. of events per 1,000 days
Total	36 (13.09%)	1.83
Bacteraemia	3 (1.09%)	0.15
Fever	10 (3.64%)	0.51
Phlebitis	1 (0.36%)	0.05
Skin lesion	8 (2.91%)	0.41
Thrombosis	7 (2.55%)	0.35
Other	7 (2.55%)	0.35

Table 3. *Percentages of complications in the total of catheters and incidence density*

Artificial intelligence towards heart stroke prediction based on GUI

P. Muthu[1], Dheepitha Babu[1], Vandhana Karunakaran[1], Swathi Gopinath[1], S.P. Angeline Kirubha[1] and S.Latha[2]

[1]Department of Biomedical Engineering, SRM Institute of Science and Technology, India
[2]Department of Electronics and Communication Engineering, SRM Institute of Science and Technology, India

A heart stroke occurs when blood ceases streaming to any part of the brain, harming brain cells. The interrupted blood flow renders damage to the brain. Early identification of the different portent symptoms can help lessen the stringency of the stroke. According to the World Health Organization (WHO), stroke is universally the most significant reason for cessation and disability. In a county-level analysis, stroke mortality rates among US adults 35 to 64 years of age raised from 14.7 per 100 000 in 2010 to 15.4 per 100 000 in 2016. Various machine learning (ML) models have been designed to predict the occurrence of stroke. In this work, machine learning algorithms such as Naive bayes, Decision tree and Random Forest are enforced for steadfast prediction. Random Forest revealed the most promising algorithm with an accuracy of approximately 98.2%. The result showed the significance of a graphical user interface-based machine learning algorithm process.
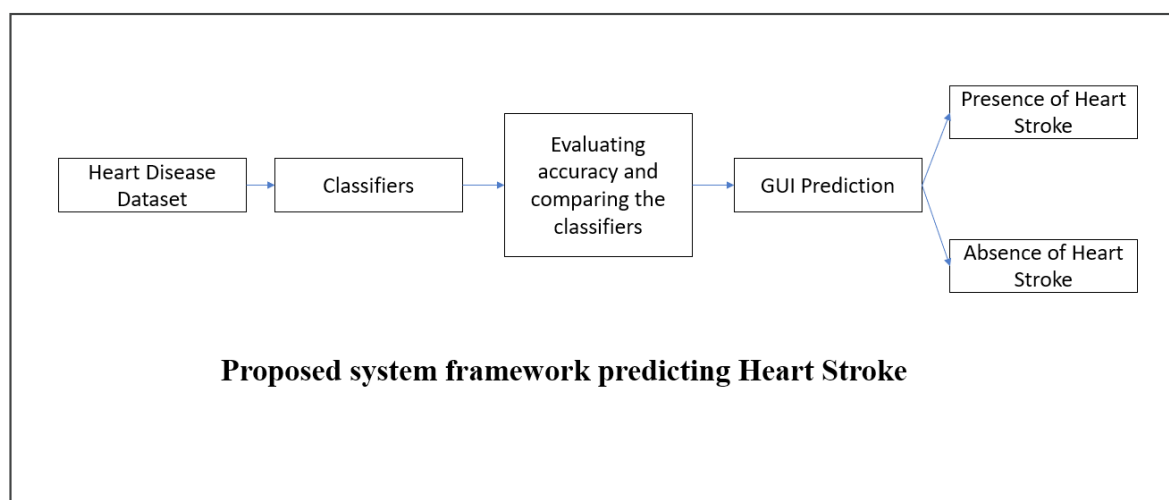
Proposed system framework predicting Heart Stroke

Biography

Dr. P. Muthu alumnus of Indian Institute of Technology, Madras, Chennai, Tamil Nādu, India is working as faculty in the Department of Biomedical Engineering at SRM Institute of Science and Technology, Kattankulathur, Chennai. He is an Innovation Ambassador of SRM IST Institution's Innovation Council - MHRD's Innovation Cell, Government of India. He also has made exceptional contribution as a Primary Evaluator in 'Toycathon, 2021' organized by AICTE and Ministry of Education Innovation Cell, Government of India. He is also a member of Student Counselling Cell in building non-judgmental relationships based on trust and respect.

He has overall 14 years of teaching experience. He is also the recipient of "Distinguished Research Award" and "Innovative Researcher in Bio-Medical Engineering". He is a recognized research supervisor for guiding PhD candidates. He is also a reviewer of several recognized journals. He has published four patents and many journal publications with high impact factor. He has several publications including gold medal and best paper awards at various International / National conferences. He was also chairperson and coordinator for various conferences, symposium and technical events.

mHealth & digitization in cardiology lab medicine

Pradeep Kumar Dabla

Department of Biochemistry, G.B.Pant Institute of Postgraduate Medical Education & Research (GIPMER), Associated Maulana Azad Medical College, India

World Health Organization (WHO) stated that cardiovascular diseases are the leading cause of death worldwide which include both acute disease such as heart attacks and strokes and chronic disease such as congestive heart failure. As per reports, it is responsible for an estimated 17.9 million lives each year. In modern era where cardiology uses mHealth and digital tools, it can be utilized to analyse large amounts of data available in health industry through electronic health records. Data mining and machine learning offer now more possibilities for this quest. eHealth and mHealth practices can enable patients to collect their own health data and further sharing the same with their doctor via a secure connection. It can also enable video chat or phone to talk with the clinical specialist and limit the physical visits especially during COVID 19 pandemic restriction. mHealth based cardiology apps are great tools that support patients, especially when they are combined with wearables to enable discreet and continuous heart monitoring. Though not limited but AI integration is being applied to practices such as diagnosis processes, treatment protocol development, drug development, personalized medicine, and patient monitoring and care. Laboratorians play a key role after that to implement new biomarkers in routine practices and check the performances according to practices and accreditation specifications. Cardiac Biomarkers are part of the standard care and guidelines for myocardial infarction and heart failure. Thus, it plays a vital role in evolving field of disease prevention, detection, monitoring and treatment follow-up. The ultimate goal behind the use of biomarkers for diagnosis is to develop reliable and cost-effective powerful detection tools for early diagnosis of diseases and disorders. Thus, improving clinical practices and its appropriate use by health care professionals for better patient outcome.

Biography

Prof. (Dr) Pradeep Kumar Dabla is an experienced Chairperson with a demonstrated history of more than 15 yrs of Leadership & Administration while working in the hospital & health care industry. He is a laboratory physician skilled in Medical Devices, Molecular Biology, Biotechnology, Laboratory Medicine and Clinical Research. He is a strong research professional with a NABL Assessor ISO 15189:2012 focused in Medical Laboratory from National Accreditation Board for Testing and Calibration Laboratories (NABL), Quality Council, Govt. of India. He has assessed hundreds of medical laborateries for NABL accreditation till date. He has also been closely associated while working with National Accreditation Board for Hospitals & Healthcare Providers (NABH) for preparing & maintaining quality services for Chacha Nehru Bal Chikitsalya (CNBC), Superspeciality Pediatric Hospital under Govt. of Delhi, India which was the first hospital to receive accreditation in Delhi public sector where he worked as a Head, Deptt of Biochemistry & all labs.

Currently, he is working as a Professor, Department of Biochemistry, G.B.Pant Institute of Postgraduate Medical Education & Research (GIPMER), Associated Maulana Azad Medical College (MAMC), Govt of NCT of Delhi, India. He is also serving as Consultant, International Core Committee of IFCC Task Force for Young Scientists (IFCC-TFYS),

Core Member APFCB-Communication & Publication Committee and member IFCC C-MHBLM (Emerging Technologies Division). He demonstrated leadership skills with team ability and served IFCC as Chair IFCC-TFYS (2015-2019) while developing networking, training, education and support programmes for young colleagues. He has completed MBBS from Maulana Azad Medical College, Delhi University and MD (Biochemistry) from Lady Hardinge Medical College, Delhi University, India. Further, to increase the proficiency in management, he pursued Post-graduation in the Business Administration & Hospital Management. He is also qualified with Advanced Training in Supply Chain Management, Govt. of NCT Delhi, India.

He has also completed "Leading Strategic Innovation: How to Lead with Purpose" course from DEAKIN UNIVERSITY (AUSTRALIA) AND COVENTRY UNIVERSITY (UK) and "Good Clinical Practice" course from NIDA Clinical Trials Network (USA) in 2020. He is pursuing "Essentials of Global Health" course offered by YALE UNIVERSITY (USA).

Due to keen interest in research and laboratory medicine, he has been awarded Thrice for his research work in "Postmenopausal Women CAD Risk & Gene Polymorphism" and "Diabetic CAD Risk" and received other Five Awards & Travel Grants at International level and been invited several times as speaker, chair at National & International congresses. He has more than 50 research papers to his credit in reputed National & International journals apart from 5 book chapters, 2 books and more than 30 abstracts as a part of invited talks and papers presented. He is associated with reputed journals as editor, reviewer and advisory board member.

.

A rare case of endolymphatic sac tumour: Clinical, radiological, pathological & immunohistochemical findings with review of literature

Tarang Patel

All India Institute of Medical Sciences, India

Endolymphatic sac tumour (ELST) is a rare low grade malignant epithelial tumour of the petrous temporal bone, thought to arise from papillary epithelium of the endolymphatic sac. They may occur sporadically or in association with Von-Hippel Lindau (VHL) disease. ELST is extremely rare neoplasm with benign histopathological appearance and clinically destructive behaviour. Because of the rarity of this tumour, it can easily be confused with other tumours such as paraganglioma, middle ear adenoma, metastatic carcinomas or choroid plexus papilloma. We report here a rare case of ELST with review of literature and discuss the differentiating features of ELST from its mimickers, showing a papillary configuration.

Biography

Dr Tarang Patel has completed his MD Pathology from Gujarat Cancer Research Institute(Oncopathology Dept.), Ahmedabad, India. He also did fellowship in Oncopathology along with more than 6 years post-MD academic experience in field of pathology. He is having special interest in surgical pathology including soft tissue pathology, cardiovascular pathology and neuropathology. He is currently working at prestigious All India Institute of Medical Sciences, Rajkot, India. He has published 15 papers in national and international journals.

Bilateral diabetic papillopathy developed after starting insulin treatment. Potential toxic effect of insulin? A case report

Marco Mafrici[1], Laura Toscani[2]
and **Umberto Lorenzi[3]**

[1]Department of Ophthalmology, Ales-CevennesHospital, France
[2]Department of Anesthesiologyand Intensive Care, Santa Maria Goretti Hospital, Italy
[3]Department of Ophthalmology, Charles-NicolleHospital, France

Background: Diabetic papillopathy is a complication of diabetes. It presents with edema, unior bilateral and vascular alteration of the anterior optic nerve. Often this complication is observed in patients with severe diabetic retinopathy, but is rarely observed in isolated form. Some authors believe that diabetic papillitis is a particular form of non-arteriticanterior ischemic optic neuropathy (NAION). But there is important evidence that confers an inflammatory component to diabetic papillopathy. We report in this work a rare case of isolated acute bilateral diabetic papillopathy developed in a diabetic patient after adding the insulin to the oral hypoglycemic therapy.

