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VIRTUAL EVENT

3rd Global Conclave on

Advanced Cardiology and Cardiovascular Innovations

June 28, 2024

PEERS ALLEY MEDIA

PROGRAM-AT-A-GLANCE >>

YOUR FIRST CHOICE FOR RESEARCH INGENUITY

ADV. CARDIOLOGY 2024

2024 JUNE 28

Scientific Program

BST - British Summer Time

09:00-09:30	**Opening Ceremony**

Topics: Clinical Cardiology | Innovations in Cardiovascular Surgery | Heart Diseases | Hypertension | Electrocardiography | Cardio-Oncology | Precision Medicine in Cardiology | Interventional Cardiology | Electrocardiography | Cardio-Oncology | Cardiac Nursing | Pediatric Cardiology | Cardiac Surgery | Cardiovascular Disease | Atherosclerosis | Sports Cardiology | Cardiac Imaging

Distinguished Speaker Talks

09:30-09:50	**Title: Ageing vasculature, ageing brain and the cause of dementias, including Alzheimer's** **Jonathan Stone,** *University of Sydney, Australia*
09:50-10:10	**Title: Deep learning-based heart disease diagnosis** **Manish Gupta,** *University of Technology Sydney, Australia*
10:10-10:30	**Title: Tissue factor (TF) and vascular endogenous growth factor (VEGF) in detecting thromboembolic complications in diabetic atherosclerotic patients** **Tijen Alkan Bozkaya,** *Koc University Hospital, Turkey*
10:30-10:50	**Title: Enhancing X-ray visibility of biodegradable stents through radioopaque microparticle reinforcement** **Omer Burak Istanbullu,** *Eskisehir Osmangazi University, Turkey*
10:50-11:10	**Title: How are troponins affected by preanalytical variations?** **Pinar Eker,** *Maltepe University, Turkey"*

Refreshment Break 11:10-11:20

11:20-11:40	**Title: Relationship between temporal intervals of left ventricular contractile activity, biomarkers of myocardial damage, and coronary artery atherosclerosis in patients with non-st-segment elevation acute coronary syndrome** **Feruza Bekmetova,** *Republican Specialized Scientific-Practical Medical Center of Cardiology, Uzbekistan*

11:40-12:00	**Title: Heart pathology in Tick-Borne Borrelioses in Kazakhstan** **Andrey Mikhailovich Dmitrovskiy,** *Kazakh-Russian Medical University, Kazakhstan*
12:00-12:20	**Title: Judgmental or Non-Judgmental debriefing approach in emergency cardiology education** **Mouzarou Angeliki,** *State Health Services Organization, Cyprus*
12:20-12:40	**Title: Graphic presentations of heart sound signals - Auscultation assistant diagnosis tool** **Bozo Tomas,** *University of Mostar, Bosnia and Herzegovina*
12:40-13:00	**Title: Percentage weight loss and World Health Organization-Five Wellbeing Index (WHO-5) in patients having bariatric surgery** **Heshma R Alruwaily,** *Conway Institute, University College Dublin, Ireland*
Lunch Break 13:00-13:40	
13:40-14:00	**Title: Principles and standards for designing and managing integrable and interoperable transformed health ecosystems** **Bernd Blobel,** *University of Regensburg, Germany*
14:00-14:20	**Title: How does a nursing crisis management intervention impact relatives' experiences in two trauma centres?** **Mia Blaabjerg,** *Aarhus University, Denmark*
14:20-14:40	**Title: Superiority of 3D Planimetry over pressure half-time to evaluate mitral valve area after percutaneous edge-to-edge mitral valve repair** **Miriam Estrada Ledesma,** *Hospital Clínico San Carlos de Madrid, Spain*
14:40-15:00	**Title: Omics strategies to identify senescent subpopulations in atherosclerosis** **Allison B Herman,** *National Institute on Aging, USA*
15:00-15:20	**Title: Independent research – Possibilities remain** **Roger H Coletti,** *Interventional Health, USA*
15:20-15:40	**Title: High prevalence of Renal Salt Wasting (RSW), Identification of novel protein in RSW to simplify diagnosis of RSW and Introducing new syndrome of RSW In Alzheimer's Disease** **John K Maesaka,** *NYU Grossman Long Island School of Medicine, USA*
15:40-16:00	**Title: Biomarkers and mechanisms associated with Cancer-induced Cardiac Cachexia: A systematic review** **Lisa Anne Bagnall,** *James A. Haley Veterans Hospital, USA*

16:00-16:20	**Title: Evaluation of the correlation between obesity and development of osteoporosis, Increasing the risk of fractures: A systematic review with meta-analysis** **Bianca Gabriella de Oliveira,** *Universidade Salvador, Brazil*

Closing Remarks

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ADV. CARDIOLOGY 2024

Ageing vasculature, ageing brain and the cause of dementias, including Alzheimer's

Jonathan Stone

University of Sydney, Australia

Dementia is experienced as the failing of the brain in an otherwise healthy body; its cause is still debated. In this talk I bring together evidence that several dementias (pugilistica, chronic traumatic encephalopathy, traumatic brain injury, Alzheimer's) share the common feature of widespread capillary haemorrhage, senile plaques forming – in late stage in huge numbers – at the sites of these small (~ 100μm dia) bleeds. These microhaemorrhages occur with increasing frequency with age, because hardening of the great arteries increases pulse pressure, and the rate of their occurrence is increased by external trauma to the head (in boxers, footballers, combat veterans, skeleton sledders), causing the dementia to appear earlier in life. Conversely, the onset of dementia is delayed by exercise, saunas, a Mediterranean diet, weight control – anything that is good for the vasculature. When a microhaemorrhage occurs, four factors kill brain cells – hypoxia; the neurotoxicity of haemoglobin and its breakdown products, the excitotoxicity of glutamate entering the neuropil and immune-mediated cytotoxicity evoked by opportunistic microbes entering that patch of brain, and infecting brain cells, which are then attacked by killer T-cells. In this view, the hypoxia-inducible molecules haptoglobin, haemopexin and Aβ are expressed at sites of microhaemorrhage as 'first-responders' to mitigate the toxicities mentioned above. This view, if accepted, changes understanding of the role of Aβ in the ageing brain; implies that dementia is a fate for each of us (but deferrable), not a curable disease; and adds the suppression of chronic pathogens (*like H. zoster*) and acquired resilience to the list of ways to defer dementia.

Biography

JS graduated with a BMedSci degree from the Faculty of Medicine, University of Sydney, in 1962, with a PhD in 1966 and a DSc in 1977. After postdoctoral years in Israel, the USA and Germany, he returned to a Research Fellowship in Neuroscience at the ANU, with P.O. Bishop, then a decade in the School of Anatomy at the University of New South Wales. He served as Challis Professor of Anatomy at the University of Sydney (1987 – 2003), then Director of the Research School of Biological Sciences at the ANU (2003-7), then as Professor of Retinal and Cerebral Neurobi-

ology, in the discipline of Physiology, at the University of Sydney. He retired from that position in 2019 and is now Professor Emeritus. While at Sydney he served as Managing Trustee of the Sir Zelman Cowen Universities Fund and Executive Director of the Bosch Institute.

His current research concerns the biology of the ageing brain, with an emphasis on the mechanisms that maintain the brain's stability in the face of the stresses in ageing, and which break down in the pathogenesis of dementia. In recent years, with colleagues, he has published extensively on the causes and mitigation of cerebral degenerations, identifying the role of vascular ageing in the development of age-related dementia (Alzheimer's disease) and developing the concept of acquired resilience in body tissues. He continues active scholarship.

Deep learning-based heart disease diagnosis

Manish Gupta[1,2,3]

[1]University of Technology Sydney, Australia
[2]Torrens University, Adelaide Campus, Australia
[3]Research and Development Division, Arogyapandit Private Limited, India

One of the main causes of death in humans is heart disease. Numerous people lose their lives to this illness every year. Utilizing image classification can enhance the outcomes even more when combined with the diverse technologies and methods created for heart disease detection. These days, deep learning is an important area of concern. Deep learning has made it simpler and more accurate to identify patterns in images than it was with conventional image classification techniques. The goal of this work is to detect heart disease using image classification and a deep learning technique. 1050 patients from the public UCI heart disease dataset are used to assess the suggested model. Several performance metrics, including accuracy, precision, recall, and the F1 measure, were used to evaluate the effectiveness of the suggested model. Our model produced a validation accuracy of 92%.

Biography

Dr. Manish Gupta is a researcher and academic lecture at the Faculty of Engineering and Information Technology at University of Technology, Sydney, Australia. He is also working at Centre of Advance Research of Artificial Intelligence, Torrens University, Australia. Dr. Manish earned his Ph.D. degree from India's prestigious Jawaharlal Nehru University in 2019. Thereafter, Dr. Gupta joined the Gwangju Institute of Science and Technology in Gwangju, South Korea as Postdoctoral Researcher in development of portable biosensors using radio frequency waves. He also worked as postdoctoral researcher in the Department of Radiology, Perelman School of Medicine, University of Pennsylvania (UPENN), and Philadelphia, USA for early diagnosis of osteoarthritis, heart disease and brain tumour in human using cutting edge advance Machine Learning, Deep Learning, and AI. In addition, Dr. Manish is the Head of Innovation and R&D division at a digital healthcare start-up in India i.e. (ArogyaPandit Private Limited, India). He holds 2 patents and has published 60 research papers in prestigious SCI/SCIE reputed journals. He also published various papers in international conferences/book chapters.

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Tissue factor (TF) and vascular endogenous growth factor (VEGF) in detecting thromboembolic complications in diabetic atherosclerotic patients

Tijen Alkan Bozkaya[1,2,3], Ateş Ş[1], Ünsal Veli Üstündağ[4], Çağrı Çakıcı[4], İlknur Keskin[5], Pakize Yiğit[6], Ahmet Yiğitbaşı[3] and **Nesrin Emekli[4]**

[1]Department of Cardiovascular Surgery, Koç University Hospital, Turkey
[2]Department of Cardiovascular Surgery, Yeditepe University Hospital, Turkey
[3]Biochemistry program of Graduate School of Health Sciences, İstanbul Medipol University, Turkey
[4]Departmant of Biochemistry, Istanbul Medipol University, Turkey
[5]Department of Histology and Embryology, Istanbul Medipol University, Turkey
[6]Department of Biostatistics and Medical Informatics, Istanbul Medipol University, Turkey

Objectives: Atherosclerosis, which is one of the leading causes of death all over the world, can create major or minor thromboembolic complications with the exponentially increasing diabetic status. Despite all the studies, the mechanism by which endothelial damage in atherosclerosis is triggered with diabetic setting is still not fully understood.

Patients and Methods: In this study, tissue factor (TF), which is thought to act together in the formation of VEGF and coagulopathy in diabetic atherosclerotic patients, may be an important indicator in this regard, a total of 100 cases who were undergone OPCAB (off-pump coronary artery bypass) which were at same risk group examined by dividing into diabetes status. Early postoperative process and biochemical parameters analyzed in terms of TF and VEGF-A levels measured before and after the operation.

Results: TF and VEGF expression of the T1DM group were statistically high compared to non-diabetics. Significantly longer hospital stays with changes in TF and VEGF were found in patients in the diabetic group compared to pre- and postoperatively, respectively; TF (95% CI: 0.879-0.992; p=0.025), VEGF (95% CI: 0.964-0.991; p=0.001) and hospital stay (95% CI: 2.24-10.491; p=0.0001).

Preoperatively measured CT (carotid intima-media thickness) was higher in diabetics and was significantly associated with AF (r = 0.873).

Surgical team and protocols were common and OPCAB procedures were routinely applied to all patients in our clinic. No minor or major events were observed in any of the cases.

Conclusion: TF and VEGF values in patients with diabetic atherosclerosis may be important in the early detection of thromboembolic complications.

