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Adv. Cardiology 2022

International Congress on

Advanced Cardiology and Cardiovascular Research

March 30-31, 2022

Paris, France

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PROGRAM-AT-A-GLANCE

ADV. CARDIOLOGY 2022

DAY 1

MARCH 30, 2022

Scientific Program

09:30-09:35	**Opening Ceremony**

Sessions: Cardiology | Heart Diseases | Hypertension | Electrocardiography | Cardio-Oncology | Interventional Cardiology | Pediatric Cardiology | Stroke | Cardiac Surgery | Heart Arrhythmia | Valvular Heart Disease | Atherosclerosis | Sports Cardiology | Cardiac Imaging | Vascular Biology | Cardiology Case Reports | Cardiovascular Disease | Congestive Heart Failure | Acute Coronary Syndrome

Distinguished Speaker Talks

09:35-10:00	**Title: Lung ultrasound and the diagnosis of pulmonarty edema for the cardiologist** **Daniel LICHTENSTEIN,** *Hospital Ambroise Pare, France*
10:00-10:25	**Title: Success of Trans Radial Access for PCI according to Operators Strategy, US guidance and utilization of a dedicated Trained Nursing Staff for radial artery cannulation** **Vincent Dangoisse,** *CHAUR- CIUSSS-MCQ, Canada*
10:25-10:50	**Title: High intensity interval training: Where does HIIT fit in your exercise prescription?** **Edward R. Laskowski,** *Mayo Clinic, USA*

Refreshment Break 10:50-11:15

11:15-11:40	**Title: Embolization of intracranial aneurysms: Novel technologies to improve vessel remodeling** **Giorgio Cattaneo,** *University of Stuttgart, Germany*
11:40-12:15	**Title: Acute hemodynamic compromise following superior vena cava stent placement: A case report** **Anahita Dabo-Trubelja,** *Memorial Sloan Kettering Cancer Center, USA*
12:15-12:40	**Title: Electrocardiographic manifestations of covid-19: Effect on cardiac activation and repolarization** **Avni Thakore,** *St. Francis Hospital, USA*

12:40-13:05	**Title: Chronic kidney disease-Induced arterial media calcification in rats prevented by tissue non-specific alkaline phosphatase substrate supplementation rather than inhibition of the enzyme** **Britt Opdebeeck,** *University of Antwerp, Belgium*

Group Photo

Lunch Break 13:05-13:45

13:45-14:10	**Title: Coronary artery fistula: Association between pathway patterns, clinical features and congenital heart disease** **Daniel Leonardo Cobo,** *Hospital de Base, Brazil*
14:10-14:20	**Title: Memantine and its benefits for cardiovascular diseases** **Hamid Soraya,** *Urmia University of Medical Sciences, Iran*
14:20-14:40	**Title: Diabetes mellitus: Diabetic cardiomyophathy, cardiac cell stiffness and actin cytoskeleton** **Juan C. Benech,** *Clemente Estable Biological Research Institute, Uruguay*
14:40-15:00	**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*
15:00-15:25	**Title: Ivermectin exacerbates cardiac arrhythmias and hypertrophy after myocardial infarction in rats** **Shabnam Babataheri,** *Urmia University of Medical Sciences, Iran*
15:25-15:50	**Title: Bioresorbable cardiac pacemakers** **Yeonsik Choi,** *Northwestern University, USA*
15:50-16:15	**Title: TRA-PCI: How to Assess Live Guiding Catheters Performances and results of the methodology applied to VD R/VD L guide catheters** **Vincent Dangoisse,** *CHAUR- CIUSSS-MCQ, Canada*

Refreshment Break 16:15-16:35

16:35-17:00	**Title: Biodegradable iron-based materials—what was done and what more can be done?** **Aleksandra Radtke,** *Nicolaus Copernicus University in Toruń, Poland*
17:00-17:25	**Title: Evaluation of the pharmacologic treatment of covid-19 pandemic in Iraq** **Nohad AlOmari,** *Knowledge University, Iraq*
17:25-17:50	**Title: Photodynamic therapy - in vitro and in vivo bladder cancer models by using novel photosensitizers** **Odrun A. Gederaas,** *Norwegian University of Science and Technology, Norway*
17:50-18:15	**Title: Role of artificial intelligence techniques in healthcare** **Surbhi Gupta,** *Model Institute of Engineering and Technology, India*
18:15-18:40	**Title: A non-invasive approach to identify insulin resistance with triglycerides and HDL-c ratio using machine learning** **Alok Aggarwal,** *University of Petroleum & Energy Studies, India*

End of Day 1

DAY 2

MARCH 31, 2022

Scientific Program

Introduction

Sessions: Cardiology | Heart Diseases | Hypertension | Electrocardiography | Cardio-Oncology | Interventional Cardiology | Pediatric Cardiology | Stroke | Cardiac Surgery | Heart Arrhythmia | Valvular Heart Disease | Atherosclerosis | Sports Cardiology | Cardiac Imaging | Vascular Biology | Cardiology Case Reports | Cardiovascular Disease | Congestive Heart Failure | Acute Coronary Syndrome

Distinguished Speaker Talks

10:00-10:25	**Title: A novel veno-arteriovenous extracorporeal membrane oxygenation with double pump for the treatment of Harlequin Syndrome** **Battisti Andrea,** *S. Camillo Hospital Rome, Italy*
10:25-10:50	**Title: The effect of smoking on blood pressure profile in patients with hypertension** **Olha Boiko,** *Dnipro State Medical University, Ukraine*
10:50-11:15	**Title: Switch to SGLT2 inhibitors and improved endothelial function in diabetic patients with chronic heart failure** **Pasquale Maiellaro,** *University of Foggia, Italy*
11:15-11:40	**Title: Association between platelet membrane fatty acid spectrum and oxidative stress in healthy and post myocardial infarction men** **Inga Bikulčienė,** *Vilnius University, Lithuania*

End of Day 2

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BOOKMARK YOUR DATES

2ND INTERNATIONAL CONGRESS ON ADVANCED CARDIOLOGY AND CARDIOVASCULAR RESEARCH

MARCH 2023 | LONDON, UK

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SCIENTIFIC ABSTRACTS

DAY 1

PEERS ALLEY MEDIA

International Congress on ADVANCED CARDIOLOGY AND CARDIOVASCULAR RESEARCH

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Lung ultrasound and the diagnosis of pulmonarty edema for the cardiologist

D. Lichtenstein
Hospital Ambroise Pare, France

Critical ultrasound was defined in our 1991 publication: "ultrasound for the critically ill, by the critical care physician, whole body ultrasound". This definition considers the lung, providing a new definition of ultrasound (a visual medicine).