Case presentation: Male patient, 49-years-old, diabetic type 2, with altered glycemia at follow up, with clinical history of HbA1c 8% to 12% in the last 2 years, on oral hypoglycemic therapy for 10years. He never had a history of diabetic retinopathy. At the last check-up, this patient presented bilateral papillopathy, without reduction of visual acuity bilaterally. The patient reports he added 10days before the insulin therapy to the oral hypoglycemic therapy, under medical supervision. Hematochemical and serological tests were requested, which excluded the presence of inflammatory and infectious diseases. The brain magnetic resonance imaging (MRI) with gadolinium excluded the hypothesis of optic neuritis or intracranial hypertension. Cardio-circulatory tests were normal. Fluorescein angiographic examinations and optical coherence tomography (oct) confirmed the bilateral edema and the thickening of optic nerve without other retinal damage. Therefore he was diagnosed with bilateral diabetic papillopathy. Then, diabetologists added pump insulin treatment to the oral hypoglycemic therapy. After 2months, his blood sugar levels and HbA1C improved and papillopathy regressed.

Conclusion: We have reported a rare case of bilateral acute diabetic papillopathy associated with the addition of insulin to the oral hypoglycemic therapy. A randomized control study with diabetic patients, would be useful to verify the possible injuries of the optic nerves during the delicate transition to insulin therapy.

5D cardiac model

Houneida SAKLY
COSMOS Laboratory - National School of Computer Sciences (ENSI), University of Mannouba, Tunisia

In this session, a strategy for medical decision diagnosis in cardiac imaging with MRI was depicted. This approach stipulates to conceive a 5D model, which depends on five dimensions: anatomical structure of the heart in 3D, temporal dimensions as well as a functional dimension of blood flow for the detection of stenosis and valvular regurgitation. Furthermore, a comparative study of the practical tools, which exploit the fifth dimension of flow for the deduction of the medical inference in the clinical routine. This contribution was considered for a stenosis aorta, which consists to make a 3D model and to solve the Navier-stokes equations for the laminar and viscous blood fluid to deduce the proposed model 5D (3D+time+flow). The extraction of measurements (field of the vortex, masses of flow, static pressure, Reynolds number) based on the fifth dimension is used to classify the area and the degree of stenosis. With the increasing demand for high-resolution simulations, it has become important to study the cost and response time of digital solvers that could take benefit of recent architectures including multi-core processors. In this work, the simulation, an efficient solver for the resolution based on the heterogeneous (CPU/GPU) architectures of Navier-Stokes (NS) equations relating to flows of incompressible fluids was assessed.

Biography

Dr.Houneida SAKLY: PhD and Engineer in Medical Informatics and a Member in research program "deep learning analysis of Radiologic Imaging within Stanford University. A member of MIT-Harvard Medical school Program. She was nominated as the Best Researcher Award in the International Conference on Cardiology and Cardiovascular Medicine in Paris 2020-2021 .Her main field of research is the Data science (Artificial Intelligence, Big Data, blockchain, Internet of things...) applied in Healthcare (more the 15 scientific publications).She is a Member in the Integrated Science Association (ISA) in the Universal Scientific Education and Research Network (USERN) in Tunisia.

She serves as Lead Editor of:

- "Trends of Artificial Intelligence and Big Data for E-Health", Springer -Book
- Special issue with sage journals "Intelligent Healthcare for Medical Decision Making: AI and Big Data for Cancer Prevention"[IF=3,03;Q2]
- Elsevier : special issue on "Deep Learning models for skin cancer detection: Challenges and Future scopes
- "Elsevier book :AI and Surgery.

Blood flow restricted exercise training: What is it and what is the evidence on vascular health?

Elisio Alves Pereira-Neto
University of South Australia, Australia

Blood flow restricted exercise (BFRE) is low-intensity training mode that consists of restricting the blood flow to the active muscle. There are reports of improvements in muscle strength and mass, aerobic and functional capacity, similar to traditional high-intensity exercise, following BFRE training. Therefore, BFRE may be beneficial for populations that cannot exercise at a high enough intensity to promote optimal physiological adaptations (e.g., older people or individuals with chronic conditions such as chronic obstructive pulmonary disease or multiple sclerosis). However, these populations often present cardiovascular comorbidities,

*Figure 1 – Proposed potential mechanisms underpinning BFRE effects on vascular function
(a – during BFRE; b – after cuff release)*
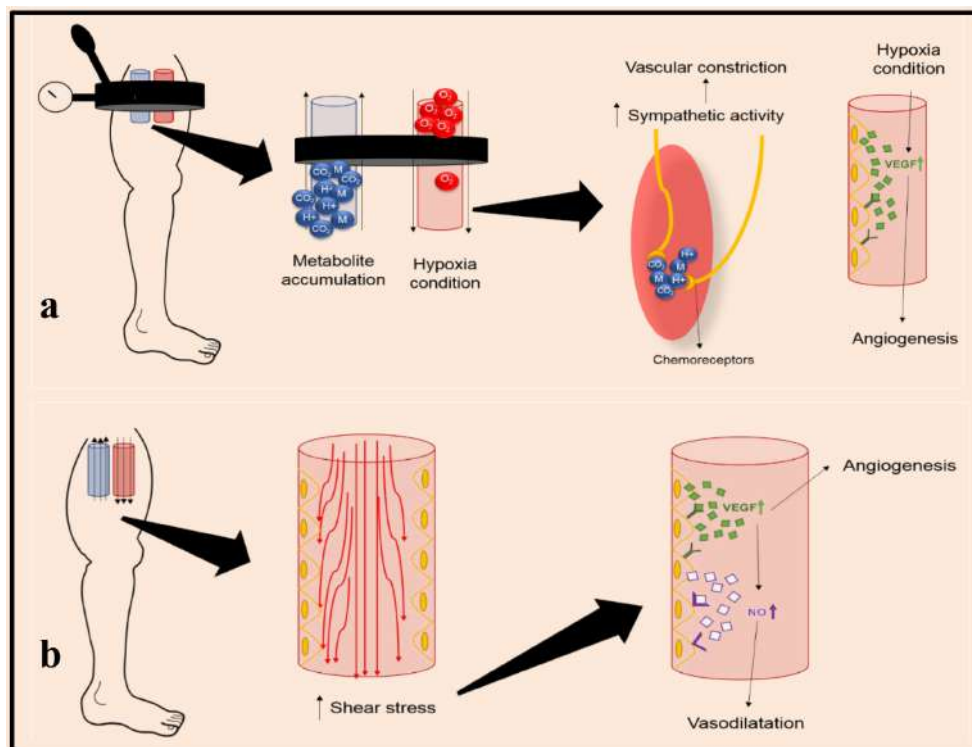
BFRE, Blood flow restricted exercise; VEGF, Vascular endothelial growth factor; NO, Nitric oxide

mostly in the form of impaired vascular function (VF). Thus, to ensure safety, it is required to a) investigate the current evidence and b) understand the potential effects of BFRE on VF. The aim of this presentation is to a) summarize the findings of a systematic review with meta-analysis on BFRE and VF and b) present the proposed physiological mechanisms on how BFRE may affect VF. A systematic search was conducted in five electronic databases to identify studies reporting vascular outcomes following BFRE in adults with and without chronic conditions. When sufficient data were provided, meta-analysis and exploratory meta-regression were performed. Twenty-six studies were included in the review (total participants n = 472; n = 41 older adults with chronic conditions). There is limited evidence, predominantly available in healthy young adults, on the effect of BFRE on vascular function. Meta-analysis suggests that BFRE may have more beneficial effects on endothelial function than traditional exercise without restriction of blood flow. Potential mechanisms underlying effects of BFRE on VF include increased shear stress following release of the cuff (Figure 1), which may increase the availability of nitric oxide and vascular endothelial growth factor. On the other hand, the accumulation of metabolites under BFRE may trigger chemoreflex causing an increase in sympathetic activity and consequent vasoconstriction.

Biography

I am a qualified physiotherapist (Bachelor of Physiotherapy with Hons) with a Master of Science (Physical Education) from the Federal University of Paraiba in Brazil. I have recently completed a PhD in Physiotherapy at the University of South Australia where I investigated the potential for blood flow restricted exercise training for use in people with obstructive chronic respiratory disease. My research is focused on investigating novel exercise modalities for improving the health and wellbeing of different populations. I have 19 international peer-reviewed publications and five successful research funding applications. In addition to my research experience, I have three years' experience working as a physiotherapist, with assessment and treatment of clients with cardiovascular, respiratory and musculoskeletal conditions.

Diabetes mellitus: Diabetic cardiomyophathy, cardiac cell stiffness and actin cytoskeleton

Juan C. Benech

Laboratory of Cellular Signaling and Nanobiology, Clemente Estable Biological Research Institute, Uruguay

Diabetes mellitus (DM) is one of the most prevalent metabolic disorders in the world. Data showed that DM caused more than 4.2 million deaths, and heart failure was a major contributor to the cardiovascular morbidity and mortality of these patients. Rubler et al., 1972 coined the term "diabetic cardiomyopathy" (DC) to characterize myocardial dysfunction in diabetic patients in the absence of coronary artery disease, hypertrophy, or valvular heart disease. The pathophysiology and underlying morphophysiological changes caused by heart failure in those patients remain largely unknown. It is generally accepted and agreed upon that the pathogenesis of DC. depends on several factors, some of which are autonomic dysfunction, metabolic derangements, abnormalities in ion homeostasis, changes in structural proteins, and interstitial fibrosis. It has been shown that an early indication in diabetic myocardial dysfunction is the stiffening of the left ventricle, which is usually attributed to myocardial fibrosis and the accumulation of advanced glycation end products. Although, diastolic dysfunction can appear in DC before any significant accumulation of collagen.

Results obtained by our research group with cardiac cells in culture, heart cuts and cardiomyocytes isolated from hearts of control and diabetic mice, showed that the actin cytoskeleton was affected and reordered by this pathology. Our results suggest a correlation between the reordering of the actin cytoskeleton and the modulus of elasticity with stiffer cardiac cells in the diabetic conditions.

Memantine and its benefits for cardiovascular diseases

Hamid Soraya[1,2], Samin Abbaszadeh[1], Kosar Jannesar[1], Hassan Malekinejad[1] and **Vahid Shafiei-Irannejad[2]**

[1]Department of Pharmacology, Urmia University of Medical Sciences, Iran
[2]Cellular and Molecular Medicine Institute, Urmia University of Medical Sciences, Iran

In addition to the central nervous system, N-methyl-D-aspartate (NMDA) receptors are also found in peripheral tissues. Glutamate receptors are present on cardiac cells and are involved in important cardiac functions including contraction, rhythmicity, and coronary circulation. The pathophysiological impact of NMDA receptor activity can be reduced by the blockade of these receptors and recent studies have shown that NMDA receptor antagonists reduce arrhythmias and cardiac ischemic damage. Memantine is a non-competitive NMDA receptor antagonist that was initially indicated for the treatment of moderate to severe Alzheimer's disease. It is well-tolerated and has a suitable safety and acceptable therapeutic index. More recently, we described the cardioprotective effects of memantine on myocardial ischemic injury both in ex vivo and in vivo studies where it improved recovery of cardiac function and reduced cardiac remodeling, arrhythmias, and infarct size. Also, we have reported that memantine demonstrates cardioprotective effects in a rat model of heart failure, another cardiovascular disease, through a reduction in lipid peroxidation, neutrophil recruitment, and cardiac remodeling. In addition, memantine prevented ischemia-induced changes in the electrocardiogram (ST-segment depression) in heart failure. Although our recent studies show that memantine could be an effective cardioprotective agent for the treatment of a range of cardiovascular diseases, the effects of memantine on the cardiovascular system are complex, still largely unclear, and require further detailed investigation.