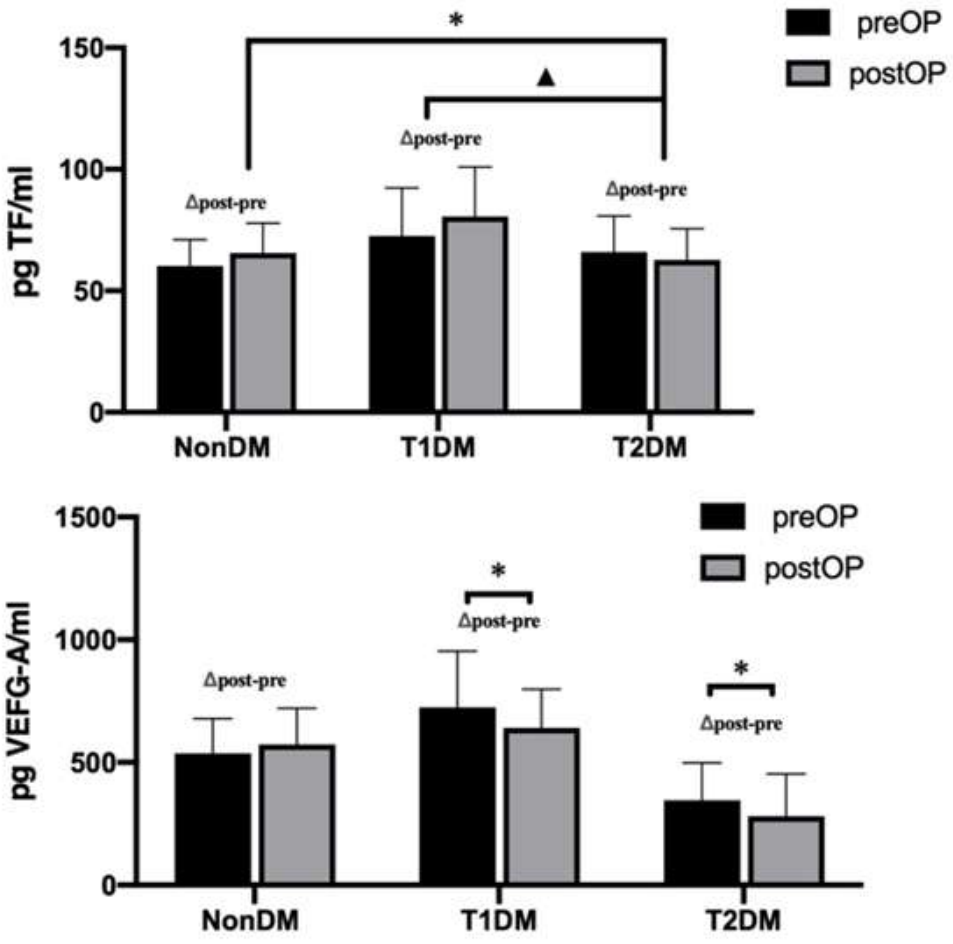

Figure 2. TF and VEGF-A levels in diabetic and non-diabetic patients with atherosclerosis. Data are expressed as mean ± standard deviation. *p<0.001: Significantly different from the NonDM group, ▲p<0.001: Significantly different from the IDDM group. ns=non-significant mean comparison, n=significant mean comparison.

Biography

Prof. Tijen Alkan Bozkaya, M.D.*, PhD**.
İstanbul, Yeditepe University, Dept of Cardiovascular Surgery*
Cardiovascular Surgeon and Pediatric Heart Surgeon

EXPERIENCE: from 1999 to date in Cardiovascular Surgery

SPECIALTY AREAS: Cardiovascular Surgery and Pediatric Heart Surgeon

EDUCATION:

1992 Istanbul University, Istanbul Faculty of Medicine

1999 Cardiovascular Surgery residency training programme at Istanbul University, The Institute of Cardiology

2000-2009 American Hospital, Dept of Cardiovascular Surgery as a staff surgeon

2009-2011 Istanbul Bilim University, Dept of Cardiovascular Surgery as a Asist. Prof.

2011 Upper-specialty on Pediatric Cardiac Surgery

2012-2015 İstanbul Medipol University, Dept of Cardiovasc Surgery as a Asist. Prof.

2015 American Hospital, Dept of Cardiovascular Surgery as a staff surgeon

2016 Apr, Associate Professor at Koç University Hospital, Dept of Cardiovascular Surgery

2016 to March 2021 at Koç University Hospital, Dept of Cardiovascular Surgery as a Assoc. Professor

2016-2021 Biochemistry PhD programme at Istanbul Medipol University – PhD** degree with thesis about Atherosclerosis Biochemistry.

October 2022, Yeditepe University Hospital, Dept of Cardiovascular Surgery as a Professor, M.D., PhD.

Enhancing X-ray visibility of biodegradable stents through radioopaque microparticle reinforcement

O. Burak Istanbullu

Department of Biomedical Engineering, Eskisehir Osmangazi University, Turkey

Intravascular stents play a critical role in the treatment of occluded vessels. The stents are transported through the vessels and placed to the target region by a guide catheter precisely utilizing an X-ray based imaging device. Conventional metallic stents and drug-eluting stents are capable of accurate placement due to their inherent radio-opaque properties. However, concerns about corrosion and in-stent restenosis associated with permanent metallic stents, as well as the thrombosis risks tied to drug-eluting stents, have prompted the development of biodegradable stents recently. Nevertheless, since biodegradable stents are predominantly composed of polymer-based materials, achieving precise positioning and placement using medical imaging devices poses a significant challenge.

This study employs computational analysis to demonstrate that the incorporation of radioopaque microparticle reinforcement into biodegradable polymer-based stents can enhance their visibility through X-ray angiography devices and improve their distinguishability from surrounding biological tissues. The solid models of biodegradable intravascular stents and their radio-opaque microparticle-reinforced forms were designed. These stents were placed within a vascular pathway, including the blood flow and plaque layer within the vessel wall. The X-ray mass attenuation coefficients were individually assigned to each component within the models, as indicated in Table-1.

Table 1. X-ray mass attenuation coefficients for each component in the designed model

Tissue/Modelled Structure		Mass Attenuation Coefficient (μ_{en}/ρ)
Blood-flow		0.141
Intravascular Stent	Biodegradable Polymer	0.059
	Radio-opaque Microparticle	13.22

Plaque Layer		0.0862
Vessel Wall		0.138
Surrounding Muscle Tissue		0.137

Sinograms for the models were generated by computing the Radon transform of each model in MATLAB. Subsequently, the estimated X-ray images of both pure and microparticle-reinforced biodegradable stents were derived by applying the inverse Radon transform to the sinograms. The cross-sectional solid models, sinograms, and estimated X-ray images for each model are presented in Figure-1.

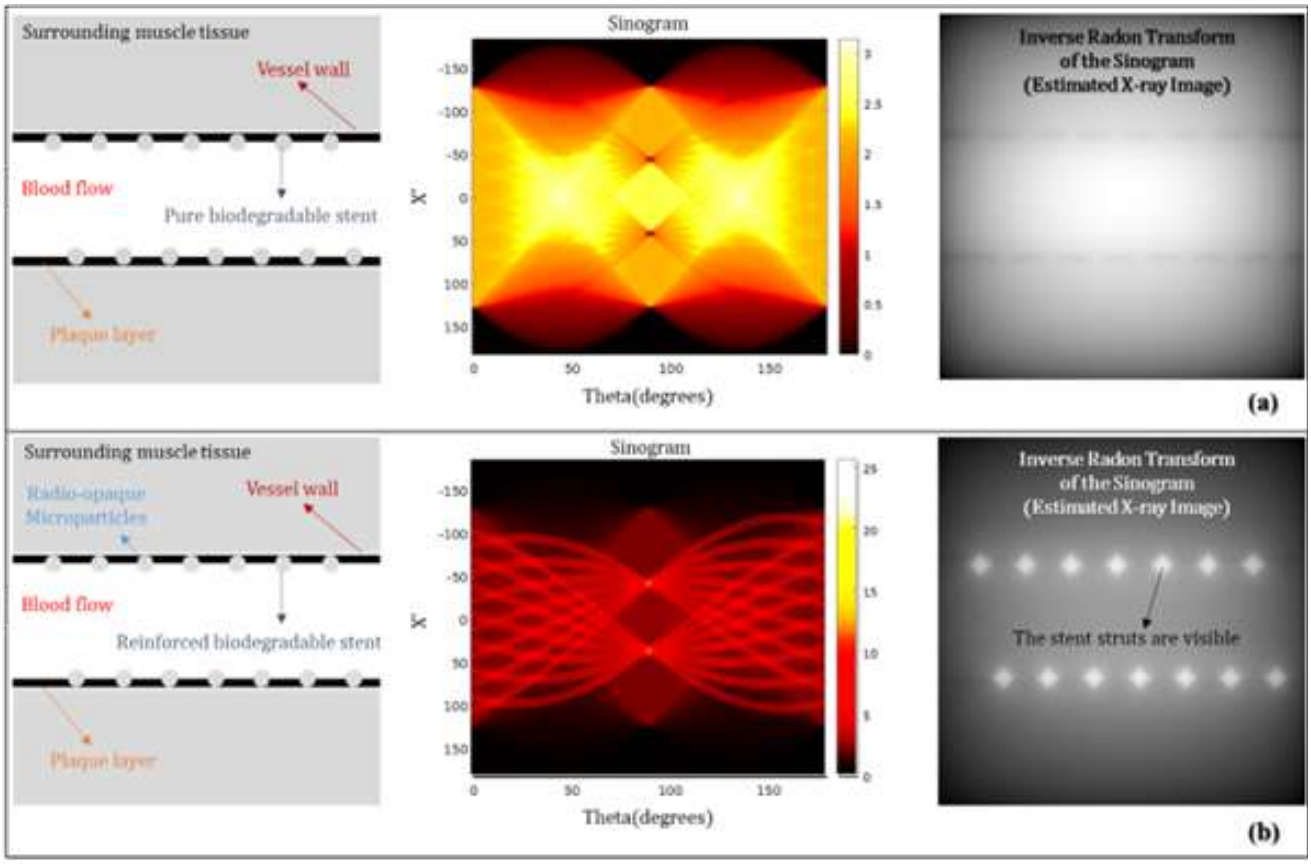

Figure 1. The solid model and obtained sinogram, and inverse radon transform for X-ray image estimation of pure biodegradable stent (a) and radio-opaque microparticle reinforced biodegradable stent (b)

The obtained results indicate that the incorporation of radio-opaque microparticle reinforcement significantly enhances stent visualization and distinguishes it from surrounding biological tissues. It can be concluded that this study presents a promising solution to address the challenge of precise positioning in biodegradable stents.

Biography

Omer Burak Istanbullu is an Assistant Professor and department vice chair of Biomedical Engineering Department at Eskisehir Osmangazi University. After studying in the field of biomedical engineering and specializing on tumor segmentation from magnetic resonance images at Erciyes University, he pursued a Master's program at Istanbul Technical University and Erciyes University with the scope of biomaterial-medical imaging device compatibility. Afterwards, he received a Ph.D. from Erciyes University, in the field of biocompatibility improvement of implantable biomaterials using biomimetic surface modification approaches. Dr. Istanbullu is experienced in the development and improvement of biocompatible materials using biomimetics, combining the computational methods and experimental analysis to achieve the most effective solutions for the challenges related to biomaterials. His research interests include surface modification, diamond-like carbon and carbon nanotubes, electrochemical, thermal and mechanical characterization of biomaterials, anticorrosive and biocompatible surface development. The overall goal of Dr. Istanbullu through his work is contributing to the development of new and innovative biomaterials that have the potential to reduce the biomaterial-based risks in the field of biomedical engineering.

How are troponins affected by preanalytical variations?

Pinar Eker

Department of Medical Biochemistry, Faculty of Medicine, Maltepe University, Turkey

The purpose of the presentation is to evaluate the relationship of preanalytical variables with troponin measurements. Today, troponin test methods are constantly being renewed, and algorithms and reference limits used are changing. The highest density of laboratory errors (60-70%) is observed in the preanalytical process. It has been shown in publications that preanalytical variables are effective in hs-cTn tests, as in all other test methodologies. The effects of preanalytical process variables were investigated in terms of different methods and different generations of hs-cTn tests of different companies. These variables are sample type; centrifuge conditions; effects of long and short-term storage conditions; Hemolysis, lipemia, biotin effect, and icterus. In addition, interferences caused by macro complexes can also affect hs-cTn tests and cause incorrect results. Guiding tables for preanalytical variations are presented through studies examining the hs-cTn tests of the currently used main devices. While evaluating hs-cTn test results by the clinic and the laboratory, algorithms and all steps to be followed in terms of preanalytical variables have been defined. The Academy of the American Association for Clinical Chemistry and the Task Force on Clinical Applications of Cardiac Bio-Markers of the International Federation of Clinical Chemistry and Laboratory Medicine are organizations that prioritize the necessity of communication between laboratories and clinics regarding the effects of preanalytical variables on hs-cTn tests. Clinically, hs-cTn test levels will cause the patient to be included in different algorithms and risk classifications. Creating accurate and reliable hs-cTn test results is related to the correct management of preanalytical variables. Procedures for managing preanalytical factors should be defined and used as standard in collaboration with the clinic and laboratory. Clinical branches should be informed about the effects of preanalytical variables on hs-cTn methods. It would be useful to develop common evaluation protocols by discussing the cases.

Biography

Assoc.Prof.Dr.Pinar Eker

Medical Biochemistry Specialist; doctor of medicine

Graduated from Ege University Faculty of Medicine in 1991, 1997 -Biochemistry and Clinical Biochemistry Specialist,

2017- Okan University Health Quality Management Master's degree

2013 -2021; Biochemistry Director and Administrative Responsible at Istanbul Provincial Health Directorate Presidency 2 Central Laboratory-2

Since 2012 European Federation of Laboratory Medicine- Preanalytical Working Group Turkey Representative ("corresponding member")

2013-today; Turkish Biochemistry Association Preanalytical working group member,

2021 - today; working as a lecturer in the department of Medical Biochemistry at Maltepe University Hospital and Director of the Central Laboratory of Maltepe Faculty of Medicine Hospital

Relationship between temporal intervals of left ventricular contractile activity, biomarkers of myocardial damage, and coronary artery atherosclerosis in patients with non-st-segment elevation acute coronary syndrome

Bekmetova F.M., Fozilov H.G., Yuldoshev N.A., Bekbulatova R.Sh., Donierov Sh.N., Karimov B.S., Ilkhomova Bekmetova S.I. L.T. Khotamova M.N., Arslonov S.F

Republican Specialized Scientific-Practical Medical Center of Cardiology, Uzbekistan

Introduction: This study aimed to assess the correlation between parameters of left ventricular contractile activity, biomarkers of myocardial damage, and the presence of atherosclerosis in coronary arteries in patients with non-ST-segment elevation acute coronary syndrome (NSTE-ACS), utilizing echocardiography and tissue Doppler imaging (TDI).