The BLUE-protocol is a fast protocol enabling immediate diagnosis of acute respiratory failure. We use a 1992, gray-scale unit, a microconvex probe. The BLUE-protocol analyzes ten signs: bat sign (pleural line), lung sliding, A-lines (horizontal artifacts arising from pleural line), quad sign and sinusoid sign indicating pleural effusion, fractal sign and lung sign indicating lung consolidation, B-lines (particular comet-tail artifacts arising from the pleural line among seven criteria), and lung rockets (multiple B-lines, indicating interstitial syndrome), abolished lung-sliding with stratosphere sign, suggesting pneumothorax, lung point indicating pneumothorax. Pulmonary edema, pneumothorax, pulmonary embolism, pneumonia, COPD, asthma, were assessed using CT (gold standard) with sensitivity and specificity ranging from 90 to 100%[1].

The B-profile is the name given to the association of lung-rockets with lung-sliding, symmetrical at the anterior chest wall, without any anterior consolidation. The B-profile is 97% sensitive and 95% specific to hemodynamic pulmonary edema[1]. The A-line indicates non elevated PAOP2. The BLUE-protocol is a holistic protocol, because it allows estimation of left heart function in numerous settings (critically ill to ambulatory patient, neonates to seniors, wealthy to scarse-resource areas).

Shortly, derived products. The FALLS-protocol[2] uses, in acute circulatory failure, the B-line as direct parameter of clinical volemia and endpoint for fluid therapy. Cardiac arrest[3].

CEURF trains since 1989 at the bedside in our ICU.

Biography

Daniel Lichtenstein is medical intensivist, Ambroise-Paré Hospital (Paris). Defined critical ultrasound since 1985 (Intensive Care Med 1991;19:353-355) describing diagnoses, immediate therapies, procedures (venous canulation, thoracentesis...) in a holistic approach, favoring simple equipment, one universal probe for whole body, emphasis on lung, simple cardiac sonography (and others), extrapolable to multiple disciplines (pediatry, pulmonology...), settings (ICU, austere areas...), patients (from bariatric to neonates). One textbook (1992, 2002, 2005, 2010, 2011, 2016 editions, Springer-Verlag), original articles including: BLUE-protocol (acute respiratory failure), FALLS-protocol (lung ultrasound in circulatory failure), SESAME-protocol (cardiac arrest), lung ultrasound in neonates. President of CEURF (training center at bedside in I.C.U.).

Success of Trans Radial Access for PCI according to Operators Strategy, US guidance and Utilization of a dedicated Trained Nursing Staff for radial artery cannulation

Vincent Dangoisse
CHAUR- CIUSSS-MCQ, Canada

In one prospective study involving 1349 consecutive cardiac procedures (diagnostic and PCI) with procedures attributed at random to high volume Operators, residual rate of TransFemoral PCI vs TransRadial-PCI or more precisely vs TransRadial/TransUlnar PCI were analyzed according to the operator strategy concerning the primary and secondary

	All	S1-Gr 1	S2-Gr 2	S3-Gr 3	S4-Gr 4
N	1349	67	249	569	464
N Radial (n rad L)	1176 (132)	0	201 (17)	526 (54)	449** (58)
% Rad Cath	87.1	0	80.7	92.4	96.6
N Ulnar (n uln L)	25 (2)	0	1	10	14 (2)
% Rad + Uln Cath	89.0	0	81.5	94.2	99.6
N Femoral (R vs. L)	145 (141+8)	64 (63+1)	46 (43+3)	33 (29+4)	2 (0)
N Brachial	4	3	1	0	0
% US guidance use (N)	19% (257)	0	2% (6)	14% (81)	36% (170)
% Primary intention US (N)	73 % (188)	0	33% (2)	64% (52)	79% (134)
% Trained Nursing Staff use (N)	40 %	0	1% (3)	30% (172)	79% (367)
N PCI	634	38	112	231	253
% Success PCI	95.5	94.7	95.5	95.7	95.2
% RAD + Uln PCI	**86.9**	**0**	**76.8**	**91.8**	**99.6**
N Femoral PCI (n fem L)	83 (3)	37	26 (2)	19 (1)	1
% Fem PCI	**13.1**	**97.4**	**23.2**	**8.2**	**0.4**

arterial access, the use of US guidance for gaining the vascular access and the use of a specially trained nursing staff (TNS) for radial /Ulnar artery puncture. The final Vascular Access, the rate of TNS utilization and of US guidance for cannulation task are summarized in the table. Residual TFA-PCI rate ranged from 23 to 8 or even 0,4 % depending on the operator strategy, patients physical and clinical characteristics not being statistically determinant. Delegating the cannulation task to the TNS was associated with a marked reduction of the rate of a failed TRA or TUA. US guidance reduced by half the rate of failure at the wrist primary arterial attempt. PCI success (95%) stayed unchanged however the arterial access.

High intensity interval training: Where does HIIT fit in your exercise prescription?

Edward R. Laskowski
Mayo Clinic, USA

While not exactly new, high intensity interval training (HIIT) is emerging as an effective and time-efficient alternative to traditional endurance-based exercise programs. HIIT programs include short bursts of high-intensity activity performed at maximal effort (90 percent VO2 max), separated by short periods of low-intensity work that allow partial recovery. There is evidence that older, less active, overweight and obese individuals can benefit from HIIT training. HIIT has also been shown to be very safe and effective in patients with heart disease and Type 2 diabetes. In all of these populations, HIIT programs can produce significant benefit for the cardiovascular system and improve metabolic parameters. People also seem to like interval training better than traditional endurance exercise. Care must be taken in the design of HIIT programs to prevent injury and enhance adherence. Higher-impact, ballistic HIIT activities are not appropriate for all patient populations, especially those with a musculoskeletal injury, a poor musculoskeletal foundation, or improper movement patterns. Low-impact HIIT training options include bicycling, elliptical trainer, or water running activities to provide an aerobic exercise challenge without significant joint impact load. The intensity, frequency, and progression of each program can be tailored to a patient's diagnosis and abilities. Research has proven HIIT is a viable training modality that appears to be efficient and effective in diverse populations. HIIT can be used in both performance programs and in rehabilitation programs to maintain optimum conditioning during injury rehabilitation. Incorporating HIIT into a training program can enhance compliance and provide a time efficient, enjoyable way for many patients to reach their goals. This lecture will examine the benefits of HIIT training and discuss practical ways of incorporating HIIT into a cardiovascular training program.