Biography

Dr. Hamid Soraya is an Assistant Professor of Pharmacology and a principal investigator at Urmia University of Medical Sciences, Urmia, Iran. He is currently the chair of the Department of Pharmacology as well as the director of the Laboratory Animal House of the University. He obtained his Doctorate (DVM) from Urmia University in 2008 and his Ph.D in Cardiovascular Pharmacology from Tabriz University of Medical Sciences, Tabriz, Iran in 2013. He then received a scholarship from Iran's Ministry of Health and Medical Education to spend his research fellowship at the Department of Pharmacology, University of Alberta, Canada in the field of Cardiovascular Pharmacology (isolated heart mechanical function and metabolism). Currently, his main focus of research is the pharmacotherapy of myocardial ischemia/reperfusion and heart failure..

PEERS ALLEY
M E D I A

Virtual Event

International Congress on ADVANCED CARDIOLOGY AND CARDIOVASCULAR RESEARCH

March 30-31, 2022

ADV. CARDIOLOGY 2022

Prevalence of peripheral arterial disease in diabetic foot ulcer patients and its impact in limb salvage

Ahmed Azhar Ali

Mansoura University Hospital, Egypt

Diabetic foot ulcer syndrome is a common complication of diabetes mellitus. Three main factors contribute to it; neuropathy, vasculopathy, and infection. This study was conducted to evaluate the prevalence of peripheral arterial disease (PAD) in diabetic foot ulcer patients and its impact on limb salvage as an outcome. This prospective cross-sectional study included 392 cases, who were divided according to the presence of PAD into two groups; PAD +ve (172 cases) and PAD -ve (220 cases). All cases were clinically assessed, and routine laboratory examinations were ordered. Moreover, duplex ultrasound was done for suspected cases of having PAD by examination. Computed tomography angiography (CTA) was ordered for patients who are in need of revascularisation procedure. Cases were managed by debridement and/or revascularization. After that, these cases were assessed clinically and radiologically for vascularity and infection and possibility for amputation was evaluated. Infection was classified using Wagner Classification System, and revascularisation was decided according to TASC II system. The incidence of PAD in cases with diabetic foot ulcer syndrome was 43.87%. No difference was detected between the two groups regarding age and gender. The prevalence of smoking, hemodialysis, ischemic heart disease, and hypertension was more significantly higher in cases with PAD. Revascularization procedures were only performed in cases with PAD. As regard limb salvage, it was more significantly performed in cases without PAD (82.3% vs. 48.3% in PAD cases – $p < 0.001$). Male gender, smoking, ABPI, hemodialysis, IHD, neuropathy, HbA1C, PAD, and high Wagner classification were predictors of limb amputation. PAD is associated with worse outcomes in diabetic foot ulcer patients. Not only does it constitute a great number among the diabetic foot ulcer patients, but it also has a negative impact on limb salvage.

Interventions performed in the study groups.

Variables	PAD +ve (N=172)	PAD -ve (N=220)	P value
Debridement	111 (64.5%)	190 (86.4%)	<0.001*
Limb salvage	83 (48.3%)	181 (82.3%)	<0.001*
Limb non-salvage -Below knee amputation -Above knee amputation	 62 (36.05%) 27 (15.69%)	 22 (10%) 17 (7.7%)	 <0.001*

*=statistically significant, p= probability

New concepts of atherogenesis

AA. Mironov[1], A. Mironov[2] and **GV. Beznoussenko[1]**
[1]The FIRC Institute of Molecular Oncology, Italy
[2]Universita degli Studi di Milano, Italy

In the field of atherosclerosis, the following important facts have been established. 1. Atherosclerosis was found in the majority of the population, including the young (Vikhert and Drobkova, 1985). This denies the monogenic mechanism of atherogenesis. 2. Unlike xanthomatosis, atherosclerosis requires obligatory participation of exogenous cholesterol, which Anichkov proved in 1913 (in 2023, there will be 110 years of this discovery). 3. The presence of atherogenic LDLs is required. In 1988, a remarkable discovery was made in the field of atherosclerosis. It was proved that not all LDL are important, but only modified ones, including oxidized ones or those with antibodies in their composition (Orekhov et al., 1988 and Yokoda et al., 1988). When the enterocyte transcytosis pathway is overloaded with fat, very large chylomicrons are formed (Sesorova et al., 2020, 2021), which have few sialyl acids, circulate in the blood for a long time, undergo oxidation, and can induce the production of autoantibodies (Denisova et al., 2021). It is the sialyl acids that shield the short forks of the polysaccharide chains to which autoantibodies are produced. 4. It requires arterial pressure-induced damage to the endothelium in areas of turbulent blood flow, which is exacerbated when it is exposed to toxins. More frequent being of endothelial cells in the G2-phase, when endothelial cells secret proteins of basement membrane, during chronic hypertension, repeated damage and aging leads to thickening of basal membrane and increase its affinity for LDL especially modified (Mironov et al., 2020). 5. Atherosclerosis develops only in elastic type arteries with pronounced intima (Rekhter et al., 1991). Our data on the role of enterocyte fat overload and impaired aortic endothelial regeneration will be discussed from the point of view of different hypotheses of atherosclerosis.

Myocardium-generated apoptotic bodies: Waste cellular debris or the modulators of the myocardium self-renewal?

A.I. Tyukavin[1], G.B. Belostotskya[2], E.A.Zakharov[1] and **S.V. Suchkov[3]**

[1]Saint-Petersburg State Chemical Pharmaceutical University, Russia

[2]Sechenov Institute of Evolutionary Physiology and Biochemistry Russian Academy of Sciences, Russia

[3]Medical Institute of Postgraduate Continuous Education, Moscow State University for Food Industry, Russia

The study is devoted to identifying the role of apoptotic bodies of cardiomyocytes and fibroblasts in self-renewal of the heart muscle after ischemic damage and in old age. During co-cultivation of myocardial cells and apoptotic bodies of cardiomyocytes (ApBc), proliferation and differentiation of CSCs in colonies were accelerated (in vitro). The frequency of contraction of colonies after 3 weeks of co-cultivation increased in comparison with the control by more than 1.5 times. [1,2,4]. The apoptotic bodies of fibroblasts (ApBf) did not have such an effect on cardiomyogenesis. Administration of ApBc to old Wistar rats increases the contractility of the heart muscle of experimental animals (heart perfusion Langendorff), and injections of apoptotic fibroblast bodies (ApBf) inhibits the contractile function of the heart of rats of this line and age [5,6]. It was found that ApBc stimulate the development of clones of precursors of cardiomyocytes (c-kit, α-actinin) in the heart muscle, and ApBf stimulate the development of clones of vascular endothelial precursors (Sca, CD-105). In doxorubicin cardiomyopathy, ApBc, like the reference drug (INN - Eosinophil), increase the survival rate of animals, but ATP does not have such an effect. The dynamics of noncoding RNA concentrations during apoptosis of cardiomyocytes and fibroblasts was studied (Fig.). It was found that during co-cultivation of myocardial cells with a fraction of long non-coding RNAs placed in liposomes, an increase in the number of cardiomyocyte colonies was observed by 4 times as compared to the control. During co-cultivation of myocardial cells with a fraction of short non-coding RNAs, an increase in the area of cardiomyocyte colonies by 1.5 times was observed. It can be assumed that the apoptotic bodies of cardiomyocytes and fibroblasts contain effectors in the form of noncoding RNAs that modulate tissue-specific differentiation and proliferation of CSCs.
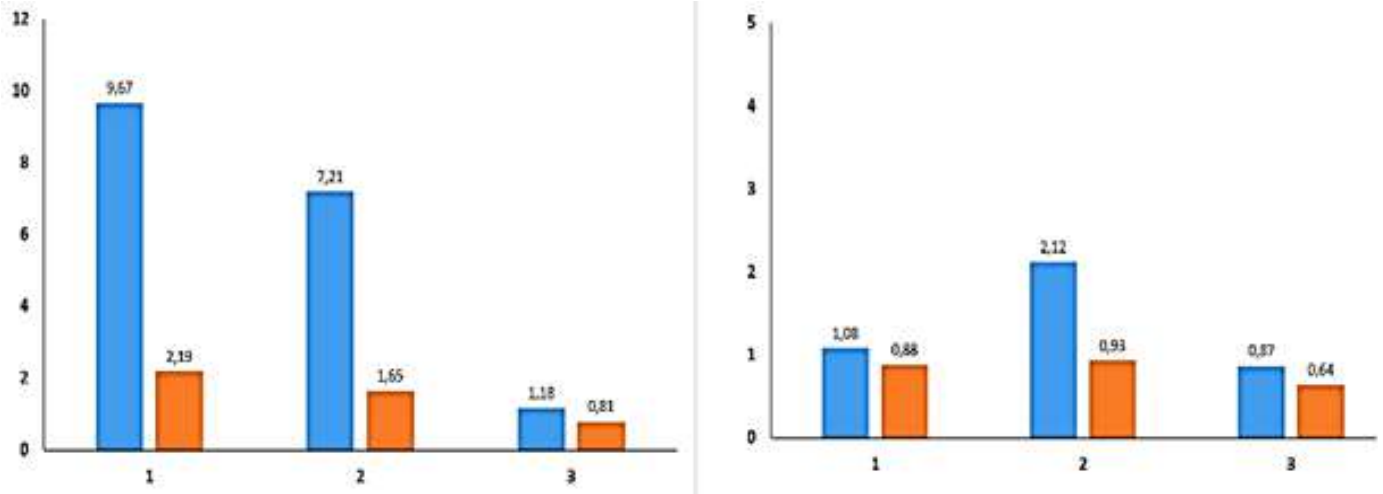
Fig. *Changes in the concentrations of long (left) and short (right) RNA in CMs and FBs during apoptosis. Y-axis: RNA concentration (in μg/million cells); abscissa axis: 1 -control; 2 - onset of apoptosis; 3 - apoptotic bodies (ApBc, ApBf). Left - CMs; on the right is the FBs.*

" A novel veno-arteriovenous extracorporeal membrane oxygenation with double pump for the treatment of Harlequin Syndrome "

Battisti Andrea[1], Contento Carlo[1], Agrò Bruno[1], De Marco Marina[1], Iaiza Alessandra[1], Pietraforte Laura[1], Pisani Patrizia[1], Proietti Antonio[1], Vitalini Emiliano[1], Montalto Andrea[2] and **Musumeci Francesco[3]**

[1]Department of Cardiac Surgery and Heart Transplantation, S. Camillo Hospital Rome, Italy
[2]Department of Heart and Vessels, Cardiac Surgery Unit and Heart Transplantation Center, S. Camillo-Forlanini Hospital, Italy
[3]Head of Department of Heart and Vessels, Cardiac Surgery Unit and Heart Transplantation Center, S. Camillo-Forlanini Hospital, Italy

Objectives: The Harlequin Syndrome is a complication observed in patients receiving peripheral venoarterial extracorporeal membrane oxygenation (VA-ECMO). This condition is defined as a critical variation in the oxygen saturation between the upper and the lower part of the body deriving from a poor lung function.