Methods: In this research conducted using the GE Vivid T8 Pro apparatus, measurements of left ventricular parameters, including ejection fraction (LVEF), were taken in the analysis of 98 patients categorized into groups with positive (TnI+) and negative (TnI-) troponin. The analysis revealed no significant differences in demographic characteristics between the groups, except for the Syntax score (p=0.01).

Results: Echocardiographic measurements did not show statistically significant differences between the groups. However, tissue Doppler imaging revealed slight variations in the E/e' parameter (p=0.05) with higher values in the group with negative troponin (TnI-). Moreover, statistically significant differences were found in isovolumetric relaxation time (IVRT), the ratio of IVCT/ET, IVRT/ET (p=0.001), and myocardial performance index (MPI) (p=0.005) between the groups. These findings indicate a more pronounced myocardial injury in patients with positive troponin (TnI+).

Inicators TDI	TnI (+) (n= 42)	TnI (–) (n= 56)	p-value
e', mm	6,3 ± 2,1	6,1 ± 2,1	Not relialble
a', mm	8,1 ± 3,0	9,0 ± 2,9	Not relialble
s', mm	6,1 ± 2,1	6,5 ± 2,4	Not relialble
E/A ratio	0,81 ± 0,49	0,77 ± 0,4	Not relialble
E/ e' ratio	13,0 ± 6,6	13,8 ± 8,3	0,05
IVCT , ms	78,9 ± 15,8	69,2 ± 29,9	Not relialble
IVRT, ms	117,7 ± 20,9	90,4 ± 20,4	0,001
Ejection time, ms	231,7 ± 36,6	240,3 ± 44,7	Not relialble
Filling time, ms	398,1 ± 117,8	349,2± 81,1	Not relialble
MPI	0,87 ± 0,19	0,69 ± 0,23	0,005
IVCT/ET	0,34 ± 0,04	0,29 ± 0,05	0,001
IVRT/ET	0,51 ± 0,04	0,37 ± 0,06	0,001

Conclusion: In conclusion, it is emphasized that parameters of tissue Doppler imaging, particularly IVRT, IVCT/ET, and MPI, serve as indicators of myocardial damage in NSTE-ACS patients. The presence of atherosclerosis in coronary arteries is negatively correlated with specific tissue Doppler imaging parameters, indicating compromised blood supply to the heart. These results may play a crucial role in risk stratification and the development of treatment strategies for patients with this condition.

Biography

BEKMETOVA FERUZA, M.D., Doctor of Science

Home address: Mirzo-Ulugbek district,

Office address: Department of Laboratory of Functional Diagnostics.

"Republican Specialized Scientific And Practical Medical Center Of Cardiology "open joint-stock company, Osiyo str. 4 100052 Tashkent Uzbekistan

Date of Birth 04.09.1967

Heart pathology in Tick-Borne Borrelioses in Kazakhstan

Andrey Dmitrovskiy[1,2], Alibek Adil[1] and **Nailya Ospanbekova[1]**

[1]Kazakh-Russian Medical University, Kazakhstan
[2]National Center for Biotechnology, Kazakhstan

By the term Tick-Borne Borrelioses (TBB), we mean a group of borrelioses that are transmitted through tick bites.

In Kazakhstan, TBB diagnosis is rare, thus, the purpose of this work was to identify the TBB spread, the causes of their chronization and heart pathology development.

We tested 265 feverish patients and 512 individuals bitten by ticks in dynamics in ELISA. 1,500 ticks were examined in PCR. 64 TBB patients were identified. The percentage of infected ticks ranged from 5.3 to 40.6 in regions.

We developed TBB standard case definition, clinical - pathogenetic classification and risk indicators for heart pathology development.

Heart pathology appears at 1st week of disease, - muffled tones (72.5%), accent of the II tone above the aorta and systolic noise at heart apex (6.5%). On the ECG, toxic-dystrophic changes are detected, with adequate etiotropic treatment they disappear with the syndrome of infectious intoxication. Heart pathology may develop in this group during a chronic course.

We distinguish a secondary focal carditic form, manifested by myocarditis with atrioventricular blockade, less often - pericarditis, pancarditis, myocardiodystrophy development.

In the case of inadequate antibiotic therapy or its absence, at 4th-5th week of disease, heart pain, tachycardia, less often bradycardia, heart size increasing, muffling of heart tones appear. ECG shows atrioventricular block, intraventricular conduction disorders, and rhythm disturbances. Sometimes diffuse heart lesions - myopericarditis, myocardiopathy or pancarditis develop.

Unfortunately, such patients often remain without etiological diagnosis and, accordingly, without adequate antibiotic therapy, and, as a rule, with an unfavorable outcome, up to fatal.

Thus, in our opinion, all febrile patients who meet the TBB definition should be tested for this infection and complex antibiotic treatment should be carried out, which gives a significant reduction in the number of chronic cases, heart pathology and adverse outcomes.

Biography

Andrey Dmitrovskiy was born in Kazakhstan (1950), graduated from medical institute (1973), worked in infectious diseases hospitals, completed two–year clinical residency at Kazakh Institute of Epidemiology and Infectious Diseases, worked at Kazakh Anti-Plague Institute (1979 – 99), defended his PhD and doctoral dissertations, which were devoted to the diagnosis, treatment and epidemiology of zoonotic and extremely dangerous infections. Since 2000 he was professor at ID Department of Kazakh National Medical University; in 2005 – 09, he worked in parallel at the Central Asian Office of the CDC and in 2011-16 at AECOM. Since 2018 - Head of laboratory at National Center for Biotechnology, Almaty branch, in parallel - Professor of ID Department at Kazakh-Russian Medical University. 10 PhD and 3 doctoral dissertations were defended under his leadership, he published over 425 works, including 6 monographs. He worked with number dangerous infections in Kazakhstan, Uzbekistan, Tajikistan, Vietnam.

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Judgmental or Non-Judgmental debriefing approach in emergency cardiology education

Angeliki Mouzarou[1,2] and **Violetta Raffay**[2]

[1]Department of Cardiology, State Health Organization Services, Paphos General Hospital, Cyprus
[2]European University of Cyprus, Cyprus

Introduction: Debriefing is a process of providing individuals or groups with a structured opportunity to reflect on and discuss their experiences, actions, and outcomes in order to gain insights, learn from their experiences, and improve future performance. Debriefing can occur in various contexts, such as after a project, training session, simulation, crisis situation, or any activity where learning and improvement are the goals.

In our review we will compare two different approaches of debriefing, judgmental and non-judgmental approaches in education of emergency cardiology. Both approaches have their merits and are appropriate in different contexts.

Purpose: Our aim is to provide an overview and comparison of different approaches of debriefing during medical education. We will focus on reviewing the qualities of debriefing during simulation training in emergency cardiology in the context of Judgmental and non-Judgmental approach.

Methods: A comprehensive review of the current literature related to debriefing was conducted. Studies describing and evaluating debriefing during simulation training will be encountered and reviewed. The search included databases such as PubMed and Google Scholar.

Discussion: In debriefing, the choice between judgmental and non-judgmental approaches depends on the specific goals of the simulation and the learning objectives. Both approaches have their merits and are appropriate in different contexts.

Judgmental debriefing, provides emphasis on assessment and accountability. It can be particularly effective in situations where safety and adherence to specific procedures are critical and provides more objective feedback that can lead to concrete actions for

improvement. On the other site non-judgmental debriefing emphasises on reflection, it is less evaluative and more about exploring their thought processes, emotions, and experiences during the simulation. Also provides psychological safety and promotes self-discovery. It helps participants gain a deeper understanding of their performance and the factors that influenced their decisions. The choice between judgmental and non-judgmental debriefing should be guided by the specific objectives of the simulation and the needs of the learners. It's important for facilitators to adapt their approach to the situation and create an environment that supports both learning and personal growth.

Conclusion: Effective debriefing is a crucial element of simulation-based medical education. It provides learners with an opportunity to reflect on their performance, identify areas for improvement, and consolidate the knowledge and skills gained during the simulation. While there may not be a single gold standard debriefing technique, the choice of technique may depend on the context, the learners' needs, and the goals of the simulation. What's most important is that the debriefing process is thoughtfully planned and executed to promote effective learning and professional development in the medical field.

Biography

Dr. Angeliki Mouzarou is Head of the Cardiology Department, Paphos GH, at the State Health Services Organisation of Cyprus. She completed her studies in Medicine at the Semmelweis University. She is an Educator on the European Resuscitation Council. Dr. Mouzarou is also the National CVD Prevention Coordinator of Cyprus. Her research interests mainly include cardiology, cardiovascular disease, emergency cardiology, and medical education.

Graphic presentations of heart sound signals - Auscultation assistant diagnosis tool

Božo Tomas and **Karlo Tomas**

Faculty of Mehanical Engineering, Computing and Eletrical Engineering, University of Mostar, Bosnia and Herzegovina

The oldest, basic and primary cardiac diagnosis method is technique of listening of heart sound – auscultation. Unfortunately, heart sound interpretation by auscultations is very limited to human ear competence and depends highly on the skills and experience of the listener. Due to limited opportunities of heart auscultation, it is necessary to help the human ear and make a graphic display of the heart sound. Despite numerous heart sound graphic representations, vast majority physicians do not really use them. One of the most common graphic representations of heart sound signals is phonocardiogram (PCG) (the time display of heart sound amplitudes). Other display of heart sound signals is the heart sound spectrogram which allows better heart sound interpretation, but it is hardly percepted or used by physicians.

With this purpose is introduced a one solution for graphic display of heart sounds called HSLs (Heart Sound Lines). The idea is to show events in PCG signals with graphic lines. Graphic display of heart sound signals like this could be a useful tool for the heart sounds interpretation and can assist physicians for a more precise diagnosis of innocent and pathologic murmurs (auscultation-visual diagnosis).The advantage of HSLs graphical display over other methods is in its easier interpretation by their parameters: murmurs color line, numerical value of murmurs index and lines shape.

Visual representations of heart sound signals can help physicians to better understand, determine and evaluate heart sound cycle events. Today's technology allows us different representations of heart sound event. Physicians determine medical diagnosis of patients by interpretation of audio and graphic visual displays of heart sounds. Graphic representations of heart sounds can be a reliable assistance tool for heart diagnosis. Graphic representations of heart sound signals enable visual murmur displays and their visual classification. Thus, physicians who cannot clearly hear a sound of a heart, with the help of the visual display, will be able to see a sound and then make a diagnosis.

Biography

Božo Tomas received Bsc. MSc and Ph.D. degrees at the University of Zagreb, Faculty of Electrical Engineering and Computing in the field of electroacoustics. From 2003. He works at the University of Mostar, Faculty of Mechanical Engineering and Computing (FSR Mostar) as an assistant, 2009. Became an Assistant Professor and since 2016. As an Associate Professor. His research areas are speech and biomedical signals (acoustics heart sounds and EKG).

Percentage weight loss and World Health Organization-Five Wellbeing Index (WHO-5) in patients having bariatric surgery

Heshma Al-Ruwaily, Roshaida Abdul Wahab and **Therese Coleman**

Diabetes Complications Research Centre, Conway Institute, University College Dublin, Ireland

The association between bariatric surgery outcomes and depression remains controversial. Many patients with depression are not offered bariatric surgery due to concerns that they may have suboptimal outcomes. The aim of this study was to investigate the relationship between baseline World Health

Materials and Methods: Organization-Five Wellbeing Index (WHO-5) and percentage total weight loss (%TWL) in patients after bariatric surgery.

All patients were routinely reviewed by the psychologist and screened with WHO-5. The consultation occurred 3.5 ± 1.6 months before bariatric surgery. Body weight was recorded before and 1 year after surgery. A total of 45 out of 71 (63.3%) patients with complete WHO-5 data were included in the study. Data analysis was carried out with IBM SPSS Statistics (version 27) to determine the correlation between baseline WHO-5 and %TWL in patients having bariatric surgery.

Results: Overall, 11 males and 34 females were involved with mean age of 47.5 ± 11.5 and BMI of 46.2 ± 5.5 kg/m2. The %TWL between pre- and 1-year post-surgery was 30.0 ± 8.3% and the WHO-5 Wellbeing Index mean score was 56.5 ± 16.8. We found no correlation between %TWL and the WHO-5 Wellbeing Index ($r = 0.032$, $p = 0.83$).