Biography

Edward R. Laskowski, M.D., is the former Co-director of Mayo Clinic Sports Medicine and a Professor in the Department of Physical Medicine and Rehabilitation and the Division of Sports Medicine, Mayo Clinic Rochester. Nationally and internationally recognized for his expertise in fitness and musculoskeletal and sports medicine, Dr. Laskowski studies and promotes best practices for general fitness, injury prevention and injury rehabilitation, strength training, and stability training. Collectively, Dr. Laskowski's work has produced several hundred publication credits, including scientific papers, abstracts, books, book reviews, book chapters, and popular media and multimedia. From 2006 to 2010, he was appointed by President George W. Bush to serve as a member of the President's Council on Physical Fitness and Sports, and he received a special commendation from the Department of Health and Human Services for his service to the Council. His goal is to provide accurate, reliable exercise recommendations that people can incorporate into their lives.

Embolization of intracranial aneurysms: Novel technologies to improve vessel remodeling

Giorgio Cattaneo

University of Stuttgart, Institute of Biomedical Engineering, Germany

The rupture of an intracranial aneurysm with subsequent subarachnoid hemorrhage is a devastating event that is associated with a high mortality and disability rate. Over the years the advancement of medical imaging has enabled the increasing detection of unruptured aneurysms, which are indicated for catheter-based treatment with embolization techniques. In addition to the established coils, which are intended to trigger rapid thrombus formation within the aneurysm sac, the introduction of flow diverting implants in the last decade has shifted the focus of treatment to remodeling the vessel wall with fine-meshed scaffolds. The healing process at the base of vessel remodeling relies on a slowing down of the intra-aneurysmal blood flow and a simultaneous scaffold endothelialization, which finally leads to a definitive interruption of the intra-aneurysmal blood flow and prevention of a possible rupture. However, this sequence of events strongly depends on different factors including implant design and mechanics, surface properties, hemodynamics as well as vascular anatomy and compliance. The considerable interpatient variability makes it difficult to predict the effectiveness and safety of the treatment, in which delayed aneurysm occlusion, aneurysm recanalization, implant-induced thrombosis and stenosis up to the worst-case scenario of a device-related aneurysm rupture can occur as possible complications. Against this background, the focus of research and development is on novel implants capable to improve the vessel remodeling by firstly offering a more predictable flow diversion effect through patient-specific designs and secondly by being provided with coatings supposed to promote endothelial cell proliferation and thus tissue healing. Novel technologies for aneurysm embolization by vessel remodeling as well as approaches for their preclinical evaluation are discussed.

Biography

Giorgio Cattaneo is professor of Biomedical Engineering at the University of Stuttgart. He graduated in Mechanical Engineering at Politecnico di Milano (Italy) and worked as a research assistant at the RWTH-Aachen (Germany) where he received his PhD in 2006. Until 2019 he worked in the industry in the fields of lung assist and neurovascular intervention. As a responsible for new technologies and chief science officer at Acandis GmbH (Pforzheim) he worked on the development of catheter systems and implants for minimally invasive treatment of brain diseases. Since 2019 he has been head of the Institute for Biomedical Engineering and since 2021 dean of study in the master program "Medical Engineering" at the University of Stuttgart. His research in cardio- and neurovascular engineering focuses on understanding the processes at the interface between implant and biological environment in experimental models. He authored around 30 peer-reviewed publications and more than 100 patent applications.

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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.

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Electrocardiographic manifestations of covid-19: Effect on cardiac activation and repolarization

Avni Thakore

Department of Cardiology and Research, St. Francis Hospital, USA

Background: Prolonged QT intervals are reported in patients with COVID-19. Virus particles are present in heart tissue and abnormal troponin reported. We hypothesize that cardiac electrophysiologic abnormalities may be associated with COVID-19.

Methods: This is a retrospective study between March 15th, 2020 and May 30th, 2020 of 828 patients with COVID-19 and baseline ECG. Corrected QT (QTc) and QRS intervals were measured from ECG's performed prior to intervention or administration of QT prolonging drugs. QTc and QRS intervals were evaluated as a function of disease severity (patients admitted versus discharged; inpatients admitted to medical unit vs ICU) and cardiac involvement (troponin elevation >0•03 ng/

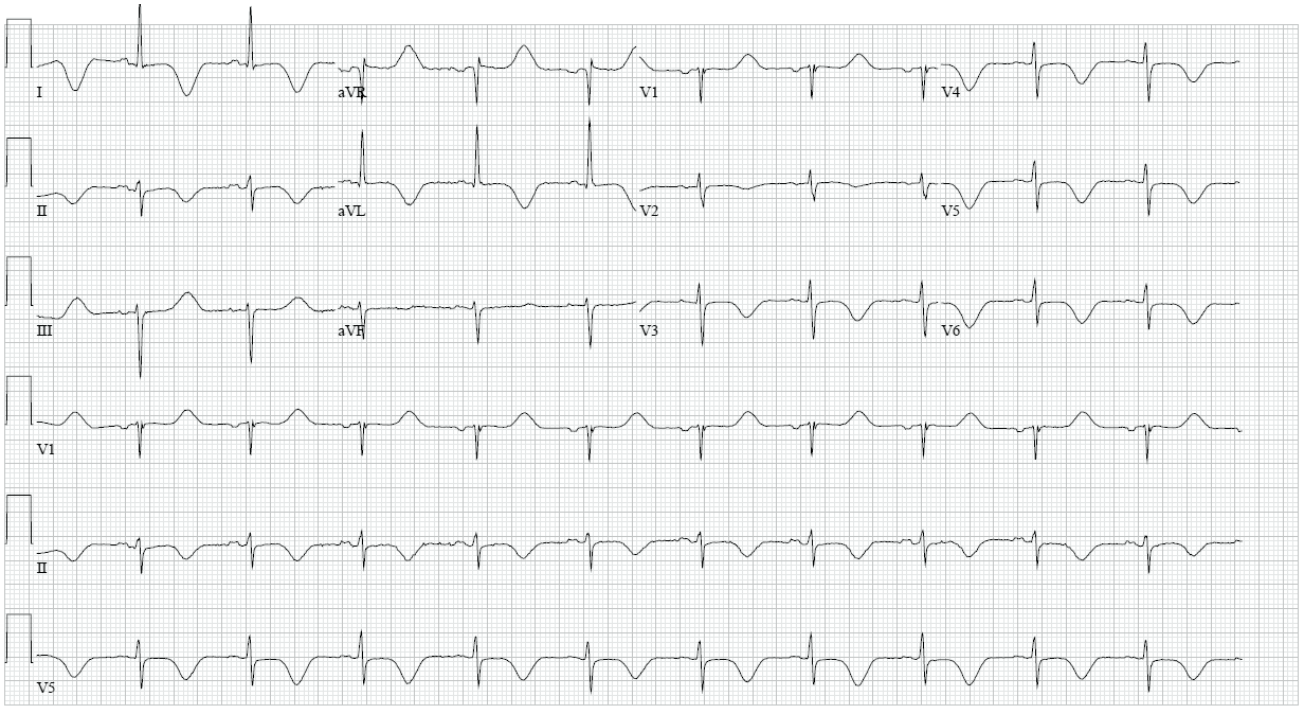

Figure: 56 year old female, history of hypertension and diabetes mellitus, admitted with cough, sore throat and fatigue. Developed an abnormal electrocardiogram and positive troponin thought to be most consistent with COVID-19 myocarditis. Echocardiogram was done showing diffuse wall motion abnormalities. Follow up electrocardiogram showed marked corrected QT prolongation and right ventricular strain pattern