Methods: Between July 2018 and November 2019 a total of 60 patients (42 men and 18 women; mean age 57.4±10.0 years; range 28-71 years) underwent peripheral VA-ECMO in our center. Harlequin Syndrome was identified in 8 cases (6 men and 2 women; 13.3%) of the 60 VA-ECMO supported patients. As a result of Harlequin Syndrome, all these patients required conversion to veno-arteriovenous ECMO (V-AV ECMO). Control and monitoring of the blood flows of the return cannulae were performed using two centrifugal pumps, one for each inlet line, according to the patient requirements to achieve optimum haemodynamic and oxygenation.

Results: Mean duration of V-AV ECMO support was 5.3±1.4 days. Seven patients (87.5%) were switched to VV ECMO and after 13.5±2.7 days those patients were totally weaned from ECMO support. One patient (12,5%) had an improvement in the pulmonary function, but the cardiac function was poor. This patient was switched to VA ECMO and after 10 days was completely weaned from ECMO support.

Conclusions: The use of a secondary centrifugal pump to manage the blood flow directed to the internal jugular vein, in the V-AV ECMO set-up, allows to reduce the risk of blood clot formation, clotting factors consumption and pulmonary embolism when compared to the use of an external clamp.

Management of cervico-cranial arterial dissections

Ashby C. Turner and **Erica C. Camargo**

Department of Neurology, Massachusetts General Hospital, USA
Harvard Medical School, USA

Background: Cervico-cranial arterial dissections are a distinct etiology of both ischemic and hemorrhagic neurovascular events. These dissections can involve the extracranial carotid or vertebral arteries, classified collectively as cervical artery dissections, or can be intracranial arterial dissections, and complications and management of each differ. The most recent evidence is reviewed in this publication.

Recent Findings: Significant heterogeneity regarding treatments of dissections exists among providers and with recent advances in endovascular approaches to neurovascular care, appreciating the latest evidence on the guidance of treatment has never been so challenging. Further, recognizing the complications of cervico-cranial dissections and implementing appropriate therapies can have a significant impact on patient outcomes.

Summary: Overall, limited randomized controlled data exists regarding the treatment of cervico-cranial dissections. Approach to management of these dissections and potential complications is largely based on observational studies and reported cases. The available evidence and strength varies depending on the case and complication.

Seasonal patterns of acute coronary syndrome in the southern region (According to Municipal Budgetary Healthcare Institution (MBUZ) «Emergency Care Hospital (GBSMP) ROSTOV-ON-DON» FOR 2016-2018 years)

D. Berezovskii, O. Mekhonoshina and **R. Marchenkov**

II.M. Sechenov First Moscow State Medical University (Sechenov University), Russian Federation

Introduction: The establishment of seasonal patterns in the development of the disease is considered to be one of the areas of study of the coronary heart disease problem.

Objective: To determine the statistical significance of the association between the time of year and the development of the ACS among residents of the southern region.

Materials and methods: Data on the number of operative interventions were analyzed with installation of stent for ACS performed by in MBUZ "GBSMP of Rostov-on-Don" for the period 2016 – 2018. Comparison groups were formed by season: winter, spring, summer and autumn. Statistical analysis was based on non-parametric methods: Mann-Whitney and Kruskal-Wallis. Mann-Whitney Method was used twice to determine statistically significant differences between groups: a) «spring-summer» and «winter-autumn»; b) «spring, autumn» and «winter, summer». The Kruskal-Wallis method determined statistically significant differences between all four seasons of the year.

Results: Number of operational interventions performed in MBUZ "GBSMP Rostov-on-Don" for the period 2016-2018, divided by seasons

Year	Winter	Spring	Summer	Autumn
2016	3 (8)	33 (12)	9 (9)	16 (10,5)
2017	7 (7)	4 (5,5)	8 (8)	4 (5,5)
2018	0 (2)	0 (2)	0 (2)	16 (10,5)

of the year (in parentheses the assigned rank is indicated in accordance with non-parametric methods) are summarized in the table:

The calculated H-criterion of Kruskal-Wallis was 2.346; the critical value of table of values 2 is 7.815 (significance level p=0.05). Mann-Whitney T criteria values for both sets of groups fell within the critical range values from 26 to 52: for variant a) T=38.5, for variant b) T=46.

Conclusions: Statistical analysis leads to the conclusion that there is no statistically significant association between the time of year and the development of acute coronary syndrome in residents of the southern region.

Replication of a hemorrhagic transformation model after cerebral ischemia in rats by wire bolus method

Fangyan He, Chunping Xu, Long Ning, Hang Sun and **Jin Feng**

Faculty of Chinese Materia Medic, Yunnan University of Chinese Medicine, China

Objective: To explore the best condition of suture-occluded method to replicate the model of hemorrhage transformation after cerebral ischemia in rats.

Methods: The rat model of transient Middle cerebral artery occlusion (tMCAO) was established by suture-occluded method, According to the changes of cerebral blood flow and the results of neurological score 2 hours after operation, the rats were randomly divided into three groups, and the suture was pulled out at 3, 6 and 9 hours after cerebral ischemia to replicate the rat model of hemorrhage transformation after cerebral ischemia(transient Middle cerebral artery occlusion-hemorrhagic transformation,tMCAO-HT)).The cerebral infarction, the incidence of cerebral hemorrhage, the incidence of cerebral hemorrhage, the score of cerebral hemorrhage, the hemoglobin content of brain tissue and the mortality rate were used as indicators at 48 h postoperatively to screen for optimal model replication conditions.

Results: Compared with the sham operation group, the cerebral blood flow in each model group decreased to 42~53% of the basic value. The neurological scores at 2h after operation were significantly increased.There were obvious cerebral infarction in each model group 48 hours after operation,suggesting that the cerebral ischemia model was successfully replicated. The brain blood loss score and hemoglobin content in each model group were significantly increased, suggesting that the model of hemorrhagic transformation after cerebral ischemia was successfully replicated. All indexes gradually increased with the prolongation of ischemia time, and there were different degrees of mortality, among which the mortality rate of the 9-h ischemia group was as high as 83.33%.

Conclusion: The tMCAO-HT model in rats could be successfully replicated by reperfusion at 3, 6, and 9h after cerebral ischemia with suture method, but the mortality rate at 9h is too high, and reperfusion after 3h or 6h of cerebral ischemia wasappropriate for the study with the tMCAO-HT model.

Totally thoracoscopic surgical versus hybrid ablation of standalone atrial fibrillation

Cosimo D'Alessandro[1], Nicolas Badenco[2], Guillaume Duthoit[2], Xavier Waintraub[2], Mojgan Laali[1], Pascal Leprince[1] and **Estelle Gandjbakhch[2]**

[1]*Service de Chirurgie Thoracique et Cardiovasculaire et, Hôpital La Pitié Salpêtrière, Paris*
[2]*Service de Rythmologie, Hôpital La Pitié Salpêtrière, Paris*

Background: Minimally invasive surgical treatment of lone atrial fibrillation (AF) is indicated in patient at risk of recurrence after catheter ablation of AF.

Purpose: We compared a surgical bilateral thoracoscopic ablation of AF with a hybrid surgical and endocavitary approach.

Methods: Beteween January 2016 and November 2017, 11 patients underwent a bilateral thoracoscopic AF surgical ablation with the Atricure system (Group I). Ablation started with a right thoracoscopic approach, including right pulmonary vein isolation with a bipolar radiofrequency clamp (Sinergy Clamp, Fig.1a) and left atrium (LA) floor and roof isolation with a bipolar unidirectional catheter (CoolRail, Fig.1b). After creating the same pattern of lesions on left side, the left atrial appendage (LAA) was excluded with a clip (Atriclip Pro, Fig.1c). Between March 2018 and June 2021, 45 patients underwent a hybrid ablation of AF (Group II). Ablation started with a left thoracoscopic approach, including left pulmonary vein isolation, LA roof and floor lesion and LAA exclusion. Afterwards, an endocavitary mapping was realized with the Ensite Precision System and HD Grid catheter (St Jude), to check the surgical lesion set. Right pulmonary vein isolation and box completion (Fig.1d) were realized with a Tacticath unipolar radiofrequency catheter.

Results: Preoperative characteristics and postoperative results are resumed in Table I. Mean follow-up was 15 months in Group I and 7 months in Group II. Two patients in both groups underwent endocavitary touch-up for AF recurrence. AF freedom, VKA/NOACS and anti-arrhythmic drugs freedom rates were respectively 90%, 36% and 64% in Group I vs. 100%, 31% and 67% in Group II.

Conclusion: Hybrid AF ablation seems to be more effective than an isolated surgical ablation. A longer follow-up is mandatory to confirm these results in the long term.

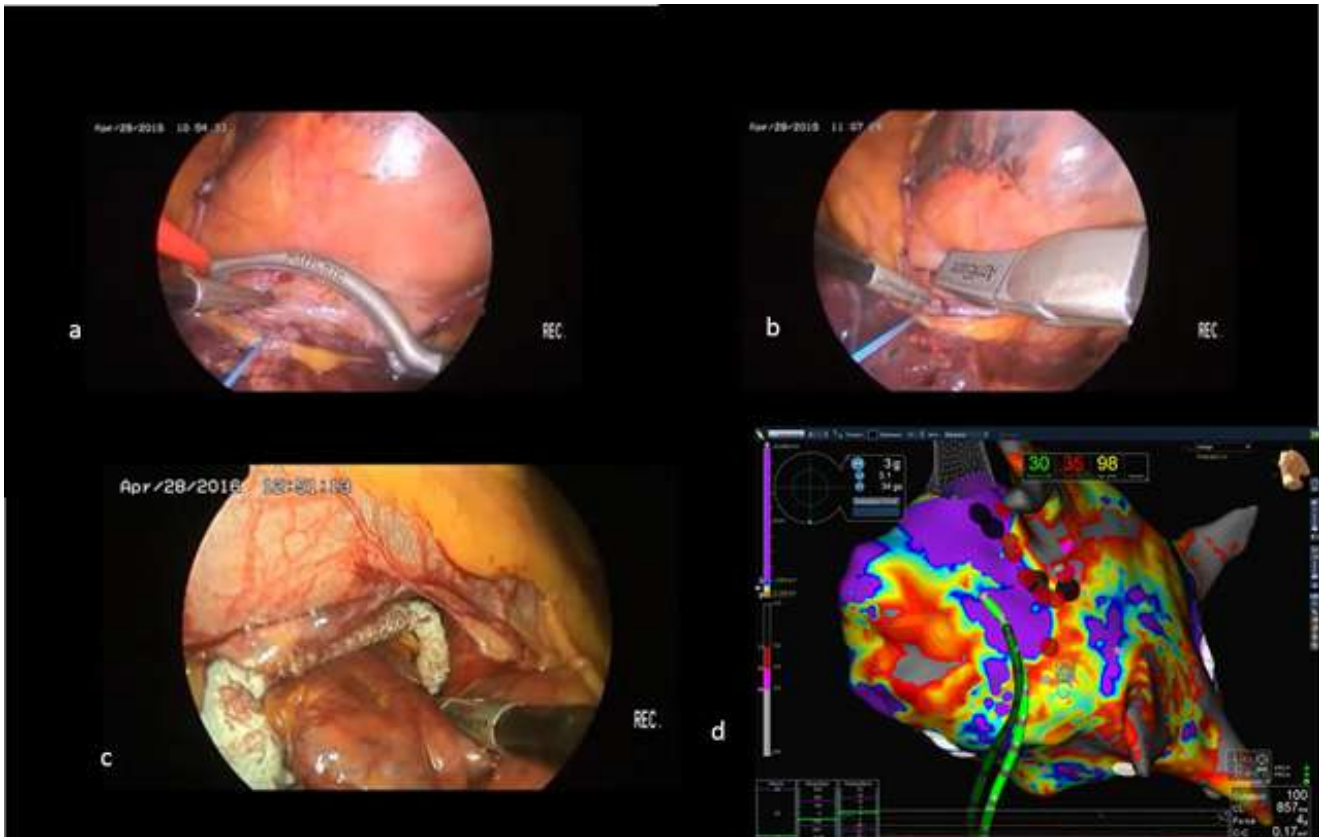**Fig.1a:** *Right pulmonary vein isolation with bipolar clamp;* **1b:** *left atrial roof isolation with unidirectional catheter;* **1c:** *left appendage exclusion;* **1d:** *left atrial box isolation.*