Conclusion: There was no correlation between the baseline WHO-5 Wellbeing Index and %TWL 1-year post-bariatric surgery. Patients with low mood or depression need to be assessed and offered appropriate treatment but should not be excluded from bariatric surgery only based on their mood.

Biography

Dr. Heshma Alruwaily

Family & Obesity Medicine Consultant at

KFMC, Obesity, Endocrinology and Metabolism Department.

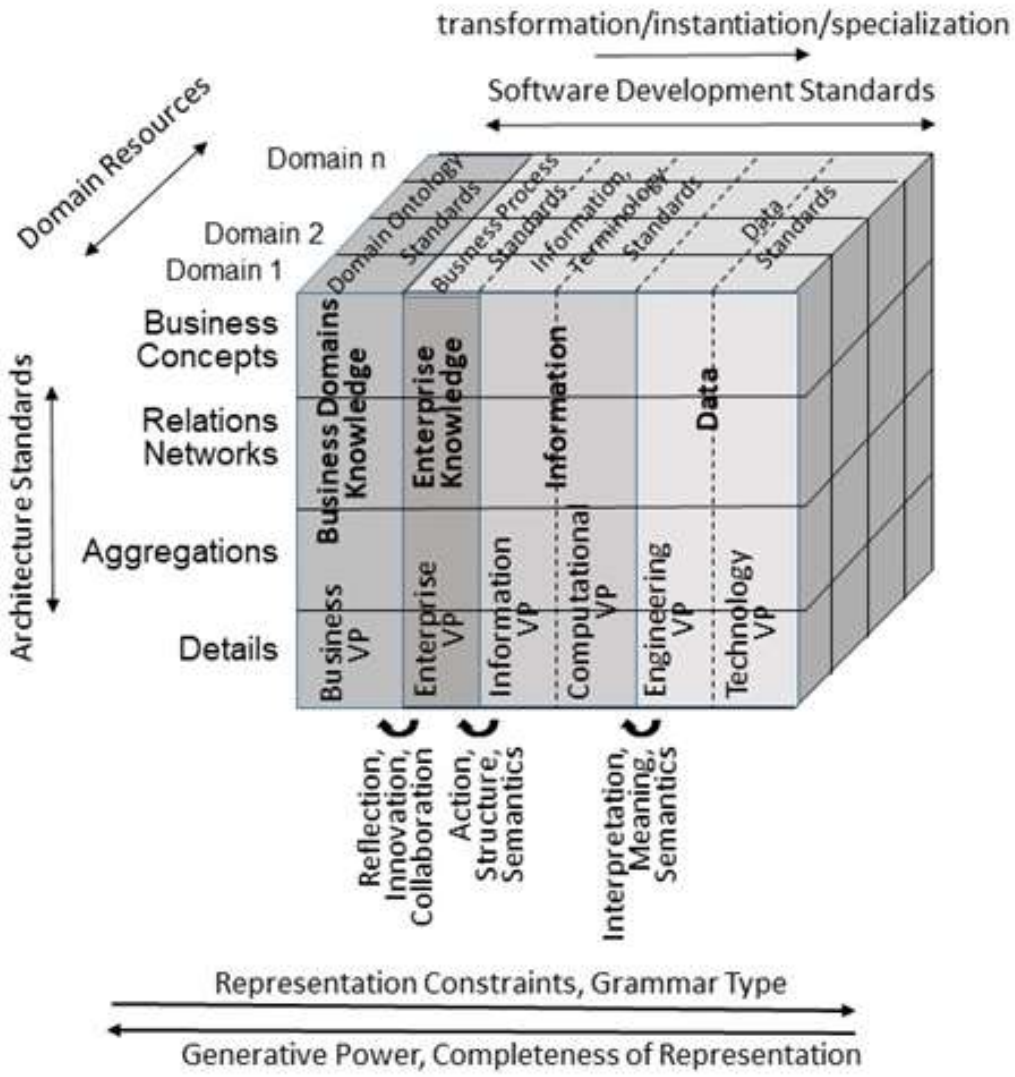
Clinical Fellowship in Obesity Medicine and Obesity Research at University College Dublin, Ireland. St. Vincent University Hospital.

Principles and standards for designing and managing integrable and interoperable transformed health ecosystems

Bernd Blobel

Medical Faculty, University of Regensburg, Germany

Health and social care systems around the world undergo a transformation towards personalized, preventive, predictive, participative precision medicine (5PM), considering the individual health status, conditions, genetic and genomic dispositions in personal, social, occupational, environmental and behavioral context. For enabling communication and cooperation between actors from different domains using different methodologies, languages and ontologies based on different education, experiences, etc., we have to advance design and management of the resulting complex and highly dynamic ecosystem from data to knowledge level. The aforementioned transformation is strongly supported by technologies such as micro- and nanotechnologies, advanced computing, artificial intelligence, edge computing, etc. Beside their opportunities, those advanced technologies also bear risks to be managed. Beside the relationships between technology and human actors, the behavior of intelligent and autonomous systems must be considered from a humanistic, moral and ethical perspective. The challenge is the consistent, correct and formalized representation of the transformed health ecosystem from the perspectives of all domains involved including the legal and ethical ones, representing and managing them based on related ontologies. The resulting business view of the real-world ecosystem must be interrelated using the ISO/IEC 21838 Top Level Ontologies standard. Thereafter, the outcome can be transformed into implementable solutions. The different viewpoint are represented using viewpoint-specific ICT ontologies. The necessary model and framework has been developed by the author and meanwhile standardized as ISO 23903 Interoperability and Integration Reference Architecture. The formal representation of any ecosystem and its development process including examples of practical deployment of the approach are presented in detail. This includes correct systems and standards integration and interoperability solutions.



Model and framework for designing and managing transformed health ecosystems based on ISO 23903

Biography

BB has a multi-disciplinary education, covering mathematics, physics, systems engineering, electronics, medicine, informatics and medical informatics, including habilitations in medicine and informatics. Before his retirement, he was Head of the German National eHealth Competence Center. He was leadingly involved in many countries health digitalization as well as electronic health record strategy. He was and is still engaged in international standardization at ISO, CEN, HL7, OMG, IEEE etc. Furthermore, he still engaged in international higher education.

Virtual Event
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How does a nursing crisis management intervention impact relatives' experiences in two trauma centres?

Mia Blaabjerg[1,2], Anne Sophie Ågård[3,4,5] , Marianne Lisby[1,2]

[1]Research Center for Emergency Medicine, Department of Clinical Medicine, Aarhus University, Denmark
[2]Emergency Department, Aarhus University Hospital, Denmark
[3]Department of Intensive Care, Aarhus University Hospital, Denmark
[4]Department of Public Health, Research Unit for Nursing and Healthcare, Aarhus University, Denmark
[5]ResCenPI – Research Centre for Patient Involvement, Aarhus University & Central Denmark Region, Denmark

Background: Being a relative to a trauma patient may be a dramatic experience. Often, trauma centre nurses do not feel they have the competences needed to meet relatives experiencing a crisis. Therefore, a need exists to enhance their crisis management competencies.

Objective: To investigate relatives' experiences of a nursing crisis management intervention on information, inclusion and support, including the importance of these needs.

Design: A prospective intervention study based on interrupted time series. The intervention, conducted in 2020-2021, consisted of a crisis management training programme.

Setting(s): The Trauma Centre of the Aarhus University Hospital and Aalborg University Hospital in Denmark.

Participants: Relatives (18+ years) of critically ill or injured patients (n=293).

Methods: Data were collected using a 32-item questionnaire. The primary outcome was relatives' overall experience of the quality of the information, inclusion and support measured on a visual analogue scale (VAS) (0-10). Secondary outcomes were changes in risk ratios and scores between the periods for each of the three main variables. The outcome was measured as weighted and non-weighted scores, taking into account the importance of each variable. Besides use of interrupted time series, predictive and weight-adjusted analyses were performed. Time series comprised a before-period (6 months), an

implementation period (3 months) and an after-period (6 months). Due to ceiling effect, the predictive analysis was dichotomized using the median scores for information, inclusion and support.

Results: Overall, no differences were observed between the participants' characteristics in each of the three periods. Comparing the implementation period with the after-period revealed a statistically significant positive difference between the relatives' assessment of crisis management [p=0.009]. Additionally, the probability of scoring >8 from before to after the intervention increased statistically significantly [Risk ratio 1.21, 95% confidence interval 1.16-1.27] (figure 1). The secondary outcomes showed that the greatest change over time was inclusion of relatives [Risk ratio, 1.25 95% confidence interval 1.15-1.35]. Information had the greatest effect on relatives' experience of nurses' provision of crisis management and was also the needs area that relatives considered most important. However, information was also the needs area that evolved least during the study.

Figure 1 – Probability that the relatives scored their crisis management experience above 8 in the three periods

The figure shows the estimated probability that the relatives scored their crisis management experience above 8. P-value (p<0.001) calculated by the generalised linear model

Conclusions: Based on the selected cut-off levels, the intervention appeared to have a positive effect on relatives' experiences – especially inclusion of relatives. In the weighted analyses, information was considered most important and also had the greatest effect on relatives' overall experience. Nurses' crisis management competencies should be prioritized in trauma centres.

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.

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Superiority of 3D Planimetry over pressure half-time to evaluate mitral valve area after percutaneous edge-to-edge mitral valve repair

Miriam Estrada Ledesma, Diana Bastidas Plaza, Eduardo Pozo Osinalde, Pedro Marcos-Alberca, Carmen Olmos Blanco, Patricia Mahia Casado, María Luaces, Jose Juan Gómez de Diego, Luis Nombela- Franco, Pilar Jiménez-Quevedo, Gabriela Tirado, Luis Collado Yurrita, Antonio Fernández-Ortiz, Julián Villacastín and **Jose Alberto de Agustín**

Instituto Cardiovascular, Hospital Clínico San Carlos de Madrid, Spain

Introduction and objectives: The evaluation of the mitral valve area (MVA) immediately after the implantation of a mitral clip is of vital importance to determine the degree of mitral stenosis produced by the device.

The aim of the study was to look for the best method to measure mitral valve area after percutaneous edge to edge mitral valve repair and it's correlation with transvalvular gradients at this context.

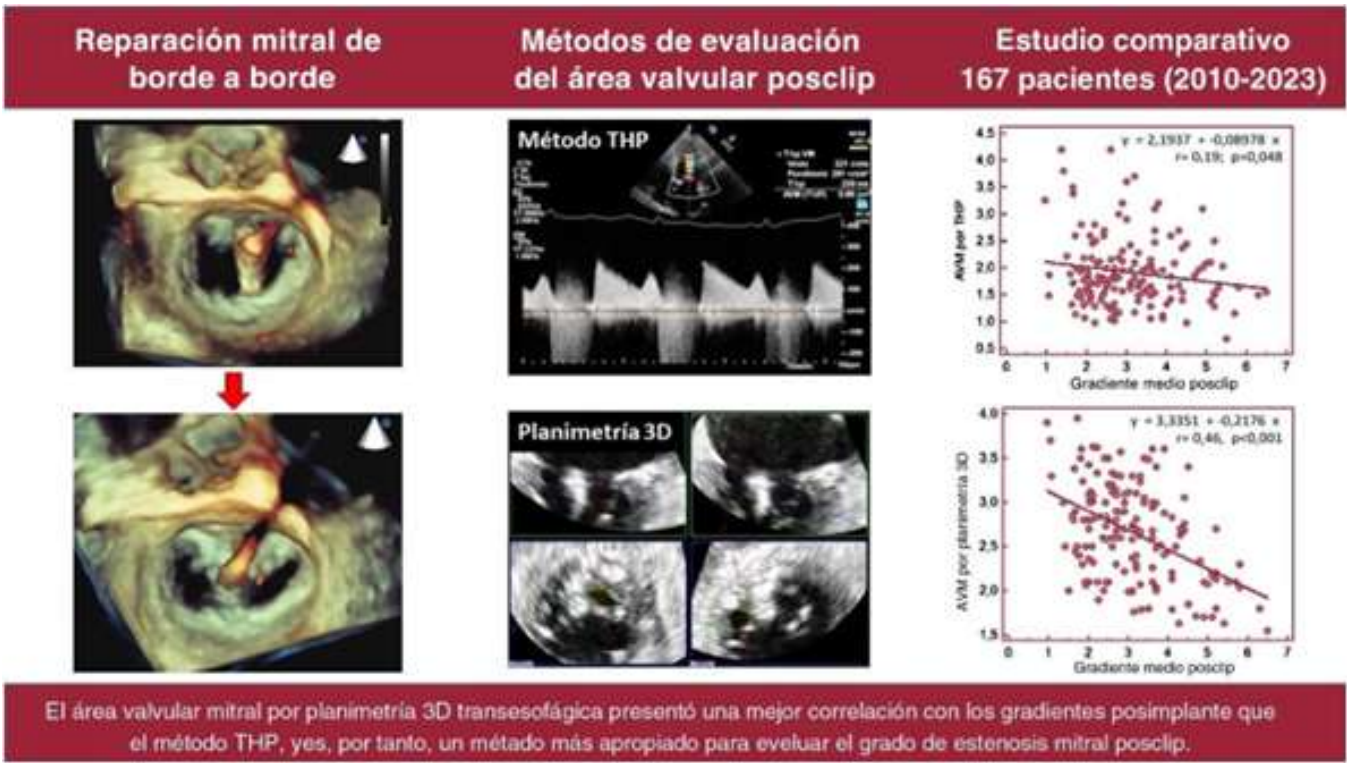
Material and methods: A retrospective registry of patients with mitral regurgitation ≥ III/IV who underwent Edge-to-edge percutaneous mitral valve repair at our institution between 2010 and 2023. We obtained the mitral valve area by THP method, 3D planimetry and the average transvalvular gradient by transesophageal echocardiography, and then we perform statistical analysis.