ml, elevated B-natriuretic peptide (BNP) or NT pro-BNP >500 pg/ml). Multivariable analysis was used to test for significance. Odds ratios for predictors of disease severity and mortality were generated.

Findings: Baseline QTc of inpatients was prolonged compared to patients discharged (450•1±30•2 versus 423•4±21•7 msec, p<0•0001) and relative to a control group of patients with influenza (p=0.006). Inpatients with abnormal cardiac biomarkers had prolonged QTc and QRS compared to those with normal levels (troponin - QTc: 460•9±34•6 versus 445•3±26•6 msec, p<0•0001, QRS: 98•7±24•6 vs 90.5±16.9 msec, p<0•0001; BNP - QTc: 465•9±33•0 versus 446•0±26•2 msec, p<0•0001, QRS: 103•6±25•3 versus 90•6±17•6 msec, p<0•0001). Findings were confirmed with multivariable analysis (all p<0.05). QTc prolongation independently predicted mortality (8•3% for every 10 msec increase in QTc; OR 1•083, CI [1•002, 1•171], p=0•04).

Interpretation: QRS and QTc intervals are early markers for COVID-19 disease progression and mortality. ECG, a readily accessible tool, identifies cardiac involvement and may be used to predict disease course.

Biography

Avni Thakore, MD, FACC, currently is the President of the Catholic Health Medical Group. Dr. Thakore is a cardiologist and is affiliated with St. Francis Hospital in Long Island, NY.

Dr. Thakore earned her bachelor's and master's degrees at Yale University, graduating magna cum laude, and received her medical degree at Harvard Medical School. She completed her internship and residency in Internal Medicine at Massachusetts General Hospital, a fellowship in Cardiovascular Disease at Boston Medical Center and an Advanced Fellowship in Cardiovascular Imaging at Massachusetts General Hospital and Boston Medical Center.

Dr. Thakore is board certified in cardiology, nuclear cardiology, echocardiography and internal medicine. She is a fellow of the American College of Cardiology, American Medical Association, and other professional organizations.

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Chronic kidney disease-Induced arterial media calcification in rats prevented by tissue non-specific alkaline phosphatase substrate supplementation rather than inhibition of the enzyme

B. Opdebeeck[1], E. Neven[1], JL. Millan[2], AB. Pinkerton[2], PC. D'Haese[1] and **A. Verhulst[1]**

[1]Laboratory of Pathophysiology, University of Antwerp, Belgium
[2]Sanford Burnham Prebys Medical Discovery Institute, USA

Patients with chronic kidney disease (CKD) suffer from arterial media calcification and a disturbed bone metabolism. Tissue-nonspecific alkaline phosphatase (TNAP) hydrolyzes the calcification inhibitor pyrophosphate (PPi) into inorganic phosphate (Pi) and thereby stimulates arterial media calcification as well as physiological bone mineralization. This study investigates whether the TNAP inhibitor SBI-425, PPi or the combination of both inhibit arterial media calcification in an 0.75% adenine rat model of CKD. Treatments started with the induction of CKD, including (i) rats with normal renal function (control diet) treated with vehicle and CKD rats treated with either (ii) vehicle, (iii) 10 mg/kg/day SBI-425, (iv) 120 µmol/kg/day PPi and (v) 120 µmol/kg/day PPi and 10 mg/kg/day SBI-425. All CKD groups developed a stable chronic renal failure reflected by hyperphosphatemia, hypocalcemia and high serum creatinine levels. CKD induced arterial media calcification and bone metabolic defects. All treatments, except for SBI-425 alone, blocked CKD-related arterial media calcification. More important, SBI-425 alone and in combination with PPi increased osteoid area pointing to a less efficient bone mineralization. Clearly, potential side effects on bone mineralization will need to be assessed in any clinical trial aimed at modifying the Pi/PPi ratio in CKD patients who already suffer from a compromised bone status.

Biography

Britt Opdebeeck was born in Deurne, Belgium on October 30, 1992. She obtained her Ph.D degree in biomedical sciences in 2021. Her research activity focusses on the development of novel therapies against arterial media calcification, a major cardiovascular complication in elderly and patients with chronic kidney disease, osteoporosis and diabetes. A specific emphasis is put on the involvement of receptor independent (pyrophosphate) and dependent (P1 and P2 receptors) purinergic signaling pathways in in vitro and in vivo models of arterial media calcification.

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Coronary artery fistula: Association between pathway patterns, clinical features and congenital heart disease

Daniel L. Cobo[1], Fernando Batigalia[2], Ulisses A. Croti[2], Adilia M.P. Sciarra[2], Marcos H.D. Foss[2] and **Rafaela G.F. Cobo[3]**

[1]*Hospital de Base, Brazil*
[2]*Faculdade de Medicina, Brazil*
[3]*Hospital da Criança e Maternidade, Brazil*

Background: Coronary artery fistula (CAF) is a direct connection of one or more coronary arteries to cardiac chambers or a large vessel; it may be associated with congenital heart disease. Objective: To establish CAF pathway patterns from echocardiographic data and to correlate them with clinical aspects and congenital heart disease.

Methods: A total of 7.183 medical records of children under the age of five years with cardiac disease submitted to color Doppler echocardiography and Spearman's Correlation test were used to associate signs and symptoms and cardiopathy to CAF with a significance level of 5%.