	Group I (n=10)	Group II (n=46)	p
Age (median)	62	60	0,64
Female Sex	1 (9%)	14 (31%)	0.25
AF Duration (months, median)	28	55	0.16
Previous AF Ablation	2 (18%)	27 (60%)	0.01
LA Voulme (ml/m², median)	87	83	0.49
Long Standing Persistent AF	10 (91%)	39 (87%)	1
CHADS2Vasc Score (median)	2	1	0.54
Surgical Lesion: Right PV Isolation	9 (82%)	3 (7%)	<0.01
Surgical Lesion: Left PV Isolation	11 (100%)	38 (84%)	0.32
Surgical Lesion: LA Floor Isolation	11 (100%)	45 (100%)	1
Surgical Lesion: LA Roof Isolation	11 (100%)	45 (100%)	1
Left Appendage Exclusion	9 (82%)	40 (89%)	0.61
Cardio-pulmonary Bypass for Bleeding	0 (0%)	2 (4%)	1
Phrenic Nerve Injury	0 (0%)	1 (2%)	1
Need for endocavitary Touch-Up	2 (18%)	2 (4%)	0.17
Freedom from AF	9 / 10 (90%)	39 / 39 (100%)	0.22
Freedom from VKA/NOACS	4 (36%)	12 (31%)	0.73
Freedom from AA	7 (64%)	26 (67%)	1

Table I Preop Characteristics and Postop Results

Association between weak antioxidant haptoglobin phenotypes and cardiovascular risk factors among HIV patients on HAART

Emmanuel Ayitey Tagoe[1,2], Ishmael Nii Ayibontey Tagoe[3], Joshua Agbemefa Kuleape[1], Peter Puplampu[4], Seth Amanquah[3], Henry Asare-Anane[3] and **Osbourne Quaye[1]**

[1]Department of Biochemistry, Cell and Molecular Biology / West African Centre for Cell Biology of Infectious Pathogens (WACCBIP), University of Ghana, Ghana

[2]Department of Medical Laboratory Sciences, School of Biomedical and Allied Health Science, University of Ghana, Ghana

[3]Department of Chemical Pathology, University of Ghana Medical School, University of Ghana, Ghana

[4]Department of Medicine, Korle Bu Teaching Hospital, Ghana

Objective: HIV infection, or in combination with highly active antiretroviral therapy (HAART) has been associated with oxidative stress, a key factor in the development of cardiovascular disease (CVD), and genetic predisposition factors may aggravate disease outcome. Expression of haptoglobin, a highly polymorphic and antioxidant glycoprotein is critical in CVD. Current study aimed to investigate the association between haptoglobin phenotypes and risk factors of CVD among HIV patients on HAART.

Methods: A total of 75 HIV-infected HAART-naive individuals and 105 HIV sero-positive patients on HAART were recruited into the study. Socio-demographics and clinical characteristics of the participants were obtained using questionnaire. Lipid profile, lactate dehydrogenase (LDH) and haptoglobin (Hp) phenotypes were analysed from serum whiles haemoglobin (Hb) level, CD4+ cell count and HIV viral RNA load were determined.

Results: Patients on HAART showed significantly higher atherogenic index of plasma (AIP) than the naive counterparts ($p < 0.05$). HAART was associated with hypertension ($\chi2 = 4.33$, $p = 0.037$), hypercholesterolaemia ($\chi2 = 10.99$, $p < 0.001$), elevated LDL-c ($\chi2 = 10.30$, $p < 0.001$) and decreased HDL-c ($\chi2 = 3.87$, $p = 0.09$).

Conclusion: Hp phenotypes with weak antioxidant capacity may increase the risk of developing CVD in HIV/AIDS patients on HAART.
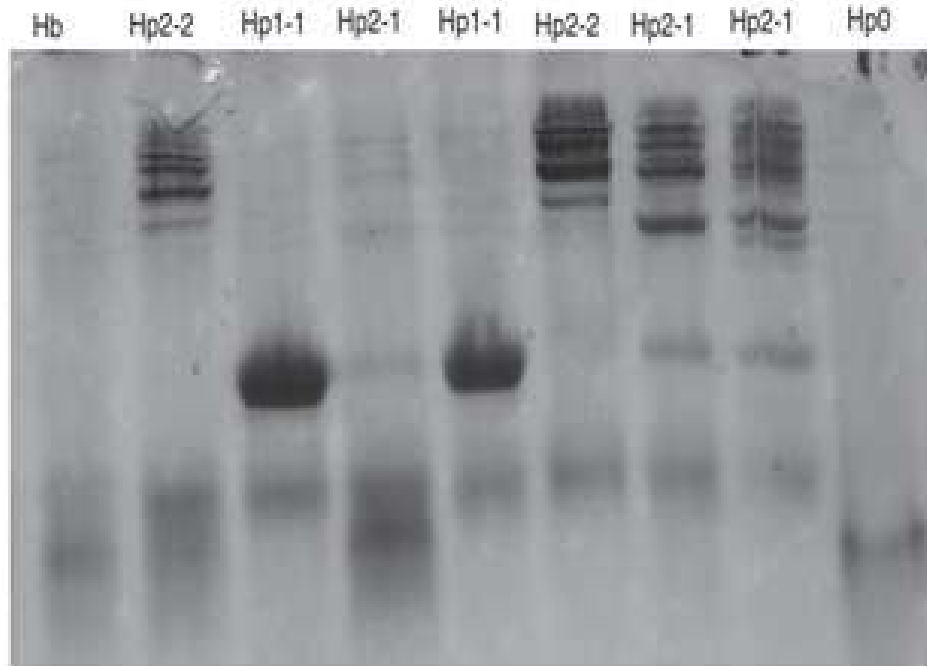
Fig. 1. *Hp phenotypes separated on 7.5% polyacrylamide gel electrophoresis*

Hp2-2 and Hp0 collectively was strongly associated with hypertension (OR = 2.54, p = 0.011), obesity (OR = 5.97, p < 0.001) and hypercholesterolaemia (OR = 2.99, p < 0.001).

Risk factors of CVD	Hp phenotype [n (%)] (Hp1-1 and Hp2-1) (N = 76)	Hp phenotype [n (%)] (Hp2-2 and Hp0) (N = 29)	OR (95% CI)	P-value
Hypertension	11 (14.5)	9 (31.0)	2.54 (1.19–3.58)	0.011*
Obesity	5 (6.6)	9 (31.0)	5.97 (2.05–9.58)	<0.001*
Hypercholesterolaemia	22 (28.9)	16 (55.1)	2.99 (1.67– 5.37)	<0.001*
Increased-LDL-c	17 (22.4)	8 (27.6)	1.38 (0.72–2.62)	0.414
Hypertriglyceridemia	18 (23.9)	6 (20.7)	0.84 (0.43–1.64)	0.735
Atherogenic index	49 (64.0)	19 (66)	1.09 (0.61–1.95)	0.882
AIP	40 (52.6)	17 (58.6)	1.28 (0.73–2.23)	0.476

*Hp1-1 and Hp2- 1 are strong antioxidant haptoglobin phenotypes, and Hp2-2 and Hp0 are weak antioxidant haptoglobin phenotypes. An individual could present with more than one risk factor of CVD. *p-value > 0.05 was considered statistically significant.*

Brugada pattern in a child with severe SARS-CoV-2 related multisystem inflammatory syndrome

Angelica De Nigris[1], Angela Pepe[2], Giangiacomo Di Nardo[3], Antonietta Giannattasio[4], Annamaria Pagano[5], Carolina D'Anna[4], Stefania Muzzica[4], Selvaggia Lenta[4], Giovanni Maria Di Marco[3] and **Vincenzo Tipo[4]**

[1]Department of Woman, University of Campania "Luigi Vanvitelli", Italy

[2]Department of Medicine, Surgery and Dentistry "ScuolaMedica Salernitana", University of Salerno, Italy

[3]Division of Cardiology, Department of Pediatrics, Santobono-Pausilipon Children Medical Hospital, Italy

[4]Pediatric Emergency and Short Stay Unit, Santobono-Pausilipon Children's Hospital, Italy

[5]Department of Translational Medical Science, Section of Pediatrics, University of Naples "Federico II", Italy

Objectives/scope: This report presents the first case of Brugada pattern complicated by a supraventricular arrhythmia in a child with SARS-CoV-2 related Multisystem Inflammatory Syndrome in Children (MIS-C).

Results: A 7-year-old boy came to Emergency Department with 7 days of abdominal pain and fever. ECG showed type 1 Brugada pattern in the right precordial leads (Figure 1) that resolved along with fever resolution. Serum inflammatory markers were still elevated. On 2nd day of hospitalization, atrial ectopic tachycardia (AET) appeared (Figure 2) in conditions of weak hemodynamic balance. Synchronized direct current cardioversion (first shock at 75 joule and second one at 100 joule) was performed to stop AET without success. Oral therapy with sotalol (5 mg/kg/day) was started under close monitoring of vital signs and ECG-trace, with resolution of the arrhythmia and subsequent evidence of sinus rhythm and first-degree atrioventricular block (AVB). Sotalol was discontinued after 7 days with complete ECG normalization.

Methods: On the basis of clinical, laboratoristic and instrumental evaluation, patient received diagnosis of MIS-C.

ECG features were recorded during hospitalization and the 1-month follow up.

Genetic test for Brugada syndrome (BrS) was negative for pathogenetic mutations in the SCN genes.

Discussion: The patient showed a transient Brugada ECG pattern type I, probably unmasked by the cytokine-induced inflammatory cascade of MIS-C, that disappeared along adequate fever treatment (Figure 3). After unsuccessful electrical cardioversion of AET, restoration of sinus rhythm was attempted with

sotalol, an antiarrhythmic drug without absolute contraindication to the use in patients with BrS. First degree AVB maybe potentially caused both by sotalol and evolution of MIS-C, as previously reported.