Results: 167 consecutive patients were included. The mean age was 76 ± 10.3 years, of which 91 were men (54%), and 76 women (46%). The etiology of previous mitral regurgitation was degenerative (45%), functional (39%), or mixed (16%). Post-procedure MVA measurements were 2.87 ± 0.83 cm2 by 3D planimetry, and 1.89 ± 0.6 cm2 by THP; while the average mean gradient was 3 ± 1.19 mmHg. The MVA by 3D planimetry presented a better correlation with the mean gradient (y = 3.3351 + -0.2176 x, r= 0.46, p< 0.001), than the MVA obtained by THP (y = 2.1937 + -0.08978 x, r= 0.19, p= 0.048). The 3D planimetry obtained a higher interobserver agreement (intraclass correlation coefficient of 0.90, and a coefficient of variation of 9.6)

than that obtained by THP (intraclass correlation coefficient of 0.81 and a coefficient of variation of 19.7%)

Conclusions: Our study demonstrates that 3D planimetry is the best method for assessing post-clip mitral valve area.

Estrada Ledesma, M., Bastidas Plaza, D., Pozo Osinalde, E., Marcos-Alberca, P., Olmos Blanco, C., Mahía Casado, P., Luaces, M., Gómez de Diego, J. J., Nombela-Franco, L., Jiménez-Quevedo, P., Tirado, G., Collado Yurrita, L., Fernández-Ortiz, A., Villacastín, J., & de Agustín, J. A. (2024). Superioridad de la planimetría 3D sobre el tiempo de hemipresión para evaluar el área valvular mitral tras la reparación mitral percutánea de borde a borde. Revista espanola de cardiologia. https://doi.org/10.1016/j.recesp.2024.03.007



Biography

Dr. Miriam Estrada Ledesma

Post Master´s fellow from Clinico San Carlos de Madrid, Spain Hospital

Mexican Cardiologist at Hospital Regional de Alta Especialidad del Bajío, León, Guanajuato, Mexico.

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Omics strategies to identify senescent subpopulations in atherosclerosis

Allison B. Herman[1], Krystyna Mazan-Mamczarz[1], Dimitrios Tsitsipatis[1], Angelica E. Carr[1], Bennett G. Childs[2], Carla Rocha Dos Santos[3], Carlos Anerillas[1], Brigette Romero[4], Jordan M. Gregg[1], Marc Michel[1], Rachel Munk[1], Jennifer L. Martindale[1], Yulan Piao[1], Jinshui Fan[1], Maria O. Hernandez[5], Noemi Kedei[5], Madeline M. F. Wong[5], Olga V. Fedorova[3], Mona Batish[4], Supriyo De[1], Darren J. Baker[2] and **Myriam Gorospe[1]**

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[2]Department of Biochemistry and Molecular Biology; Department of Pediatric and Adolescent Medicine, Mayo Clinic, USA
[3]Laboratory of Cardiovascular Science, USA
[4]Department of Medical and Molecular Sciences, University of Delaware, USA
[5]Center for Cancer Research, National Cancer Institute IRP, USA

The accumulation of senescent cells, a hallmark phenotype of aging tissues, increases the risk of cardiovascular disease with age. To systematically investigate the heterogeneity of senescent vascular cells in atherosclerosis, we employed the senescence reporter mouse p16TdTomato+/-, injected with an adeno-associated virus expressing Proprotein Convertase Subtilisin/Kexin type 9 (PCSK9) to induce atherosclerosis when fed a high-fat diet (HFD), and left untreated or treated with the senolytic drug ABT-737. Whole-aorta single-cell RNA-sequencing analysis identified 28 unique clusters, and 7 of them, mainly vascular smooth muscle cells (VSMCs) and monocytes, were increased by HFD and reduced by ABT-737. To investigate the incidence of cellular senescence among all clusters, we performed Gene Set Enrichment Analysis (GSEA) using the Sen Mayo and Cell Age panel, used for monitoring senescent cells in vivo and across organisms. This analysis uncovered 9 cell clusters with increased senescent features that were lowered by ABT-737, including two vascular smooth muscle clusters, fibroblasts, and neutrophil-like cells. Unbiased subclustering of each

potentially senescent cluster identified a small population of cells enriched with HFD and reduced by ABT-737, suggesting these cells are indeed senescent. Comparison of the gene expression profiles across senescent cells revealed common and unique genes associated with each subpopulation, and those genes were often implicated in senescence-related signaling pathways. For example, within the most abundant cluster, Spp1 and Serpine2 strongly represented the senescent VSMC subpopulation that was enriched for TGFβ signaling, ECM remodeling, coagulation cascade genes, and hypoxia. To complement the single-cell analysis, we validated these findings by spatial transcriptomic sequencing of brachiocephalic arteries from atherosclerotic mice and atherosclerotic mice depleted of senescent cells. Our results uncover a new transcriptomic signature for senescent vascular cells that may be exploited for therapeutic targeting in age-related vascular diseases.

Biography

Dr. Herman received her Ph.D. in Molecular and Cellular Biosciences from the Lewis Katz School of Medicine at Temple University in Philadelphia, Pennsylvania, focused on the mechanisms by which RNA-binding proteins regulated inflammation in vascular diseases. She continued her interest in RNA biology in Dr. Gorospe's lab, as a postdoctoral fellow at the National Institute on Aging in Baltimore, Maryland. There, Dr. Herman incorporated aging and senescence into studies of RNA biology to identify a novel senescence-regulatory miRNA while also developing models of vascular cell senescence and aging. Dr. Herman received the Postdoctoral Funding Award, the Women in Science Research Recognition Award, and the Fellow Award for Research Excellence during her postdoctoral fellowship. Lastly, in 2021, Dr. Herman was selected as the NIA's first Independent Research Scholar. In this position, she has established and currently leads the Translation Senescence Unit in the Laboratory of Genetics and Genomics.

Independent research – Possibilities remain

Roger H. Coletti

Interventional Health, USA

In the world of medicine, now bowing down to guideline directed medical therapy protocols, is there still room for the independent researcher who does not fall in line with generally accepted although not always proven concepts and treatment. This presentation details how one researcher challenged to accepted theory and practice of treatment of chronic muscle spasm and resultant chronic muscle spasm. New concepts of the etiology of chronic muscle spasm emerged and a successful treatment of chronic pain resulting from chronic muscles spasm was developed without the use of opioid medications. Data demonstrating the successful outcomes of a procedure trademarked as CMECD is presented. Additional findings that the length of time a muscle is in spasm does not affect the success of the CMECD® procedure are included. Details in the pathophysiology of chronic muscle spasm are explained and the procedure and the EMG findings of normal muscle and muscle in chronic spasm are demonstrated. EMG findings on normal muscle, muscle with increased insertional activity and muscle is chronic spasm are shown. References to articles and a book on this topic by this author are given. The entire procedure is visualized in a video presentation. Requirements for the use of medications in an off-label use according to FDA requirements are presented. Discussion regarding a proposed theory of the etiology of tendinopathy and as a vascular event are presented. The phenomenon described as the Hierarchy of Pain is presented and explained. Comparison to cardiac and skeletal states of hibernation are discussed.

Biography

Roger Howard Coletti, MD, FACC, FASNC, FSCAI was born in 1945 in New York City, New York. He graduated from Georgetown University College of Arts and Sciences. He received a Master of Arts in Natural Sciences from Hofstra University. He did one year of bench research on drug metabolism when enrolled in a PhD program in Pharmacology at New York University Medical School. He transferred to State University of New York at Downstate where he completed the four-year curriculum for his MD. Dr. Coletti's medical internship and residency was performed at Nassau County Medical Center in East Meadow, NY. He did two years of cardiology fellowship at Columbia Presbyterian Medical Center and then transferred to Westchester County Medical Center where he completed one year of Interventional Cardiology fellowship. He has done clinical research and publication in the field of alternative treatment of chronic pain secondary to chronic muscle spasm.

High prevalence of Renal Salt Wasting (RSW), Identification of novel protein in RSW to simplify diagnosis of RSW and Introducing new syndrome of RSW In Alzheimer's Disease

John K. Maesaka

NYU Grossman Long Island School of Medicine, USA

Background: The approach to hyponatremia is in a state of flux. Cerebral/renal salt wasting (RSW) is considered rare and presents with identical parameters as SIADH that create a diagnostic and therapeutic dilemma, whether to fluid-restrict water-logged patients with SIADH or administer saline to dehydrated patients with RSW. We previously demonstrated the presence of a natriuretic protein (NP) in the plasma of RSW neurosurgical patients and in patients with Alzheimer's disease (AD).

Methods: We determined the causes of hyponatremia in the general hospital wards by utilizing a new algorithm and identified the NP in an RSW patient with subarachnoid hemorrhage (SAH) and another with AD by the same rat clearance methodology.

Results: Of 62 hyponatremic patients, (A) 17 (27%) had SIADH, (B) 19 (31%) had a reset osmostat (RO), (C) 24 (38%) had RSW, (D) 1 had Addison's disease and (E) 1(1.6%) due to hydrochlorothiazide.

The SAH and AD sera had identical robust increases in FEsodium and especially FElithium, a marker of proximal tubule sodium transport. We identified haptoglobin related protein (Hpr) without signal peptide (Hpr-WSP) as the natriuretic protein. Recombinant Hpr with signal peptide had no natriuretic activity.

Conclusions: RSW is common, cerebral salt wasting should be changed to renal salt wasting. Hpr-WSP may be the NF that causes C-RSW, can serve as a biomarker to differentiate RSW from SIADH on first encounter, need to develop inhibitor to HPR-WSP, introduces a new syndrome of RSW in AD and can effectively treat congestive heart failure when combined with distal diuretic.

Biography

John Maesaka is presently professor of medicine at the NYU Long Island School of Medicine and Chief Emeritus of the Division of Nephrology and Hypertension at the NYU Langone Hospital Long Island. He was born in Hawaii, received a BA degree from Harvard University, an MD degree from the Boston University School of Medicine and trained at Barnes Jewish Hospital at Washington University in St.Louis and the Mount Sinai Hospital and Medical School in New York. He also spent 5 years exclusively in the physiology laboratory at Mount Sinai Medical Center, which prepared him well for his future research endeavors. He has spent many years studying hyponatremic conditions, especially renal salt wasting and identifying the protein that causes it.

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June 28, 2024

Biomarkers and mechanisms associated with Cancer-induced Cardiac Cachexia: A systematic review

Lisa Bagnall[1], Oliver Grundmann[2], Marilyn Teolis[1] and **Saun-Joo L. Yoon[3]**

[1]Department of Veterans' Affairs, James A. Haley Veterans Hospital, USA
[2]Department of Medicinal Chemistry, College of Pharmacy University of Florida, USA
[3]Department of Biobehavioral Nursing Science, College of Nursing, University of Florida, USA

Aims: Cancer-induced cachexia affects up to 80% of patients with cancer. Patients with cancer-induced cachexia may experience cardiac wasting through inter-tissue and inter-organ crosstalk. This review aims to identify evidence of cancer-induced cardiac cachexia in human and non-human models by examining the contribution of biomarkers and other factors leading to the development and progression of cardiac cachexia.

Methods: A systematic review included publications from 2011 to 2021 with eligibility criteria of randomized controlled trials, retrospective, prospective, descriptive animal, cadaver, and human studies. Fifteen animal and four human studies met the eligibility criteria and were included in this review.