Results: Twenty six children (0.0036%) presented CAF: from the right coronary artery (RCA) to the right ventricle (RV) 26.92%, from the left coronary artery (LCA) to the RV 23.08%, from the anterior interventricular

Table 2 – Correlation of the categorical variables of signs and symptoms with the types of coronary artery fistula

Signs and symptoms	Types of coronary artery fistula												TOTAL	
	RCA/RV		RCA/RA		LCA/PT		LCA/RV		AIVB/PT		AIVB/RV			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Asymptomatic	0	0	2	66.67	1	50	2	33.33	0	0	2	33.33	7	26.92
Low O_2 saturation	2	28.57	0	0	0	0	2	33.33	0	0	0	0	4	15.38
Extremities, labial, or generalized cyanosis	3	42.86	0	0	0	0	0	0	1	50	3	50	7	26.92
Hyperthermia	0	0	0	0	0	0	0	0	0	0	1	16.67	1	3.86
Dyspnea	2	28.57	1	33.33	1	50	2	33.33	1	50	0	0	7	26.92
Total	7	100	3	100	2	100	6	100	2	100	6	100	26	100
Value (p)														0.445

AIVB: anterior interventricular branch, LCA: left coronary artery, N: absolute value, PT: pulmonary trunk, RA: right atrium, RCA: right coronary artery, RV: right ventricle.

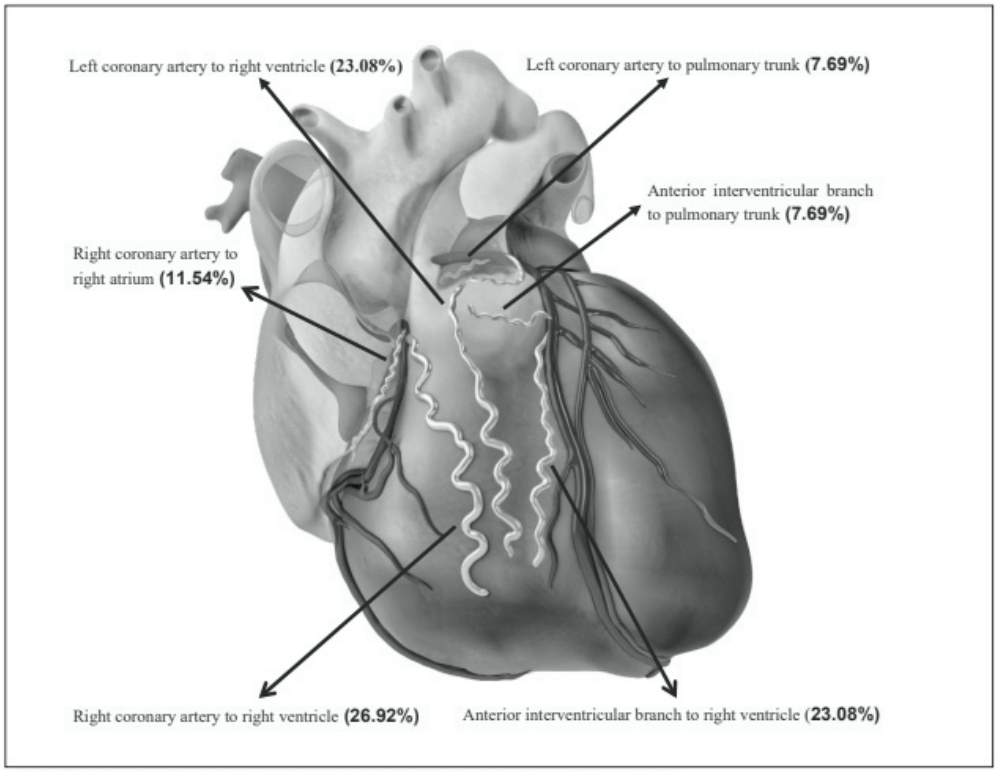

Figure 1 – *Topographic representation of coronary artery fistula pathways and their respective percentages.*

branch (AIVB) to RV 23.08%, RCA to right atrium (RA) 11.54%, LCA for pulmonary trunk (PT) 7.69% or AIVB for PT 7.69%. In 57.69% of the patients, there was a positively correlated symptomatology to CAF with p=0.445 related to dyspnea or cyanosis (53.84%); in 96.15%, congenital heart disease associated with CAF, mainly interventricular communication (IVC) or interatrial communication (IAC) in 34.62% positively correlated to CAF with p=0.295. CAF pathway was represented in three dimensions by software modeling, texturing and animation Cinema 4D R19.

Conclusion: CAF is an uncommon anatomical entity that presents a clinical picture compatible with dyspnea and cyanosis, and this is associated with congenital heart disease, mainly with IVC or IAC. According to echocardiographic analyzes, fistulas in RCA, LCA, or AIVB represent about one-third of the patients, with a priority pathway for right heart chambers.

Biography

- Physiotherapist Graduated from the University of Marília.
- Specialization in General Hospital Physiotherapy Lato Sensu by Hospital de Base and Faculty of Medicine of São José do Rio Preto.
- Improvement in Physiotherapy Applied to Neurology at the Base Hospital and Faculty of Medicine of São José do Rio Preto.
- Master in Health Sciences from the Faculty of Medicine of São José do Rio Preto.
- Physiotherapist and supervisor of the Improvement Program at the Base Hospital of São José do Rio Preto.
- Supervisor of the Multiprofessional Residency in Physical Rehabilitation at the Faculty of Medicine of São José do Rio Preto.

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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.

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.

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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

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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.

Biography

Catalina Sokoloff is an Emergency and Intensive Care Physician working at the CHUM, a tertiary academic hospital in Montreal, Canada. She has completed a 1-year Fellowship program in Clinical Simulation and Medical Education in Sydney, Australia, and is now in charge of the In Situ Simulation Committees of both services at her institution. She shares her clinical practice between the Emergency Room and the Intensive Care Unit, and she fills the rest of her time developing training programs for healthcare workers to improve patient care and cardio-pulmonary resuscitation performance. Her academic and research interests lie in the fields of Crisis Resource Management, teamwork efficiency, and optimal teaching methods.