Conclusion: This case underlines management complexity of supraventricular arrhythmic events, different from atrial fibrillation, in patients with Brugada pattern in the context of a systemic inflammatory condition with significant cardiac involvement. All potential therapeutic choices should be considered to ensure the best outcomes.
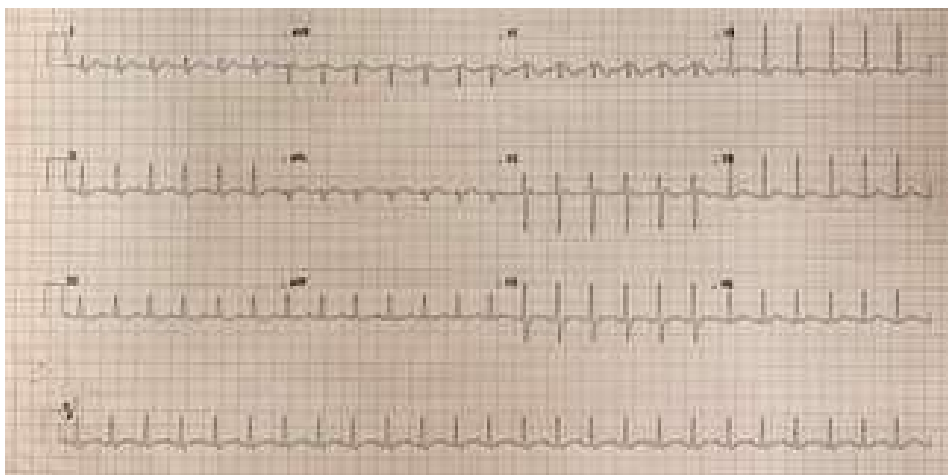
Figure 1. *First electrocardiogram recorded on admission showing Brugada type 1 pattern in V1 and V2. It is characterized by a coved ST-segment elevation displaying J-point amplitude or ST-segment elevation ≥2 mm, followed by a negative T wave in more than one right precordial leads (V1 to V3)*

Figure 2. *Atrial ectopic tachycardia (AET) at heart rate of 120 beats/min recorded on day 2 of hospitalization. The diagnosis is based on the presence of a regular narrow QRS complex tachycardia with an abnormal P-wave morphology originating from an ectopic focus. As shown in the magnification insert, the P-wave is not visible because it is morphologically different from the sinus one and it is fused with the preceding T-wave.*
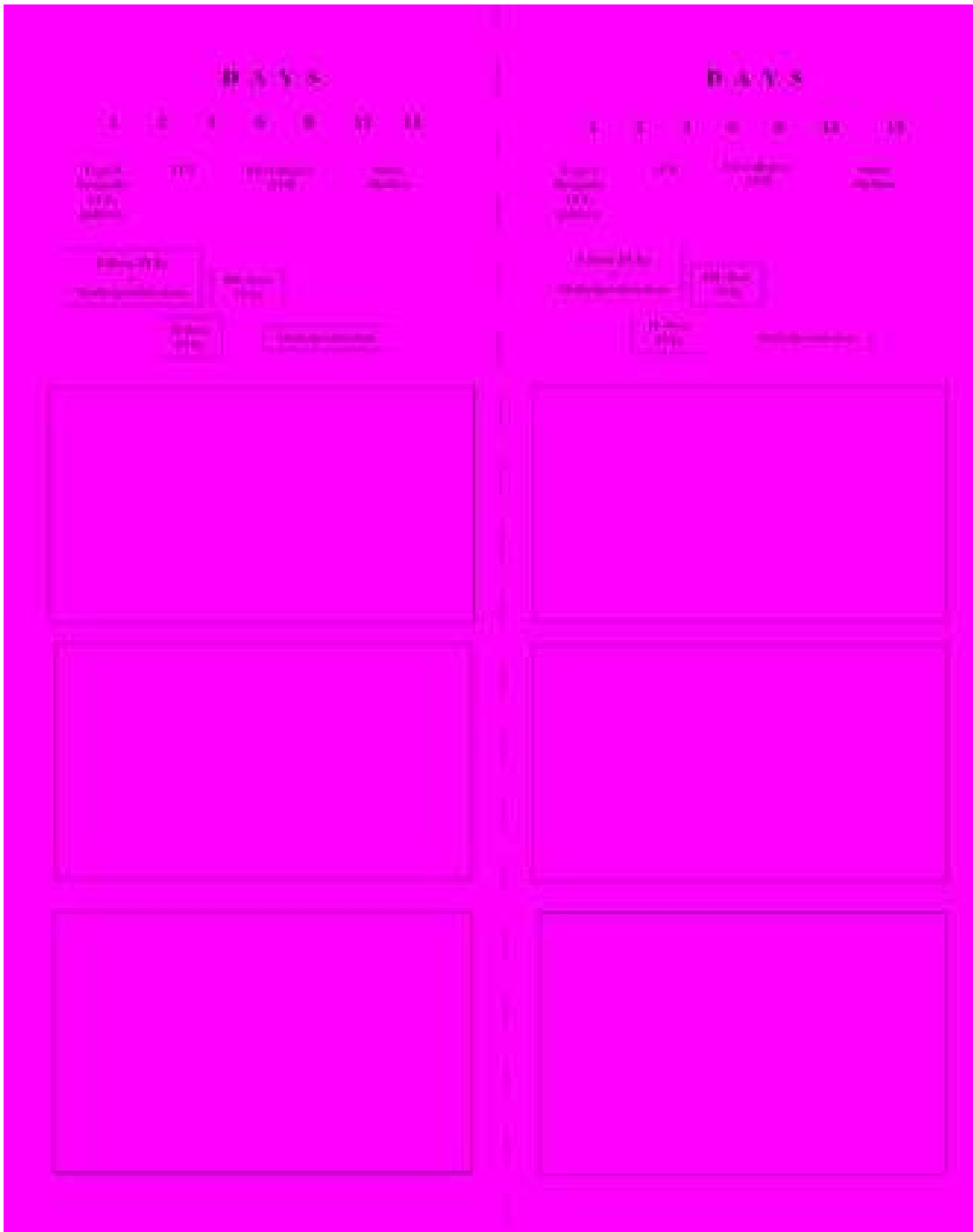
Figure 3. *Progressive improvement of inflammation and cardiac markers and ECG normalization during Multisystem Inflammatory Syndrome in children (MIS-C) anti-inflammatory treatment with intravenous immunoglobulins and methylprednisolone boluses.*

Abdominal aorta plaques are better in predicting cardiovascular events compared to carotid intima-media thickness

K. Parkkila[1], A. Kiviniemi[1], M. Tulppo[2], J. Perkiömäki[1], Y. A. Kesäniemi[1] and **O. Ukkola[1]**

[1]Research Unit of Internal Medicine, Oulu University Hospital, Finland

[2]Research Unit of Biomedicine, Department of Physiology, University of Oulu, Finland

Background and Aims: Cardiovascular (CV) risk estimation is essential for effective targeting of preventative interventions. Previous studies have documented both carotid intima-media thickness (IMT) and abdominal aorta plaques to predict future CV events. Since no previous studies have compared ultrasonographically assessed carotid IMT and abdominal aorta plaques in CV risk estimation, our objective was to fill this gap in a prospective study setting with a follow-up period of over 20 years.

Methods: A total of 1007 participants (50% men), aged 51 ± 6.0 years, were included in the final study population. Carotid IMT and the summarized plaque length (SUM) from abdominal aorta to common femoral arteries were ultrasonographically assessed in the beginning of 1990's. The participants were followed until the end of 2014 for CV events.

Results: SUM was a strong risk factor for CV events. Every 10mm increase in SUM was as-sociated with a 3.5% increased risk for CV events (p<0.001). Those in the highest SUM tertile had over 3-fold risk for CV event (HR: 3.392, 95% CI: 2.427-4.741, p<0.001) compared to those in the lowest tertile. SUM remained significantly associated with CV events after adjusting for age, sex, hypertension, diabetes, smoking (pack-years), LDL cholesterol and IMT. Adding SUM to the risk model with traditional CV risk factors improved C-index (95% CI) from 0.706 (0.674-0.738) to 0.718 (0.688-0.747). It also improved both discrimination (p<0.001) and reclassification (p<0.001) of the patients. In contrast to SUM, the significance of carotid IMT in predicting CV events was lost after adjusting for traditional CV risk factors and SUM.

Conclusions: In light of our findings, ultrasonographically assessed abdominal aorta plaques are a superior indicator and clinical tool for evaluating the overall CV risk compared to carotid IMT.
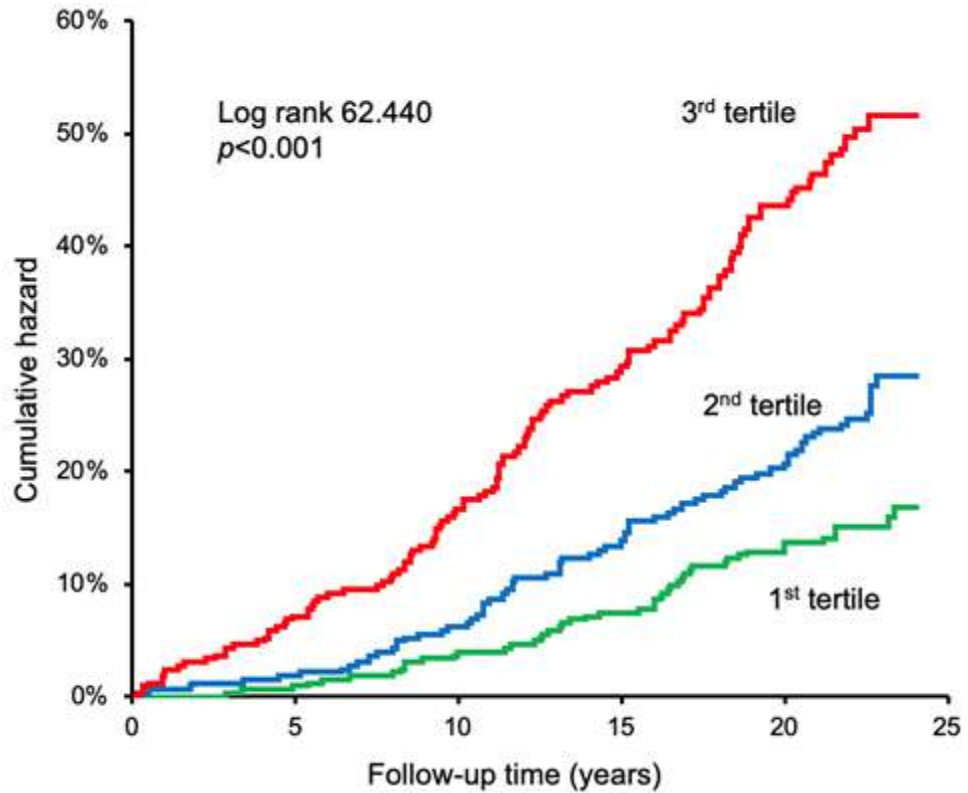
Figure 1. *Kaplan-Meier cumulative hazard curves of summarized abdominal
aorta plaque length tertiles in predicting cardiovascular events.*

Man vs. Manikin: Comparison of the use of manikins and simulated patients in a multidisciplinary in situ medical simulation program for healthcare professionals in the United Kingdom

M. Meerdink and **J. Khan**

Bristol Medical Simulation Centre, University Hospitals Bristol and Weston NHS Foundation, UK

Purpose: Simulation training is increasingly popular in healthcare education, and often relies on specially designed manikins. However, it is also possible to work with actors, or simulated patients (SPs), which may provide a greater sense of realism. This study aimed to compare these 2 approaches, to ascertain which makes healthcare professionals feel most comfortable, which leads to the greatest improvement in confidence, and which is most beneficial to learning.

Methods: This study was embedded in a pre-existing multidisciplinary in situ simulation program. A multidisciplinary group of learners from a range of backgrounds—including nurses, doctors, and other allied health professionals—were asked to complete a questionnaire about their learning preferences. We collected 204 responses from 40 simulation sessions over 4 months, from September to December 2019.

Of these 204 responses, 123 described using an SP and 81 described using a manikin.