Results: Four common biomarkers were identified in animal studies with upregulated gene expression, namely Tumor Necrosis Factor-alpha (TNF-β), Atrogin-1, Muscle RING-finger protein-1 (MuRF1), and Interleukin-6 (IL-6). The upregulation of Atrogin-1, noted in 5 out of 15 studies, facilitated cardiac atrophy, cardiac wasting, and remodeling by ubiquitinating proteins in the heart, marking them for degradation. The upregulation of IL-6, TNF-β, and MuRF1 caused cardiac muscle breakdown and led to decreased intraventricular septal wall thickness, decreased ejection fraction, heart rhythm disturbances, heart failure, and death. Atrophied hearts showed decreased myocyte size, decreased sarcomeric proteins, and an increase in the b-myosin heavy chain, which is indicative of muscle atrophy. In one human study, 103 subjects with newly diagnosed stages of II-IV malignancies were classified as either non-cachectic, pre-cachectic, or cachectic. Non-cachectic cancer patients showed the least number of cardiovascular symptoms. Those with pre-cachexia and cachexia had the most cardiac findings, such as high-grade premature ventricular contractions (PVCs), hypertension, and either new or progressive chest pain. Cardiac wasting (measured by heart weight and ventricular wall thickness) was examined in 219 deceased patients using

retrospective analysis. Of these, 177 were diagnosed with cancer, and 42 patients had non-cancer non-cardiovascular diagnoses. The diagnoses for the 177 cancer patients included 58 lung cancer, 60 pancreatic, and 59 non-pancreatic gastrointestinal cancers. Of those, 54 (30.5%) showed cancer-associated cachexia and had a significantly lower heart weight compared to non-cachectic patients ($p < 0.001$) and patients with non-cancer and non-cardiovascular diagnoses ($p < 0.05$).

Conclusion: The cardiac effects associated with cachexia-induced biomarkers showed reduced heart weight, function, and overall quality of life. Despite the extensive search, we found only a limited number of high-quality studies. Further studies are needed to determine if targeted treatments can effectively block the upregulation of various genes and cytokines that initiate and facilitate cancer-induced cardiac cachexia.

Biography

Dr. Lisa Bagnall received her BSN From Salisbury University and her MSN and PhD in Nursing from University of Phoenix. She has extensive experience in cardiovascular ICU, trauma ICU and ER nursing. She was an ACLS instructor for several years and taught paramedics, nurses, and physicians. After receiving her Ph.D. in 2017, she worked as a University of Florida professor for the college of nursing. She currently works for the Veterans' Health Administration in Tampa Florida.

Her recent publications have focused on curriculum redesign strategies, simulation outcomes, venomous snake-bite treatment (extension of her masters' project), and cancer-induced cardiac cachexia. Her innovative mapping technique helped to elicit the most common upregulated biomarkers in a set number of studies found over a 10-year period. Her leisure time is spent training and showing horses, faceting gems for high-end jewelry designs, and competing in archery.

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Evaluation of the correlation between obesity and development of osteoporosis, Increasing the risk of fractures: A systematic review with meta-analysis

Bianca Gabriella de Oliveira[1], jessica Santos picchi Martins[2], Carlos Alberto Pereira dos Reis[2], Yuri Portela de Sousa[2], Rafael Jerson Rioja[3] and Marcella Rodrigues Costa Simões[4]

[1]Hospital Geral Clériston Andrade, Brazil
[2]Médica residente em Ortopedia e Traumatologia pelo Hospital Mário Gatti, Brazi
[3]Médico residente em Ortopedia e Traumatologia pelo Hospital Municipal Souza Aguiar, Brazil
[4]Marcella Rodrigues Costa Simões Umiversidade Federal de Minas Gerais, Brazil

The scientific relevance of this discussion is based on the extent of low bone mass in the face of a lower frequency of osteoporosis diagnosis and low adherence to therapy. Around 70% of individuals at risk of osteoporosis who are receiving therapy do not continue beyond the first year. 4 Thus, the aim of this study is to evaluate the correlation between obesity and the development of osteoporosis by increasing the risk of fractures through a systematic review with meta-analysis. Contributing to the therapeutic approach and reduction of pathological complications in the affected population. A systematic literature review was performed using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) methodology. The research protocol was registered with the International Prospective Register of Systematic Reviews (PROSPERO) under registration number CRD42024528338. The main types of fractures related to obesity were those of the ankle and lower limbs, most of which are associated with low-energy trauma. Wrist and hip fractures were more associated with non-obese women. Osteoporosis was associated with a significant portion of cases, the use of medications to treat the pathology was related to a lower number of fractures in the study population Gnudi et al evaluated the relationship between obesity, osteoporosis and fractures in postmenopausal women. Of the 2235 women, 72% had some type of fracture. 152 were obese and 884 had a BMI < 30 kg/m2. Hip fractures comprised 3.3% of fractures in obese and 8.2% of those found in non-obese, humeral fractures 7.7% obese versus 3.6% non-obese, wrist fractures 11.5% and 11% and ankle fractures 4.8% and 4.4% in obese and non-obese individuals, respectively.

Biography

Medicine student working with monitoring biochemistry and a scientific researcher;

- Experience in orthopedics, traumatology and emergency in Cleriston Andrade General Hospital, Dom Pedro de Alcântara Hospital and Eladio Lassere Hospital from 2019 to 2023;
- The orthopedics and traumatology ligue former president in UNIFACS;
- Have joined the voluntary program of spine surgery from Hospital do Trabalhador - Curitiba, Paraná, Brazil;
- Have been working for The American Journal (The USA Journals (theamericanjournals.com)
- Brazilian jiu-jitsu athlete 2

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ADV. CARDIOLOGY 2024

Systemic immunosuppression does not affect revascularization outcomes in patients with chronic limb-threatening ischemia

Andy Lee[1], Daniel Romary[2], Jeremy D. Darling[2], Priya Patel[4], Siddhartha Dash[5] and **Marc Schermerhorn[2]**

[1]Beth Israel Deaconess Medical Center; Harvard Medical School, USA
[2]Division of Vascular and Endovascular Surgery, Beth Israel Deaconess Medical Center, Harvard Medical School, USA
[3]Indiana University School of Medicine, USA
[4]Rutgers Robert Wood Johnson Medical School, USA
[5]Case Western Reserve School of Medicine, USA

Objective: Many patients with chronic limb-threatening ischemia (CLTI) have additional comorbidities requiring systemic immunosuppression. Few studies have analyzed whether these medications may inhibit graft integration and effectiveness, or conversely, whether they may prevent inflammation and/or restenosis. Therefore, our study aim was to examine the effect of systemic immunosuppression vs no immunosuppression on outcomes after any first-time lower extremity revascularization for CLTI.

Methods: We identified all patients undergoing first-time infrainguinal bypass graft (BPG) or percutaneous transluminal angioplasty with or without stenting (PTA/S) for CLTI at our institution between 2005 and 2014. Patients were stratified by procedure type and immunosuppression status, defined as ≥6 weeks of any systemic immunosuppression therapy ongoing at the time of intervention. Immunosuppression vs nonimmunosuppression were the primary comparison groups in our analyses. Primary outcomes included perioperative complications, reintervention, primary patency, and limb salvage, with Kaplan-Meier and Cox proportional hazard models used for univariate and multivariate analyses, respectively.

Results: Among 1312 patients, 667 (51%) underwent BPG and 651 (49%) underwent PTA/S, of whom 65 (10%) and 95 (15%) were on systemic immunosuppression therapy, respectively. Whether assessing BPG or PTA/S patients, there were no differences noted in perioperative outcomes, including perioperative mortality, myocardial infarction, stroke, hematoma, or surgical site infection (P > .05). For BPG patients, Kaplan-Meier analysis and log-rank testing demonstrated no significant difference in three-year reintervention (37% vs 33% [control]; P = .75), major amputation (27% vs 15%; P = .64), or primary patency (72% vs 66%; P = .35) rates.

Conclusions: Our findings demonstrate that patients with chronic systemic immunosuppression, as compared with those who are not immunosuppressed, does not have a significant effect on late outcomes after lower extremity revascularization, as measured by primary patency, reintervention, or major amputation.

Inflammatory arthritis after Covid-19 infection: A case series

Siddhant Yadav, Elizabeth A Gilman, Nerissa M Collins, Michael R Mueller, Ryan Hurt and **Ravi Ganesh**

Mayo Clinic, USA

Objective: A portion of patients who have recovered from acute infection with coronavirus 19 (COVID-19) develop persistent symptoms that have been termed post COVID. This may affect the musculoskeletal system with arthralgias and myalgias being common. Current medical opinion is rapidly establishing the paradigm that Post COVID syndrome is an immune mediated condition, and thus may predispose to autoimmune diseases. Based on previous data related to viral infections, COVID-19 has been proposed as a risk factor for development of rheumatoid arthritis (RA) and reactive arthritis. In this case series, we aim to describe patients who developed inflammatory arthritis (both reactive arthritis and RA) after recovering from COVID-19 infection.

Methods: We present a case series of 5 patients who developed joint pain several weeks after recovery from acute COVID-19 infection. These patients were seen in our Post COVID Clinic and came from all regions of the United States.

Results: All 5 patients were female, with their age of diagnosis for COVID-19 being between 19-61 years (mean 37.8 years). All presented with joint pain as the primary complaint to the Post COVID Clinic. Abnormal joint imaging was present in 5 of 5 patients. Treatments were varied and included NSAIDs, acetaminophen, corticosteroids, immunomodulators (golimumab), methotrexate, leflunomide, and hydroxychloroquine (Table 1).

Conclusions: COVID-19 is a potential cause of Inflammatory arthritis, with both RA and reactive arthritis demonstrated in our patient population. It is thus important to diagnose this condition promptly and institute the appropriate treatment.

Biography

I was born and brought up in New Delhi, India. I obtained my medical degree at Charles University, Prague in Czech Republic, graduating in 2011. Following this, I worked as a researcher in the Division of Gastroenterology here at Mayo Clinic, Rochester between September 2011 and January 2015. After this, went on to complete my internal medicine residency training at Hennepin county Medical Center, Minneapolis between 2015 and 2018. After this, went back to India and help establish a charitable institute looking after the destitute in one of the poor parts of India. Once COVID struck, worked at a Catholic charitable Institute in New Delhi as an intensivist up until February 2022. After that, came and joined Internal Medicine here at Mayo Clinic in March 2022. Met my wife during the pandemic, got married in November 2022 and she to joined me here at Mayo clinic and works in the internal audit Department.

Thrombosis prophylaxis in hospitalized patients: systematic review of clinical practice guidelines

Ana Paula Callejo de Souza and Eliane Ribeiro
Faculdade de Ciências da Universidade de São Paulo, Brazil

Venous thromboembolism is a complex multifactorial disease considered the most common cause of preventable deaths in hospitalized patients. Recommendations about pharmacological venous thromboembolism prophylaxis in adult hospitalized patients are available in clinical practice guidelines for optimization of healthcare delivery and improvement patient outcomes. Venous thromboembolism prophylaxis is well estabilished in worldwide guidelines however 50% of at-risk patients do not receive adequate prophylaxis. The aim of this study is to extract and produce a list of synthesized recommendations for pharmacological venous thromboembolism prophylaxis in hospitalized patients from high-quality clinical practice guidelines. We conducted a systematic review of clinical practice guidelines using ADAPTE to synthesize recommendations of the high-quality clinical practice guidelines assessed by the Appraisal of Guidelines for Research and Evaluation (AGREE II). Scores with a 60% or more cut-off for domains 3 (development rigor) and 6 (editorial independence) at the AGREE II were used to identify high-quality clinical practice guidelines in this study. The domain 3 indicates minimal risk of bias and development of guidelines, based on the process description of evidence and formulation of recommendations; and domain 6 indicates the relevance of the authors' conflict of interest, a potential source of risk in formulation of recommendations. Recommendations were extracted and synthesized from seven clinical practice guidelines considered of high quality after assessment by AGREE II instrument. Direct oral anticoagulants were recommended for the primary prevention of thromboembolism in medical and surgical patients and are considered the first choice in patients undergoing hip and knee arthroplasty. Low molecular weight heparin remains as the first choice in medical, hip fracture surgery, and non-orthopedic surgery patients. Aspirin is recommended for extended prophylaxis in hip and knee arthroplasty patients after low-weight heparin.

Biography

My name is Ana Paula Callejo de Souza, I have been a pharmacist since 2004. I have worked at the University Hospital of the University of São Paulo since 2011. I completed my master's degree in 2023 in evidence-based health at the Faculty of Pharmaceutical Sciences of the University of São Paulo and I am currently participating in an evidence course implementation.

Decoding the Heart's musical perception: A machine learning approach to unravelling valence judgments

Ennio Idrobo-Ávila[1], Humberto Loaiza-Correa[1], Flavio Muñoz-Bolaños[2], Leon van Noorden[3] and **Rubiel Vargas-Cañas[4]**

[1]PSI – Intelligent Systems and Perception, Universidad del Valle, Colombia
[2]CIFIEX – Experimental Physiological Sciences, Universidad del Cauca, Colombia
[3]IPEM – Institute for Systematic Musicology, Ghent University, Belgium
[4]SIDICO – Dynamic Systems Instrumentation and Control, Universidad del Cauca, Colombia

This study explores the intricate relationship between musical sounds and the human heart, investigating the impact of different sounds on heart signal features when individuals assess them as positive or negative. By tapping into the autonomic nervous system's (para)sympathetic control over the heart, we aim to unveil information about the subconscious processing of sound stimuli. Leveraging AI and machine learning techniques, we analyse the signals derived from heart rate variability (HRV), a parameter reflecting the interplay between the sympathetic and parasympathetic nervous systems. HRV, traditionally a diagnostic tool, plays a crucial role in clinical and research settings. Previous studies have examined its response to sound and music, revealing that exciting music elicits higher heart rates compared to tranquilizing music, accompanied by changes in HRV's low-frequency and high-frequency power. However, the specific musical elements driving these changes remain elusive. Our research delves into the effects of harmonic intervals and noise stimuli on heart responses, utilizing machine learning for a comprehensive analysis. Our findings demonstrate distinctive alterations in heart activity in response to harmonic intervals and noise, such as an increased ratio between the axes of the ellipse fitted in the Poincaré plot with harmonic intervals compared to noise exposure. Additionally, the frequency content of stimuli induces varied heart responses, emphasizing the unique impact of harmonic intervals and noise. Notably, our study unveils the influence of consonance quality on heart responses to harmonic intervals, shedding light on the intricate relationship between music perception and the cardiovascular system. This research contributes to a deeper understanding of the physiological underpinnings of musical valence judgments, offering valuable insights into the intersection of music, emotion, and the human heart.