Ivermectin exacerbates cardiac arrhythmias and hypertrophy after myocardial infarction in rats

SH. Babataheri, S. Cheraghi and **H. Soraya**

Department of Pharmacology, Urmia University of Medical Sciences, Iran

Ivermectin, an extraordinary drug, originates from a single microbe unearthed from the soil in Japan. The 2015 Nobel Prize in Physiology or Medicine was awarded to scientists who worked on the discovery and development of the ivermectin. It is a broad-spectrum anti-parasitic agent with potential antibacterial, antiviral and anti-cancer effects. There are limited studies on the effects of ivermectin on heart and cardiovascular disease, so the present study sought to determine the effects of ivermectin on myocardial infarction. In this study, 30 male Wistar rats were used in 5 groups (n=6 each group). Subcutaneous injection of isoproterenol (100 mg/kg/day) for 2 consecutive days was used for the induction of myocardial infarction. Ivermectin was injected intraperitoneally (ip) at doses of 0.2 and 2 mg/kg simultaneously with isoproterenol injection for 2 days. Then, hemodynamic, electrocardiogram (ECG), and histopathological changes, as well as cardiac hypertrophy was evaluated. Our results showed that ivermectin at both doses (0.2 and 2 mg/kg) induces ECG pattern abnormalities and arrhythmias and also increases the heart rate significantly (2 mg/kg, $P<0.05$) in comparison to the iso group (MI). Hemodynamic parameters such as mean arterial pressure reduced significantly in the MI group in comparison to the control group. Administration of ivermectin did not improve hemodynamic parameters and also histopathological changes. It was observed that the heart weight to body weight ratio (cardiac hypertrophy) was significantly higher in the MI group (4.8±0.1) compared with the control group (3.3±0.1; $P<0.001$). Ivermectin at a dose of 0.2 mg/kg significantly increased the heart weight to body weight ratio in comparison to the MI group (5.6±0.2; $P<0.05$). Our results show that ivermectin exacerbates cardiac arrhythmias and hypertrophy, so it is suggested that ivermectin should be used with greater caution in ischemic heart disease.

Biography

Shabnam Babataheri is a pharmacy student at Urmia University of Medical Sciences in Iran who has been studying since 2015. Her main focus of research is cardiovascular pharmacology as well as is interested in neuroscience and artificial intelligence. As a senior student, she leads various projects, especially in the field of cardiovascular pharmacology (including the isolated perfused heart) as well as neuropharmacology (such as behavioral studies and cerebral ischemia-reperfusion) in Dr. Soraya's lab.

Bioresorbable cardiac pacemakers

Yeonsik Choi
Northwestern University, USA

A remarkable feature of modern integrated circuit technology is its ability to operate in a stable fashion, with almost perfect reliability, without physical or chemical change. Recently developed classes of electronic materials create an opportunity to engineer the opposite outcome, in the form of transient devices that dissolve, disintegrate or otherwise disappear at triggered times or with controlled rates. Water-soluble transient electronics serve as the foundations for interesting applications in bioresorbable medical implants. In my talk, I will present the foundational concepts of bioresorbable cardiac pacemaker that overcomes key disadvantages of traditional temporary pacing devices. I will also introduce advanced implantable/wearable cardiovascular instruments: integration of bioresorbable cardiac pacemaker with skin-interfaced sensors of the electrocardiogram.

Biography

Dr. Yeonsik Choi spent 2011-2015 as a senior researcher in the TECH R&D center at LG Chem. Ltd., developing polymer-based carbon nanotube nanocomposites. As a Cambridge Trust Scholar, under Prof. Sohini Kar-Narayan, Dr. Choi completed his PhD in the Department of Materials Science and Metallurgy at the University of Cambridge (2015-2018) on novel functional polymeric nanomaterials for energy harvesting applications. Currently, he is a NIH K99 postdoctoral fellow in Rogers Research Group (Querrey Simpson Institute for Bioelectronics) at Northwestern University, working on creating bioresorbable polymer-based electrotherapeutic implants.

TRA-PCI: How to Assess « Live » Guiding Catheters Performances and results of the methodology applied to VD R/VD L guide catheters

Vincent Dangoisse, Francesco Burzotta, Sasko Kedev and **Benoit Bihin**

CHAUR- CIUSSS-MCQ, Canada

In one multicenter and several single-center studies involving 202 cases, new shapes of transradial access PCI guide catheters were tested following a standardized original protocol.

In order to add support and stability, a large curve was added to the main body of usual GC at the level the catheter is sitting in the subclavian/ innominate artery. Operators had to score live the catheter's performances in terms of ease of manipulation (catheter positioning), degree of support and degree of safety. Operators must use an original score describing the PCI attempt technical complexity. New GC shapes were tested for Left and Right Coronary Artery and Saphenous Vein Graft PCIs, with right or left TRA. The new shapes performed adequately, including in 5F sizing. Discussion will focus on the score of technical PCI complexity and the possible ways to introduce such new shapes of GC in daily practice.

	VDR Right TRA RCA-PCI. 6F	VDL Right TRA LCA-PCI. 5F	VDL Left TRA RCA/SVG-PCI 5F
N	90	70	42
F (%)	9 (10%)	16 (23%)	11 (26%)
Age	62.6 ± 12	66.2 ± 13	70.8 ± 12
Complexity Score (mean & std dev)	5.56 ± 3.5	5.39 ± 2.7	7.48 ± 2.7
N easy (%) (score ≤ 3)	34 (38%)	19 (27%)	2 (5%)
N intermediate (%) (score 4-6)	22 (24%)	27 (38.5%)	11 (26%)
N difficult (%) (score ≥ 7)	34 (38%)	24 (34%)	29 (69%)
Succes (%)	90 (100%)	66 (94.3%)**	36 (86%)**
Fluoroscopy time (mean & std dev)	14.41 ± 10	13.94 ± 12	20.95 ± 12
> 1 Guide Catheter	13 (14.4%)	11 (15.7%)	12 (28.6%)
PCI 2 Vx	12 (13%)	10 (14%)	10 (24%)
Score manip	6.8	7.0	5.8
Score support	8.6	8.2	7.2

Biodegradable iron-based materials—what was done and what more can be done?

A. Radtke and **G. Gąsior**
Nicolaus Copernicus University in Toruń, Poland

Iron, while attracting less attention than magnesium and zinc, is still one of the best candidates for biodegradable metal stents thanks its biocompatibility, great elastic moduli and high strength. Due to the low corrosion rate, and thus slow biodegradation, iron stents have still not been put into use. While these problems have still not been fully resolved, many studies have been published that propose different approaches to the issues. The brief overview presentation will summarise the latest developments in the field of biodegradable iron-based stents and presents some techniques that can accelerate their biocorrosion rate. Basic data related to iron metabolism and its biocompatibility, the mechanism of the corrosion process, as well as a critical look at the rate of degradation of iron-based systems obtained by several different methods will be included. All the data will illustrate as the title says, what was done within the topic of biodegradable iron-based materials and what more can be done.

Biography

Aleksandra Radtke - Associate Professor in the Department of Inorganic and Coordination Chemistry, Faculty of Chemistry, Nicolaus Copernicus University in Toruń (Poland). Her scientific topics include research in the field of modern biomaterials, bioactive and photocatalytically active nanocoatings based on titanium dioxide, produced on the surfaces of titanium and its alloys, in terms of their use in bone implantology and biodegradable systems based on iron for the needs of modern cardiology and orthopedics. In addition to strictly scientific work, she is interested in the broadly understood commercialization of knowledge and technology as well as implementation aspects related to the introduction of medical devices to the market. In 2015, together with a group of specialists in the field of chemistry, medicine and engineering of additive technologies, she founded a spin-off Nano-implant, in which R&D works are carried out on innovative coatings for the needs of modern implantology; CEO of Nano-implant Ltd..