Results: We found that 58% of respondents believed they would feel more comfortable working with an actor, while 17% would feel more comfortable using a manikin. Learners who used both modalities reported a significant increase in confidence (P<0.0001 for both). Participants felt that both modalities were beneficial to learning, but SPs provided significantly more benefits to learning than manikins (P<0.0001). The most common reason favoring SP-based simulation was the greater realism.

Conclusion: In scenarios that could reasonably be provided using either modality, we suggest that educators should give greater consideration to using SP-based simulation.

Study on the pathological processes occurring in brain tissue of rats with ischemic stroke

Mingli Yan, Hang Sun, Long Ning, Qian Yang, Chunping Xu, Qiongying Yang
and **Fangyan He**

Faculty of Chinese Materia Medic, Yunnan University of Chinese Medicine, China

Objective: The purpose of this study was to explore the pathological processes of permanent middle cerebral artery occlusion (pMCAO) and transient MCAO (tMCAO) in model rats based on successful and stable model replication and to provide a basis for researching the time window of anti-IS drug administration.

Methods: The model rats of pMCAO and tMCAO were established using the thread plug method. To evaluate the stability of the model and determine the inclusion criteria of is model rats. Model rats meeting the inclusion criteria were randomly sacrificed (three rats each time) at 30min, 3h, 6h, 24h, 3d, 7d, 14d, 21d, and 28d. Behavioral changes, brain histopathological changes, and neuronal damage were used as the main indices to determine the pathological processes in brain tissue of pMCAO and tMCAO rats compared to the pathological characteristics of clinical IS patients.

Results: Through the study, the inclusion criteria of IS model rats were determined. In pMCAO and tMCAO rats, the nerve function, motor function and brain tissue were damaged to varying degrees in different periods of ischemia or reperfusion, but after a certain period of time, the nerve function defect and motor dysfunction began to recover, and the glial cells around the injured side proliferated, and the damaged nerve cells were cleared away.

Conclusions: The pMCAO pathological process was: ultra-early stage, 0–3h after ischemia; acute stage, 3–24h after ischemia; necrotic stage, 24h–3d after ischemia; softening phase, 3–7d after ischemia; late recovery, 7–28d after ischemia (and beyond). The tMCAO pathological process was: ultra-early, 0–6h after reperfusion; acute phase, 6h–3d after reperfusion; necrosis period, 3–7d after reperfusion; early recovery (softening period), 7–14d after reperfusion; late recovery, 14–28d after reperfusion (and beyond).

Simulation-based training following a theoretical lecture enhances the performance of medical students in the interpretation and short-term retention of 20 cross-sectional transesophageal echocardiographic views: A prospective, randomized, controlled trial

Yang Zhao

Department of Anesthesiology, North Sichuan Medical College, China

Background: Both simulation-based training and video-based training serve as educational adjuncts for learning TEE among medical students. In the present study, we hypothesized that simulation-based training would better enhance the performance of medical students in the interpretation of 20 cross-sectional views compared to video- based training.

Methods: A total of 120 4th-year undergraduate medical students were enrolled in the present study. The study began with a pre-test of all the participants, followed by a 90-min theoretical lecture and a post-test. Subsequently, the participants were randomly divided into the video-based group (Group V) and simulation-based group (Group S). Next, Group V received 60 min of TEE video learning, while Group S received 60 min of TEE simulator training. After the respective training, both the groups undertook the retention-test 1 and retention-test 2, 1 week and 1 month later, respectively. The performance for each test was evaluated by five views, which were selected randomly and, respectively, from a set of 20 cross-sectional views. The primary outcome was the performance of the retention-test 1. Secondary outcomes included: (1) comparison the performances of the pre-test, post-test, and retention-test 2 between two groups; (2) comparison the performances of pre- test and post-test in the same group; (3) comparison the performances of retention-test 1, and retention-test 2 in the same group.

Results: Better performances were observed in Group S in both retention-test 1 (Group V: 63.2 [52.6, 77.6] vs. Group S: 89.5 [68.4, 100.0], P < 0.001) and retention-test 2 (Group V: 58.0 [48.0, 72.0] vs. Group S: 74.0 [64.0, 80.0], P < 0.001) compared to Group V. No statistically significant differences were observed in the performances of pre-test (Group V: 8.3 [4.2, 12.5] vs. Group S: 8.3 [4.2, 12.5], P = 0.825) or post-test (Group V: 46.2 [38.5, 57.7] vs. Group S: 44.2 [38.5, 56.7], P = 0.694) between the two groups. The improvement had been observed in the

post-test, compared with pre-test in the same group, respectively (Group V in post-test: 46.2 [38.5, 57.7] vs. Group V in pre-test: 8.3 [4.2, 12.5], P < 0.001; Group S in post-test: 44.2 [38.5, 56.7] vs. Group S in pre-test: 8.3 [4.2, 12.5], P < 0.001). However, the performance in retention-test 2 was significantly reduced, compared with retention-test 1 in the same group, respectively (Group V in retention-test 2: 58.0 [48.0, 72.0] vs. Group V in retention-test 1: 63.2 [52.6, 77.6] P = 0.005; Group S in retention-test 2: 74.0 [64.0, 80.0] vs. Group S in retention-test 1: 89.5 [68.4, 100.0], P < 0.001).

Conclusions: Following a 90-min theoretical lecture, simulation-based training better enhanced the performance of medical students in the interpretation and short-term retention of 20 cross-sectional views compared to video- based training.

Effect of vitamin D status on weight loss and biochemical changes in a clinic setting

Myriam Abboud

Zayed University, College of Natural and Healh Sciences- United Arab Emirates
The University of Sydney, Physiology and Bosch Institute-Sydney, Australia

Animal studies support a role for vitamin D in energy regulation, however, whether weight loss through lifestyle intervention is influenced by vitamin D status under real world conditions remains unknown. The purpose of this study was to investigate the effect of baseline vitamin D status and vitamin D supplementation on percentage weight-loss and waist circumference (Wc) in overweight and obese adults over 3-month weight-loss program.

This study is a retrospective analysis of a clinical databank collected from medical centres across Sydney. Parameters including blood pressure, fasting lipid profile (Total cholesterol, LDL-cholesterol, HDL-cholesterol and TG), serum 25 hydroxyvitamin D (25OHD) as well as anthropometry (weight, height, and Wc) were collected from both baseline and 3-month follow-up consultations.

Subjects with sufficient baseline 25OHD levels showed a significantly greater weight-loss and Wc reduction than those who had a deficient baseline 25OHD and were not supplemented. Deficient patients who were supplemented with daily vitamin D (2000 or 4000IU) showed a significantly greater decrease in weight (-5.3 vs - 2.2kg; $p<0.01$) and Wc (-4.2 vs -1.2cm $p<0.01$). We observed a greater decrease in total cholesterol and LDL in those subjects who were deficient at baseline and supplemented than in those who were not supplemented. Blood pressure and triglyceride levels were not affected by supplementation in subjects that were deficient at baseline.

Because obesity and vitamin D insufficiency are increasingly prevalent worldwide, a better understanding of the nature of the relation between them remains an important area of investigation. In a real clinical weight-loss setting, adequate vitamin D status at the end of the treatment period was associated with significantly greater weight-loss and Wc reduction.

A clinical case of non-compaction cardiomyopathy with concomitant myopathic syndrome and mutations in *LMNA* and *KCNH2* genes

Rineiska N[1], Komissarova S[1], Chakova N[2], Niyazova S[2], Sevruk T[1], Efimova A[1], Dolmatovich T[2] and **Sidorenko E[2]**

[1]*State Institution Republican Scientific and Practical Centre "Cardiology", Belarus*
[2]*Institute of Genetics and Cytology of the National Academy of Sciences of Belarus, Belarus*

Objective: To evaluate the clinical phenotype of lamin-associated cardiomyopathy.

Methods: Proband (female, 51 years old) underwent a comprehensive clinical and instrumental examination, which included blood biochemistry test, 12-lead ECG, 24-hour Holter monitoring, TTE and CMR with late gadolinium enhancement. The criteria of the NCCM were confirmed using the TTE criteria (R. Jenni) and the CMR criteria (S. Petersen and A. Jaquier). Mutation search was carried out by the next generation sequencing (NGS).

Results: Patient F. is a 51-year-old woman, height 163 cm, weight 60 kg. The manifestation of cardiac pathology occurred at the age of 36, when paroxysms of atrial fibrillation (AFib) and nonsustained supraventricular tachycardia (VT) appeared. At the age of 51 syncope appeared and the following rhythm disturbances were revealed: permanent AFib (HR 89 bpm), paroxysms of nonsustained VT (HR 159 bpm), episodes of sinus bradycardia with heart rate less than 40 and episodes of 2nd degree SA block, type II (pauses 1.5 - 1.8 s).

A decrease in the left ventricular ejection fraction (LVEF) to 39%, moderate LV dilatation (LV EDD 59 mm, LV ESD 47 mm, LV EDV 170 ml, LV ESV 101 ml), grade II mitral regurgitation, diffuse LV hypokinesis, signs of non-compaction LV myocardium: trabecular structure of the anterolateral wall of the apical and the middle segments was revealed during the TTE. According to LGE-CMR data, LV systolic dysfunction (LVEF 35%) and signs of a non-compaction myocardium with hypertrabeculation meeting the criteria Petersen and Jaquier were revealed.

A blood biochemistry test revealed an increase in the level of serum creatine kinase (CK) 243 U/L, Nt-proBNP 213 pg/ml.

In order to prevent SCD, implantation of ICD was performed. The patient was prescribed comprehensive CHF therapy. Against the

background of regular medication intake with dynamic 5-year follow-up, positive dynamics was noted without progression of CHF and negative remodeling of the heart chambers. For the first time, muscle weakness appeared at the age of 45 and neurologists verified the diagnosis: Erb-Roth muscular dystrophy.

NGS revealed a new mutation c.A1058G (p.GLN353ARG) in the *LMNA* gene encoding lamins A/C, which are involved in nuclear stability, chromatin structure and gene expression. In addition, the patient was found to have a variant with uncertain significance (VUS) c.3107G>A (p.GLY1036ASP, rs199473022)

in the *KCNH2* gene associated primarily with LQT2. This variant was previously reported in two patients with LQT2.

Conclusion: Thus, the presented clinical case confirms the idea that laminopathies, along with the myopathic symptom complex, are accompanied by serious cardiac arrhythmias, non-compaction myocardial syndrome, as well as an extremely unfavorable prognosis of the disease, which requires preventive implantation of ICD. A molecular genetic study is necessary to confirm and clarify the diagnosis of laminopathy.

Effect of ethanol extract of Gastrodia elata Blume on hemorrhage transformation in cerebral ischemia-reperfusion model rats at different time points

Qian Yang, Long Ning, Hang Sun, Chunping Xu, Mingli Yan, Jin Feng and **Fangyan He**

Faculty of Chinese Materia Medic, Yunnan University of Chinese Medicine, China

Objective: To investigate the effect of alcohol extract of Gastrodia elata Blume on reducing hemorrhagic transformation (HT) after ischemic stroke (IS) in rats with transient middle cerebral artery occlusion(tMCAO).