Biography

Ennio Idrobo-Avila, Ph.D. was born in Popayán, Colombia, he has since childhood displayed a strong interest in music. He completed a BSc in Engineering Physics and a PhD in Engineering, majoring in digital signal/image processing and AI. His parallel interest in such areas as Music Therapy, Physiology, Cardiology, Cognitive Neuroscience, and Experimental Psychology led him to focus attention on the effect that musical elements might have on the behaviour of the heart. His doctoral thesis was provided with awarded honours (distinction-laureate); meanwhile, the main outcomes of that research were presented at international events and published in several high-impact journals.

Clinical anatomy of the coronary arteries in the Chilean population from Angiographies. Normality and Variability

Pérez-Rojas Francisco[1], Cobo cabo Miriam[2] and **LLoret Iglesias Lara[3]**

[1]Univerisdad Católica del Maule, Chile
[2]Instituto de física de Cantabria (IFCA), Spain
[3]Instituto de física de Cantabria, Santander, Spain

Three studies related to the anatomy and conditions of the coronary arteries in patients undergoing coronary angiography were performed. The first study evaluated the diameter, length, and anatomical distribution of coronary arteries in Chilean subjects without apparent angiographic lesions. Differences in diameters and lengths were observed according to sex, age and arterial dominance. In addition, cases of arterial tortuosity were found in some subjects.

In the second study, a case of a 68-year-old man with a left coronary artery of atypical origin was reported, raising suspicion of coronary heart disease. The atypical origin and the interarterial course were confirmed by coronary angiography and computed tomography. Findings such as a separated ostium and stenosis in the left main coronary artery were observed.

In the third study, deep learning and convolutional neural networks were used to classify coronary artery tortuosity on angiograms. The developed model showed satisfactory performance, with an accuracy of 87% and an area under the curve of 0.96 in the detection of arterial tortuosity. It was concluded that convolutional neural networks are comparable to expert radiologists in the detection of arterial tortuosity.

These studies highlight the importance of detailed knowledge of the anatomy and conditions of the coronary arteries in the diagnosis and treatment of heart disease, as well as the potential of artificial intelligence techniques in the automatic detection of conditions such as arterial tortuosity.

Biography

Doctor in health sciences, University of Oviedo, Spain, Master of Science in Morphology from the Universidad de la Frontera (Chile), Diploma in Medical Teaching from the Pontifical Catholic University of Chile, Dental Surgeon from the University of Talca, Chile. Professor of Human Morphology at the Catholic University of Maule, Chile. Full Member of the Chilean Society of Anatomy, Multiple publications in international scientific journals. He is currently developing research in artificial intelligence in health for Chile.

Cardiological modifications and sports performance in transgender population during hormone therapy: Insights from scientific research

Alvares LAM, Ferreira RES, Nakamoto FP, dos Santos Quaresma MVL, Santos LM, Degani-Costa LH, Navarro LS, Navarro GS, Oliveira-Junior AA, Barbosa and **RCC Lima**

Centro Universitário São Camilo, Brazil

Introduction: Concerns arise regarding the sports performance of transgender women (TW) undergoing estrogen therapy.

Objectives: To examine the effects of hormonal therapy on cardiac chambers and VO2peak of well trained TW.

Methods: A longitudinal study was carried out with 7 TW amateur volleyball players (age 30.7±3.2; median age at GAHT initiation was 22.5±7.6 years) with up to 12 months of follow-up. Following age, BMI, and physical activity level matching, 8 cisgender women (CW) and 10 cisgender men (CM) were assessed. Participants performed a maximal incremental exercise test to exhaustion on a treadmill to determine VO2peak (assessed by K5, COSMED, Rome, Italy). A standard transthoracic doppler echocardiogram was performed.

Results: This a partial cross-sectional analysis of data. The medium value of VO2 peak (L/min) of TW (2.8±0.4) was similar to the CW (2.6±0.3) group ($p>0.05$) and both lower than CM (3.6±0.7) (TWvsCM $p<0.05$; CWvsCM $p<0.05$). The hearts of TW exhibited a conformation similar to that of CW in all measures of myocardial thickness and cardiac chamber volumes. The septum (mm) in diastole: TW 8.1±0.3, CW 7.7±0.4,and CM 9.1±1.1 (TW vs. CW, $p>0.05$); Posterior wall (mm) of left ventricle (VE): TW 7.8±0.6, 7.7±0.4 in CW, and 9.1±0.9 in CM (TW vs. CW, $p>0.05$); The left atrium (LA) dimension (mm) was 32.1±1.3 in TW, 33.4±3.1 in CW, and 35.7±2.2 in CM (TW vs. CW, $p>0.05$). The left ventricular diastolic diameter (mm) was 48.8 ±3.7 in TW, 49.5±4.7 in CW, and 51.8±2.3in CM (TW vs. CW, $p>0.05$), and systolic diameter (mm) was 31.4±3.6 in TW, 32.2±3.4 in CW, and 33.1±3.4 in CM (TWvs. CW, $p>0.05$). The ejection fraction (%) was 60.1±0.09 in TW, 64.7±0.02 in CW, and 65.1±0.06 in CM (TW vs. CW, $p>0.05$).

Discussion: The peak VO2 of transgender women (TW) was within values comparable to CW and both lower than CM. This finding contrasts with studies involving non-athlete TW. Our results revealed a reduction in cardiac thickness in TW due to hormone therapy.

Conclusion: Longitudinal studies are warranted to analyze in-depth cardiologic changes.

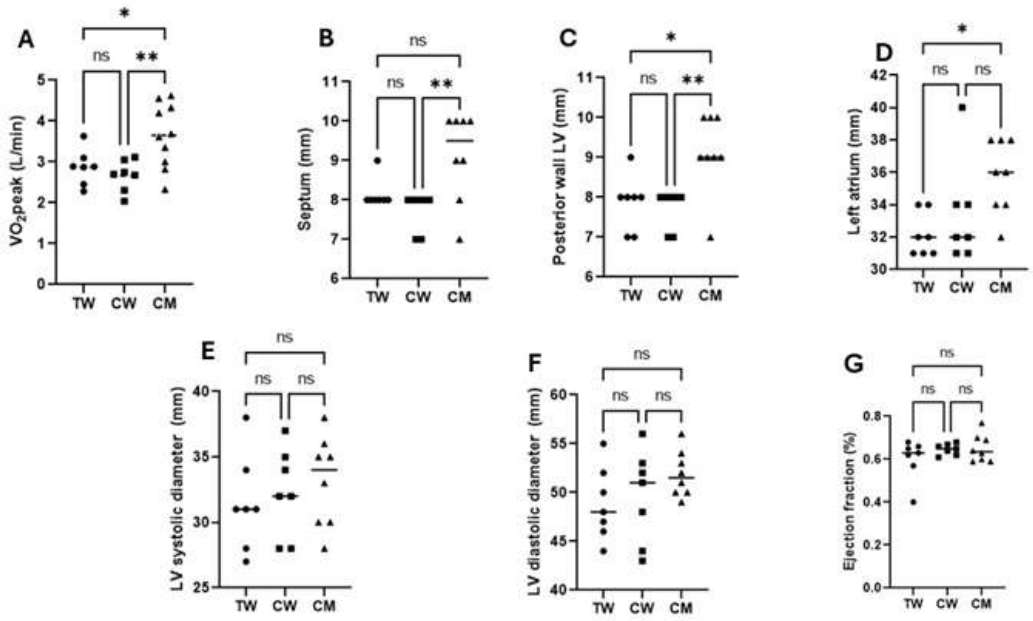


Figure 1: Comparative analysis of VO2peak and cardiac chambers of transgender women (TW), cisgender women (CW) and cisgender men (CM) volleyball athletes. From left to right: VO2peak (A); Septum (B); Left ventricule (LV) posterior wall (C); Left atrium(D); LV systolic diameter (E); LV diastolic diameter (F) Ejection fraction (G); . ns: non-significant. *p<0.05, **p<0.01.

Biography

Specialist in Internal Medicine and Endocrinology and Metabolism. Postgraduate degree in Sports Medicine. Member of the American Endocrine Society. Doctorate in Medical Sciences obtained through groundbreaking research on the sports physiology of transgender women at the University of São Paulo. Full professor at the São Camilo University Medical School. General Director at the School Clinic of São Camilo University.

First malleable lung retractor to optimize extrapleural harvesting of the internal thoracic artery

Yoandy López de la Cruz
Department of Cardiac Surgery, Santa Clara Cardiac Center, Cuba

A descriptive cross-sectional study was conducted to determine the trans-operative benefits of a malleable lung retractor placement during skeletonised internal mammary artery harvesting in coronary artery bypass graft surgery. The intraoperative variables of 102 patients were analyzed, in whom the surgeon considered the use of the separator feasible, whether it was available or not, during the skeletonized harvesting of the internal thoracic artery.The separator was used in 87 patients. The duration of mammary preparation was significantly longer when the retractor was not used (55.5±4.5 vs. 50.4±4.67min). There was also more bleeding during the procedure in that group (69±20.74 vs. 57.2±12.17ml). Pleural cavity integrity was preserved in 87.7% of the patients in whom the retractor was used. In conclusions, clear benefits of the use of lung retractor were demonstrated in terms of decreased mammary artery harvesting time, and preservation of pleural cavity, as well as mammary vein integrity.

Biography

44 years old. Medical Doctor. Specialist in Family Medicine. Specialist in Cardiovascular Surgery. Master in Comprehensive Care for Women's Diseases. Ph.D. Associate Professor. Principal researcher. 17 years of experience in cardiovascular surgery. 60 articles published. More than 200 works presented at 50 national and international conferences. Full member of the Cuban Society of Cardiology and Cardiovascular Surgery. Full member of the Latin American Association of Cardiac and Endovascular Surgery (LACES). Head of the Surgical Unit of the Santa Clara Cardiac Center.

Rab7 promotes mitophagy to protect against ischemic heart failure via a non-canonical Tufm-p62/SQSTM1 pathway

Xiaoqian Wu[1,2], Yuling Sun[1], Panxia Wang[1], Zhimin Gao[1], Wenli Wang[1], Luping Wang[1], Guojun Zhao[2] and **Yiming Xu[1]**

[1]Key Laboratory of Molecular Target & Clinical Pharmacology and the State & NMPA Key Laboratory of Respiratory Disease, School of Pharmaceutical Sciences, Guangzhou Medical University, China
[2]Department of Cardiovascular, The Fifth Affiliated Hospital, Guangzhou Medical University, China

Background: Ischemic heart failure (IHF) remains to escalate without effective strategies, despite decreasing acute myocardial infarction mortality in recent decades. Cardiomyocyte apoptosis is a hallmark of progression of IHF; however, the underlying molecular mechanisms remain elusive. The endosome-lysosome system is vital for cell survival, and the small GTPase Rab7 regulates many functions of this system. Here, we explored the role of Rab7 in cardiomyocyte homeostasis and ischemic heart failure.

Methods: Wild-type and gene-manipulated mice were subjected to myocardial ischemia via left anterior descending coronary artery (LAD) ligation surgery. The effect of Rab7 intervention upon post-MI remodeling and heart failure progression were investigated.

Results: Rab7 is reduced both in the heart post-MI and in the cardiomyocytes with OGD injury. Cardiomyocyte specific deletion of Rab7 exacerbated cardiac dysfunction and dysplastic remodeling post-MI. By contrast, both genetic and pharmacological restoration of Rab7 protected against MI-induced heart failure. Furthermore, we found that Rab7 promoted mitophagy and mitochondrial homeostasis, and protected against cardiomyocyte apoptosis post-MI. Next, TUFM, a mitochondrial translation elongation factor, was identified as the novel effector of Rab7 via liquid chromatography-tandem mass spectrometry and coimmunoprecipitation. Mechanistically, Rab7 recruited TUFM to the damaged mitochondria to enhance mitophagy. TUFM knockdown significantly blunted the beneficial effect of Rab7 on mitophagy and cardiomyocyte apoptosis.

Conclusions: Our data established a direct Rab7-TUFM-mitophagy regulatory axis in myocardial infarction and suggested that targeting Rab7 hold a promising therapeutical potential for ischemic heart failure, thus warranting further clinical evaluation.