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Evaluation of the pharmacologic treatment of covid-19 pandemic in Iraq

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[6]College of Pharmacy Knowledge University Erbil, Iraq

The impact of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2, or COVID-19) has been detrimental to humanhealth, economy, and wellbeing. Little information is known on the epidemiology and outcome of the disease in a localizedcommunity within Iraq. We carried out an audit of confirmed cases of COVID-19 in the Kirkuk General Hospital. Data from the20th of June to the 31st of July, 2020, were collected and analyzed. Suspected COVID-19 cases were confirmed by real-timepolymerase chain reaction (RT-PCR). Data on clinical symptoms, age, and treatment protocols were analyzed concerning theoutcome. Our study included a total of 200 individual confirmed COVID-19 patients. The majority of cases 55% (n=110)displayed severe symptoms, while 32.5% (65 cases) and 12.5% (25 cases) of patients displayed moderate to mild symptoms,respectively. The rate of death in the referred patients was 5%. Most patients admitted to the hospital for treatment recovered andwere discharged from the hospital within 5 to 30 days post-diagnosis. Statistical analysis revealed that patients treated withoseltamivir, hydroxychloroquine, and azithromycin in combination with vitamins C and D have shorter hospital stay compared topatients receiving the same therapeutic protocol in combination with steroids. Moreover, a higher mortality rate (4.5%) wasobserved in patients treated with oseltamivir, hydroxychloroquine, ceftriaxone, and steroids. This study highlights a significantrelationship between age, secondary ailments, and the choice of medications as simple predictors of the outcome of COVID-19.

Biography

I am Assist. Prof. Nohad A. AlOmari/Knowledge University / College of Pharmacy / Erbil /KGR/ IRAQ. I'm working in the field of pharmaceutical sciences and the education sector for about three decades with a proven record, a professional history, curriculum vitae full of accomplishments, patents, and national and international scientific awards. Strong and clear vision to find realistic solutions to various challenges in the field of my passion for the field of pharmaceutical education and my love to raise the level of my students in the primary and higher studies.

Photodynamic therapy - in vitro and in vivo bladder cancer models by using novel photosensitizers

Odrun A. Gederaas[1], A. Høgset[2] and **M. Lindgren[1]**
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[2]PCI Biotech AS, Norway

Photodynamic therapy (PDT) is an effective treatment for both malignant and non-malignant diseases, and new photosensitizers / chromophores are studied by confocal imaging and biological techniques determining cell survival with/without light. During PDT the activated PS transfers energy to nearby oxygen molecules, generating singlet oxygen (1O2) resulting in oxidative stress (ROS), which further elicit cell death by necrosis and apoptosis. Protoporphyrin IX (PpIX), is an efficient and widely used PS for bladder superficial bladder cancer treatment; either endogenously produced in the cancer cells by e. g. aminolaevulinic acid (ALA) or exogenously added as e. g. hexyl-ALA. The effects in vitro and in vivo are present by using an orthotopic rat bladder cancer model; also included photochemical internalization (PCI). This is a new strategy for local enhancement of various types of drug molecules by employing a photosensitising compound and illumination of a diseased area in the body. The possibility of using PCI to enhance effects of the cytotoxic drug bleomycin is investigated, together with photophysical determinations and outlines of a treatment for intravesical therapy of bladder cancer. In vitro experiments indicate that employment of PCI technology using the novel photosensitizer TPCS2a® enhance cytotoxic effects of bleomycin in bladder cancer cells. Furthermore, experiments in an orthotopic in vivo bladder cancer model show effective reduction in both necrotic area and bladder weight after TPCS2a based photodynamic therapy (PDT). The tumor selectivity and PDT effects may be sufficient to destroy tumors without damaging detrusor muscle layers. Our results present a possible new treatment strategy for non-muscle invasive bladder cancer, with intravesical instillation of photosensitizer and bleomycin followed by illumination through an optic fiber by using a catheter.

Biography

Odrun A. Gederaas, Associate Professor/Researcher obtained her Dr. Philos. degree in medical technology (2001), Norwegian University of Science and Technology (NTNU), in collaboration with University of Leiden (The Netherlands) and the Norwegian Radium Hospital, Norway. The interdisciplinary fields in photodynamic therapy (PDT) were developed during her post-doctoral fellows (2002-2006) including research stays in USA (Ohio and Irvine) and Austria (Salzburg). Novel technologies, animal models, patent and prizes have been established in collaboration with pharmacology companies. Her research group in PDT (2009-2017) were connected to fields of analytical chemistry, cellular biology, and human treatments. Co-author of about 50 publications.

Role of artificial intelligence techniques in healthcare

Surbhi Gupta

Model Institute of Engineering and Technology, India

Artificial intelligence (AI) is gradually changing medical practice. With recent progress in digitized data acquisition, machine learning, and computing infrastructure, AI applications are expanding into areas previously thought to be only the province of human experts. We summarize the latest developments of applications of AI in biomedicine, including disease diagnostics, living assistance, biomedical information processing, and biomedical research. This talk aims to keep track of new scientific accomplishments, understand the availability of technologies, and appreciate the tremendous potential of AI in biomedicine. It can be asserted that the application of AI in biomedicine is still in its early stage, just like AI itself. New progress and breakthroughs will continue to push the frontier and widen the scope of AI applications, and fast developments are envisioned soon. This talk aims to:

- Outline recent breakthroughs in AI technologies and their biomedical applications
- Identify the challenges for further progress in medical AI systems
- Summarize AI's implications in healthcare.

Biography

Dr. Surbhi Gupta has done her Ph.D. from School of Computer Science and Engineering, SMVDU Katra, J & K, India. She has done Masters of Computer Applications from the Department of Computer Science and Applications, Jammu University, J&K in 2017. She has written research papers in reputed journals. She has IEEE AND ACM membership. She has bagged best research paper certificates in international Conferences. She has served as a reviewer for many reputed Scopus/SCI/SCIE-indexed journals. She has been granted Indian Patent for novelty in designing wearable mouse. She has also served as session chair in International conferences. Her research areas include Artificial Intelligence, Bioinformatics and Computational biology, Machine learning, Data mining.