Methods: Male SD rats (250–300g) were selected and randomly divided into 4 groups: normal group, model group, Gastrodia elata Blume tMCAO3-HT and Gastrodia elata Blume tMCAO6-HT groups. The rats in Gastrodia elata Blume group were given Gastrodia elata Blume extract (843.75mg/kg) by gavage for 7 days before operation, and the gavage volume of Gastrodia elata Blume extract was 1ml/100g. The rats in the other groups were given the same volume of solvent. The tMCAO model of rats was replicated by suture method. The tMCAO-HT model was replicated by suture method at 3 h and 6 h after ischemia.48 hours later, rats were evaluated for HT incidence, bleeding volume score, hemoglobin content, mortality and expression of microtubule associated protein-2 in brain tissue.

Results: Based on analysis, relative to controls Gastrodia elata Blume ethanol extract could significantly reduce the mortality and HT incidence of tMCAO3h-HT and tMCAO6h-HT rats. The pathological findings were showed that the amount of bleeding in brain tissue of model rats decreased significantly, the area of ischemic center area was reduced, the area of ischemic penumbra area increased, the bleeding volume score decreased ($p<0.05$), and the hemoglobin content increased ($p<0.01$).

Conclusion: This study shows that the ethanol extract of Gastrodia elata Blume can reduce the occurrence of HT after IS, and has the potential effect of prolonging thrombolytic time window.

"The effect of two types of exercise preconditioning on the expression of TrkB, TNF-α and MMP2 genes in rats with stroke"

Mostafa Teymuri Kheravi[1] and **Sara Sarhadi[2]**

[1]Department of Physical Education, Islamic Azad University Bojnourd Branch, Iran
[2]Department of Exercise Physiology, University of Shahid Rajaee Teacher, Iran

Despite the beneficial effects of exercise and physical activity, there is little knowledge about the effects of different types of physical activity on neural function. The present study assessed the effects of two types of selected aerobic exercises prior to stroke induction and characterized the expression of TrkB, TNF-α, and MMP2 genes in vivo. Forty male adult Wistar rats were exposed to aerobic exercises following randomization into four groups, including swimming + MCAO (Middle Cerebral Artery Occlusion) (), treadmill training + MCAO (), MCAO (), and control (). The swimming + MCAO group included swimming for 30 minutes each day, while the treadmill training + MCAO group program involved running for 30 minutes each day at an intensity of 15 m/min, for three weeks, five days a week. Neurological deficit was assessed using modified criteria at 24 h after the onset of cerebral ischemia. In the control group, the animals worked freely for three weeks without undergoing ischemia. The MCAO group also operated freely for three weeks after they underwent a stroke. Both training groups underwent ischemia after three weeks of training. TrkB, TNF-α, and MMP2 gene expressions were increased in the MCAO+ swimming training and in the MCAO + running training group compared to the control and MCAO groups, respectively. Preconditioning aerobic exercises significantly increased brain trophic support and reduced brain damage conditions in exercise groups, which support the importance of aerobic exercise in the prevention and treatment of stroke.

A novel role of claudin-5 in prevention of mitochondrial fission against ischemic/hypoxic stress in cardiomyocytes

Tao Luo[1,2], Haiqiong Liu[3], Baihe Chen[1,2], Han Liu[2], Ahmed Abdel-Latif[4], Masafumi Kitakaze[5], Xianbao Wang[3], Yuanzhou Wu[6], Dylan Chou[7] and **Jin Kyung Kim[2]**

[1]Department of Pathophysiology, Zhuhai Campus of Zunyi Medical University, China

[2]Division of Cardiology, Department of Medicine, School of Medicine, University of California Irvine, USA

[3]Department of Cardiology, Zhujiang Hospital, Southern Medical University, Guangzhou, China

[4]Saha Cardiovascular Research Center, University of Kentucky, USA

[5]Department of Clinical Research and Development, National Cerebral and Cardiovascular Center, Japan

[6]Department of Cardiovascular Surgery, Zhujiang Hospital, Southern Medical University, China

[7]Department of Physiology, Zhuhai Campus of Zunyi Medical University, China

Background: Downregulation of claudin-5 in the heart is associated with the end-stage heart failure. However, the underlying mechanism of claudin-5 is unclear. Here we investigated the molecular actions of claudin-5 in perspective of mitochondria in cardiomyocytes to better understand the role of claudin-5 in cardioprotection during ischemia.

Methods: Myocardial ischemia/reperfusion (I/R; 30 min/24 h) and hypoxia/reoxygenation (H/R; 24 h/4 h) were used in this study. Confocal microscopy and transmission electron microscope (TEM) were used to observe mitochondrial morphology.

Results: Claudin-5 was detected in murine heart tissue and neonatal rat cardiomyocytes (NRCM). Its protein level was severely decreased after myocardial I/R or H/R. Confocal microscopy showed claudin-5 presented in the mitochondria of NRCM. H/R-induced claudin-5 downregulation was accompanied by mitochondrial fragmentation. The mitofusin 2 (Mfn2) expression was dramatically decreased while the dynamin-related protein (Drp) 1 expression was significantly increased after H/R. The TEM indicated H/R-induced mitochondrial swelling and fission. Adenoviral claudin-5 overexpression reversed these structural disintegration of mitochondria. The mitochondria-centered intrinsic pathway of apoptosis triggered by H/R and indicated by the cytochrome c and cleaved caspase 3 in the cytoplasm of NRCMs was also reduced by overexpressing claudin-5. Claudin-5 overexpression in mouse heart also significantly decreased cleaved caspase 3 and the infarct size in ischemic heart with improved systolic function.

Conclusion: We demonstrated for the first time the presence of claudin-5 in the mitochondria in cardiomyocytes and provided the firm evidence for the cardioprotective role of claudin-5 in the preservation of mitochondrial dynamics and cell fate against hypoxia- or ischemia-induced stress.

Prevalence of cardiometabolic risks and associated factors in a geriatric population in Saudi Arabia

Walaa Mohammedsaeed[1] and **Ahlam B. El Shikieri[2]**

[1]Department of Medical Laboratory Technology, Faculty of Applied Medical Science at Taibah University, Saudi Arabia

[2]Department of Clinical Nutrition, College of Applied Medical Sciences, Taibah University, Saudi Arabia

Objectives: Cardiometabolic risks (CMRs) are factors associated with the possibility of developing vascular events and/or diabetes mellitus. The aim of this study was to assess the prevalence of CMRs and associated factors among a Saudi geriatric population in Al Madinah.

Methods: An epidemiologic, cross-sectional, community-based study included freely living persons $\geq$ 65 y of age (N = 600). Sociodemographic characteristics and body mass index (BMI) were collected. Fasting blood samples (5 mL) were drawn for the determination of selected biochemical markers, including glycaemic status, lipid profile, C-reactive protein (CRP), serum albumin, haemoglobin level, serum iron, and for the calculation of Atherogenic Index of Plasma (AIP). Blood tests were carried out by an electrochemiluminescence immunoassay using the Cobas-e 411 immunoassay analyser and Siemens Dimension XP.

Results: Women (72%) and men (82.7%) had diabetes as shown by their high mean glycated haemoglobin percent (women 7.90 [2.95]; men 8.4 [1.64]; P < 0.001). Older adults with diabetes had dyslipidaemia, were overweight (women only), had hypoalbuminemia, elevated CRP, and increased AIP. The prevalence of overweight/obesity was higher among men (44%) than women (25%). More women suffered from hypoalbuminemia (54%) than men (40.7%). Low serum iron levels were more prevalent among men than women (54 versus 40.7%). More men (56.6%) than women (33.4%) had CRP levels of >5 mg/L. Older adults had similar prevalence of dyslipidaemia Men had a higher prevalence of poor high-density lipoprotein levels compared with their counterparts (9.3% versus 13%). Multiple linear regression models showed that dyslipidaemia, BMI, serum albumin (women only), fasting glucose levels, CRP, and AIP were significantly elevated with increasing age among older adults.

Conclusion: The Saudi geriatric population is at increased CMR as noted by their high prevalence of diabetes, dyslipidaemia, elevated CRP, hypoalbuminemia, anaemia, overweight/ obesity, and high AIP.

"Changes in systemic blood flow and microcirculation in patients with medium and severe covid-19 "

Shapovalov Yu.K[1,2], Kuznik B.I[2], Shapovalov K.G[1,2], Smolyakov Yu.N[2] and **Shilin D.S[1,2]**

[1]City Clinical Hospital № 1, Russian Federation
[2]Chita State Medical Academy, Russian Federation

The mechanisms of heart damage in COVID-19 are not clearly understood, but likely include increased stress due to respiratory failure and hypoxemia, direct myocardial damage caused by SARS-CoV-2, and indirect damage from a systemic inflammatory response.

Considering the presented data, it seems promising to study HRV shifts in patients with moderate and severe COVID-19.

Target: To investigate how HRV changes in seriously ill COVID-19 depending on the severity of the disease, as well as to determine the prognostic role of ROC analysis in predicting the outcome of the pathological process.

Clinical Characteristics of Patients and Research Methods: Our observations were carried out on 29 patients with moderate course (age 58.7 ± 6.5 years) and 55 seriously ill patients (59.4 ± 9.2 years). The control group consisted of 69 people (mean age 62.5 ± 9.6 years). HRV was studied using the mDLS apparatus (Dynamic Light Scattering, Rehovot, Israel). To assess the characteristics of HRV, the method of photoplethysmography (PPG) was used.

Results: The heart rate in patients with COVID-19 did not differ significantly from the norm. At the same time, SDNN, reflecting all long-term components and circadian rhythms during the recording, was significantly reduced in both the group of moderate and severe patients. At the same time, no significant differences in the values of SDSD, RMSSD and MAD between the groups of patients with COVID-19 of varying severity were found. But at the same time in such patients, there is a decrease in the HF index, associated with the function of the respiratory system and mainly due to vagal activity.

Conclusions: In patients with COVID-19, heart rate variability indicators decreased: SDNN, SDSD, RMSSD, LF and MAD. Based on the ROC analysis of heart rate variability indicators, it was not possible to identify predictors of the outcome of COVID-19.

About us

A confluence of Erudite and Knowledge-Seeker

Peers Alley Media

A global consortium of the scientific fraternity, scholars, educationists, industry leaders and entrepreneurs to collaborate, share ideas and knowledge to resolve challenges across medicine, science, technology and business

Our Vision

"We aim to bring the research and innovations happening across the parts of the globe to facilitate interaction, knowledge sharing and exchange. We also aim to inspire university professors, students, researchers, clinicians and entrepreneurs from across the disciplines including but not limited to clinical, medical, business, technology, healthcare and pharmaceutical fields. Our dream is to bring advancements in the Science and Technology to the mankind through our scientific gatherings and deliberations. We believe in introducing novel methods and innovative techniques in science, business and technology to provide understanding on the developments".

Our Mission

How do we serve our target groups in the scientific & business community?
- We bring the untold research accessible for many.
- Our events meet the research needs of the target groups across the academia, industry, corporates, the government, non-government agencies and public bodies.
- We Engage. Enlighten. Empower people deprived of information.
- We connect the international giants towards finding simple solutions to the complex medical and healthcare challenges of the globe.
- We unveil the unlimited research opportunities to the sections of population that is away from the developments in science and technology.
- We encourage Young and emerging researchers and scholars.
- We extend continuous education credits to boost the career and academic progress.
- We encourage start-ups in science, technology and business for the social and economic empowerment of the enthusiastic entrepreneurs.

INDEX

BOOKMARK YOUR DATES

2nd International Congress on
Advanced Cardiology and Cardiovascular Research

March 2023 | London, UK

https://advanced-cardiology.peersalleyconferences.com/