A non-invasive approach to identify insulin resistance with triglycerides and HDL-c ratio using machine learning

Alok Aggarwal and **Madam Chakradar**
University of Petroleum & Energy Studies, India

Identification and quantification of insulin resistance require specific blood test which is complex, time-consuming, and much more invasive, making it difficult to track the changes daily. With the advancement in machine learning approaches, identification of insulin resistance can be carried out without clinical processes. In this work, insulin resistance is identified for individuals with triglycerides and HDL-c ratio using non-invasive techniques employing machine learning approaches. Eighteen parameters are used for identification purposes like age, sex, waist size, height, etc., and combinations of these parameters. Experiments are conducted over the CALERIE dataset. Each output of the attribute selection system is modeled over distinct calculations like logistic regression, CARTs, SVM, LDA, KNN, extra trees classifier. The proposed work is validated with a stratified cross-validation test. Results show that KNN and CatBoost show the best results with an accuracy of 74% and 73% respectively and 1% variance compared to 66% with Bernardini et al. and Stawiski et al. and 83% with Farran et al. With the proposed approach an individual can predict the insulin resistance and hence prospective chances of diabetes might be tracked daily using non-clinical approaches. While the same is not practically possible with clinical processes daily.

Biography

Earned PhD degree in Mobile Computing area from IIT Roorkee, INDIA in 2010, Master's degree in Computer Science & Engineering in 2001 and Bachelor's degree in Computer Science in 1995. Contributing over 23+ years in Teaching (CSE & IT), as well as S/W Development. Currently spearheading efforts as Professor (CSE), with University of Petroleum & Energy Studies, Dehradun (UK) INDIA. Earlier worked as Professor & Director with JP Group of Institutions, Professor & Associate Dean with Chandigarh University, Mohali, Punjab and contributed to organizational growth as administrator along with as academician. Current research interests include Machine learning, AI, power control management, MANET & wireless sensor networks. Published widely in the field of Internet of Things, Machine Learning, Computer Networks, MANET & wireless sensor network with 250+ Research Papers, 5 Patents, 5 Books, 4 Book Chapters. Supervised four PhD students, about 50 masters' dissertations and 100+ undergraduate projects.

SCIENTIFIC ABSTRACTS

DAY 2

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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]**

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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.

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The effect of smoking on blood pressure profile in patients with hypertension

Boiko O. and **Rodionova V.**

Dnipro State Medical University, Ukraine

Hypertension remains one of the most pressing, complex and complex medical and social problems of modern cardiology. AH is a common chronic disease that occupies a leading place in the structure of disability, disability and mortality and is the number one problem in modern cardiology. According to the World Health Organization, 17.5 million people die each year from cardiovascular disease worldwide, a third of all deaths. Of these, 9.4 million are complications associated with high blood pressure. Smoking is one of the main modified risk factors for cardiovascular disease, which has a significant impact on mortality.

The Aim: To determine the effect of smoking on the blood pressure profile in patients with arterial hypertension.

Materials and methods: A prospective study included 53 stable patients with arterial hypertension stage II (LVH) grade 1-3. All patients were divided into two groups depending on the status of smoking: group I consisted of 28 non-smoking patients with a mean age of 56.4 (2.4) years, women were 17 and men 11, group II consisted of 25 middle-aged smokers. which was -55.8 (2.7) years, of which women were 11 and 13 men (p 0.05). By age and sex, the two groups were comparable (p> 0.05). Patients underwent studies of the daily ambulatory profile of blood pressure. For statistical processing of the received data received after performance of research, methods of parametric and nonparametric statistics (the program Statistica 10.0) were used.

Results: Systolic blood pressure (CAT) in group I was 124.0 (115.0; 135.0) mm. rt. Art., in group II - 137.0 (130.0; 140.5) mm. rt. Art. (p = 0.04), diastolic blood pressure (DBP) in group I was 81.0 (77.0; 87.0) mm rt. Art., and in group II - 85.0 (81.0; 88.0) mm. rt. st (p> 0.05). Pulse blood pressure (PAT) in group I was 45.0 (39.0; 52.0) mm. rt. Art., in group II - 52.0 (46.5; 55.5) mm. rt. st (p = 0.03). The artery stiffness index (AASI) in group I was 0.34 (0.2; 0.45), in group II - 0.45 (0.39; 0.52) (p = 0.03). The CAT load (day) in group I was 32.7 (11.6; 69.7)%, in group II - 70.2 (52.9; 87.9)% (p = 0.04). The area under the CAT (day) schedule in group I was 3.0 (1.0; 7.6), and in group II - 13.0 (6.6; 13.4) (p = 0.03).

Conclusions: Hypertension in smokers has a more severe course, leading to increased stiffness of the arterial wall, which is a prognostic predictor of cardiovascular complications.

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Switch to SGLT2 inhibitors and improved endothelial function in diabetic patients with chronic heart failure

Pasquale Maiellaro[3], Michele Correale[1], Pietro Mazzeo[2], Adriana Mallardi[2], Alessandra Leopizzi[2], Lucia Tricarico[2], Martino Fortunato[2], Michele Magnesa[2], Salvatore Tucci[2], Giuseppe Pastore[2], Olga Lamacchia[2], Massimo Iacoviello[2], Matteo Di Biase[2] and **Natale Daniele Brunetti[2]**

[1]Ospedali Riuniti University Hospital, Italy
[2]Department of Medical and Surgical Sciences, University of Foggia, Italy
[3]Department of Medical and Surgical Sciences, University of Foggia, Italy

The use of sodium-glucose-cotransporter-type-2 inhibitors (SGLT2i) was associated in previous studies with an improved vascular function in non-human experimental models. We therefore sought to evaluate possible changes in endothelial function assessed by flow-mediated dilation (FMD) in patients with chronic heart failure (CHF) and type-2 diabetes mellitus (T2DM), switching from other oral hypoglycemic agents to SGLT2i in an observational study.

Methods: Twenty-two consecutive outpatients with CHF and T2DM were enrolled after switching to SGLT2i therapy and compared with 23 consecutive controls from the same registry comparable for principal clinical characteristics. In all patients, endothelial function was assessed by FMD at baseline and after 3 months of follow-up.

Results: Three months of therapy with SGLT2i were associated with a statistically significant improvement in endothelial function (19.0 ± 5.7% vs 8.5 ± 4.1%, $p < 0.0001$); baseline levels of FMD were comparable between groups.Therapy with SGLT2i was significantly associated to improved FMD levels even at multivariable stepwise regression analysis ($p < 0.001$).

Conclusions: Switch to SGLT2i in patients with CHF and T2DM was associated in an observational non-randomized study with an improved endothelial function.

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

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[2]Consultation and Diagnostic Center, Vilnius District Central Polyclinic, Lithuania
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[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.

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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.

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