Biography

Xiaoqian Wu, M.D., Ph.D. She received his Ph.D. degree in Cardiovascular Pharmacology from School of Pharmaceutical Sciences, Sun Yat-Sen University, in 2009. As a Ph.D. candidate, she won a scholarship from China Scholarship Council and got training under Dr. Jie Du in Department of Medicine, Baylor College of Medicine from 2006~2008. Then she was recruited to the Guangzhou Medical University as an Assistant Professor in 2009. During her post-doctoral training under Dr. Zheng-gen Jin at the Aab Cardiovascular Research Institute of University of Rochester, she made contributions in understanding the role of endothelium-mediated fatty acid uptake in cardiomyocyte metabolic remodelling. Currently, Dr Wu is a Professor in the Department of Pharmacology at Guangzhou Medical University, China. Her long-term goal is to develop therapeutic strategies and targets for respective diseases such as HFpEF and myocardial infarction.

She has presided over 3 NSFC fundings (82370391, 81573429 and 81001436). She published papers on Eur Heart J., Circ Res., Redox Biol., Arterioscler Thromb Vasc Biol. and so on. She is serving as Guest Editor in Pharmacological Research, a leading journal in Pharmacology and Molecular Biology. By the way, she is Vice Chairman of Guangdong Pharmacology Society, Member of council of Chinese Pharmacology Society.

Effect of yogurt intake frequency on blood pressure: A cross-sectional study

Xin Xue[1], Xinqi Li[1] and **Jing Chang[2]**

[1]Department of Cardiology, The Second Hospital of Jilin University, China
[2]Clinical Laboratory, The Second Hospital of Jilin University, China

Objectives: Yogurt intake has been shown to have key importance in reducing hypertension and preventing cardiovascular disease. Although increasing evidence has emerged regarding the potential benefits of probiotics in hypertension, there is a lack of large, cross-sectional studies assessing the association between yogurt intake and blood pressure parameters. We aimed to evaluate the association between yogurt intake frequency and blood pressure. A cross-sectional study was designed using data from the National Health and Nutrition Examination Survey (NHANES) from 2003–2004 and 2005–2006.

Methods: We included 3,068 adults with blood pressure data and yogurt intake data. We categorized participants into low-frequency and high-frequency groups according to the frequency of yogurt intake.

Results: Multivariable regression analyses revealed significant inverse associations between yogurt and SBP ($P < 0.05$), DBP ($P < 0.05$), and MAP ($P < 0.05$) in non-hypertensive ($n = 1,822$) but not hypertensive participants ($n = 1,246$).

Conclusions: Furthermore, a high frequency of yogurt intake prevented hypertension; however, no additional antihypertensive effects were observed in patients already diagnosed with hypertension.

Biography

Xue Xin, male, born in March 1982, M.D., postdoctoral fellow, deputy chief physician, master's degree tutor, conducted postdoctoral research at the School of Materials of Jilin University in 2014, with the main research direction of medical materials science, and won the Sino-German Postdoctoral Joint Scholarship for postdoctoral research in Germany in 2015 and participated in the advanced cardiovascular specialist training in Germany, where he systematically learned interventional cardiovascular pathology and Echocardiography.

He has published more than 20 papers, including 16 SCI papers, including European Heart and JACC and other top journals in the cardiovascular field with an impact factor of about 20, of which 5 are first-authored; he has obtained one invention patent and two utility model patents as the first inventor.

Awake VA-ECMO in cardiogenic shock, single centre experiences

Dang Viet Duc, Luu Quang Minh and **Pham Van Chinh**
Cardiovascular intensive care unit, 108 Military Central Hospital, Vietnam

"Awake" V-A ECMO when the patient is fully awake, breathing spontaneously, without deep sedation. Advantages of awake VA-ECMO include reduced sedative side effects, early active movements, reduced muscle mass loss, increased interaction with the family and medical staff, description of their symptoms, and more exact information than sedative patients so that early detection of complications. At the conference, I will present a series of 15 patients with cardiogenic shock support by awake VA-ECMO, techniques, parameters, complications, and treatment results.

Biography

Dr. Dang Viet Duc is the director of the cardiovascular intensive care unit, 108 Military Central Hospital, the largest hospital in Vietnam. He has been an official HRS/EHRA/APHRS and ELSO member for many years. His team has state-of-the-art cardiovascular intensive critical care techniques routinely: VA-ECMO 20 cases/year, ECPR 5 - 8 cases/year, IABP 25 cases/year, BiVAD... As a scientist, his research focuses as follows: Arrhythmias in cardiovascular critical care/ Coronary artery disease/Genetics of sudden cardiac death (Sudden Arrhythmia Death Syndromes Foundation of Vietnam). Dr Dang Viet Duc is one of the first researchers on Awake VA-ECMO in Vietnam

Protective role of arachidonic acid against diabetic myocardial ischemic injury: A translational study of pigs, rats, and humans

Yongchun Cui, Yunhui Lv and **Shuo Wang**

Beijing Key Laboratory of Preclinical Research and Evaluation for Cardiovascular Implant Materials; Animal Experimental Center, Fuwai Hospital, State Key Laboratory of Cardiovascular Disease, National Center for Cardiovascular Diseases, Chinese Academy of Medical Sciences & Peking Union Medical College, China

Aim: Patients with diabetes mellitus have poor prognosis after myocardial ischemic injury. However, the mechanism is unclear and there are no related therapies. We aimed to identify regulators of diabetic myocardial ischemic injury.

Methods and results: Mass spectrometry-based, non-targeted metabolomic approach was used to profile coronary sinus blood from diabetic and non-diabetic Bama-mini pigs at 0.5-h post coronary artery ligation. Six metabolites had a |log2 (Fold Change)| >1.3. Among them, the most changed is arachidonic acid (AA), levels of which were 32 times lower in diabetic pigs than in non-diabetic pigs. The AA-derived products, PGI2 and 6-keto-PGF1α, were also significantly reduced. AA treatment of cultured cardiomyocytes protected against cell death by 30% at 48 h of high glucose and oxygen deprivation, which coincided with increased mitophagic activity (as indicated by increased LC3II/LC3I, decreased p62 and increased parkin & PINK1), improved mitochondrial renewal (upregulation of Drp1 and FIS1), reduced ROS generation and increased ATP production. These cardioprotective effects were abolished by PINK1(a crucial mitophagy protein) knockdown or the autophagy inhibitor 3-Methyladenine. The protective effect of AA was also inhibited by indomethacin and Cay10441, a prostacyclin receptor antagonist. Furthermore, diabetic Sprague Dawley rats were subjected to coronary ligation for 40 min and AA treatment (10 mg/day per animal gavaged) decreased myocardial infarct size, cell apoptosis index, inflammatory cytokines and improved heart function. Scanning electron microscopy showed more intact mitochondria in the border zone of infarcted myocardium in AA treated rats. Lastly, diabetic patients after myocardial infarction had lower plasma levels of AA and 6-keto-PGF1β and reduced cardiac ejection fraction, compared with non-diabetic patients after myocardial infarction. Plasma AA level was inversely correlated with fasting blood glucose.

Conclusions: AA protects against diabetic ischemic myocardial damage by promoting mitochondrial autophagy and renewal, which is related to AA derived PGI2 signaling. AA may represent a new strategy to treat diabetic myocardial ischemic injury.

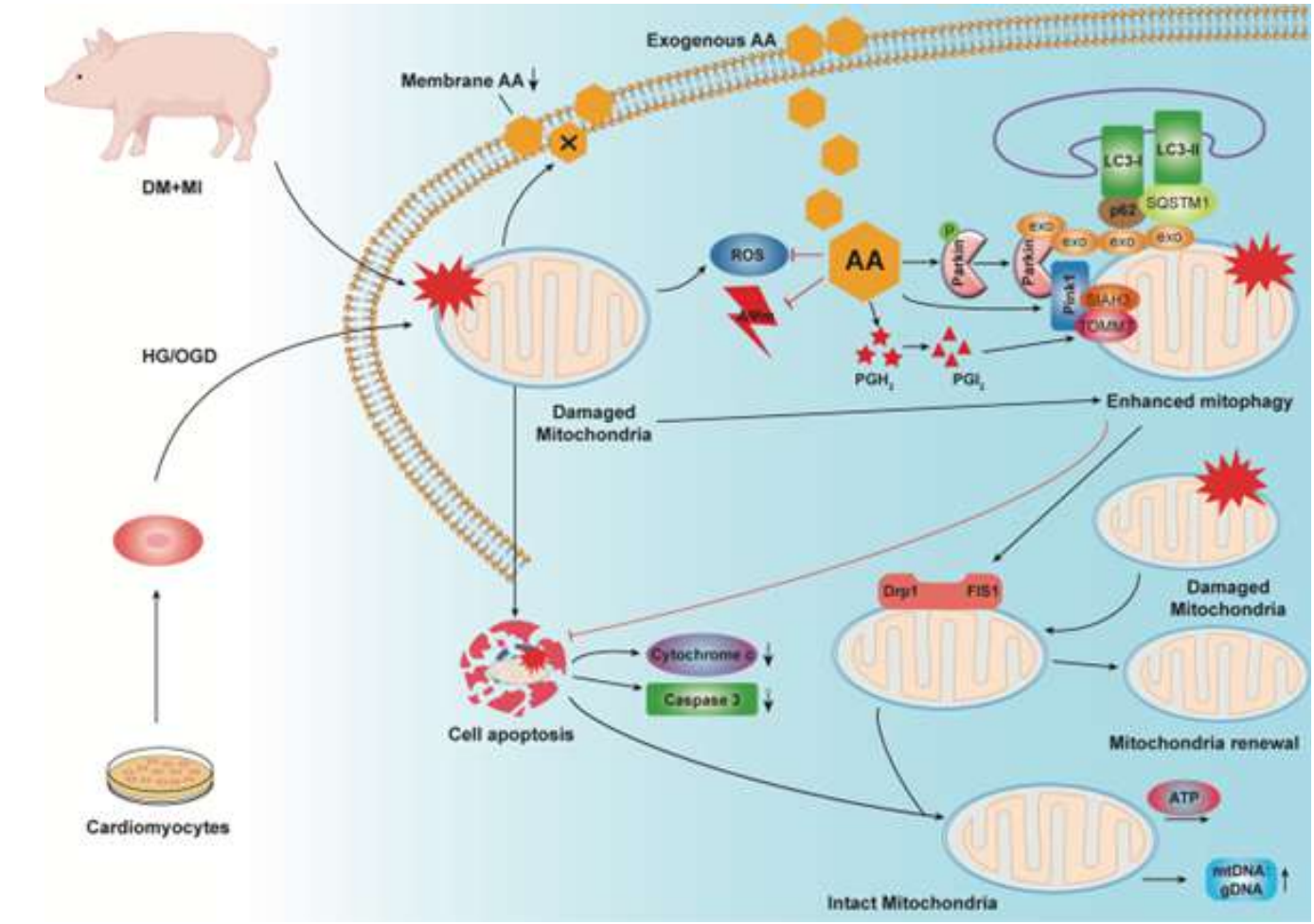


Figure 1 Schematic diagram of cardioprotection of AA in diabetic MI injury

Biography

Yongchun Cui, Female, Professor, Master's Supervisor OF Peking Union Medical College, China.

Interpretation of expert consensus for diagnosis and treatment of post - cardiac arrest syndrome in adults by combining traditional Chinese and Western medicine in China (2023)

Li Hailin
Tongde Hospital, China

Post-cardiac arrest syndrome (PCAS) is a type of multiple organ dysfunction syndrome(MODS) caused by primary disease injury, ischemic injury, and ischemia-reperfusion injury. The disease is very serious, and the mortality and disability rate are very high. In order to improve the treatment effect, the Chinese medical workers of integrated traditional and Western medicine have carried out an excellent discussion. The Emergency Medicine Professional Committee of the Chinese Association of Integrated Traditional and Western Medicine and the Key Laboratory of Critical Care Emergency Medicine of the National Health Commission organized relevant experts to develop an expert consensus on the Diagnosis and Treatment of adult PCAS with Integrated Traditional and Western Medicine (2023). 28 recommendations were made in 14 aspects of 3 stages, including early circulation, respiratory support and reversible cause relief , medium-term neuroprotection, improvement of coagulation, prevention and treatment of infection, renal and gastrointestinal protection, blood sugar control, and later rehabilitation, providing reference and basis for the diagnosis and treatment of PCAS in the present stage. Relevant studies have shown that the treatment methods of integrated traditional Chinese and western medicine (modern cardiopulmonary resuscitation methods plus Chinese patent medicine Shenfu needle, Xuebijing needle, Xingnaojing needle, traditional Chinese medicine prescription: Angong Niuhuang pill, added flavor Sini decoction, etc) improve the success rate of treatment of PCAS. The possible mechanism is related to the multi-mechanism and multi-target action of the compound Chinese medicine, such as vascular endothelial cell protection, inflammatory factor inhibition, coagulation function regulation and organ cell function recovery.

Biography

Working Unit/Administrative Position: Chief physician, professor, Former Director of the Emergency Department of Tongde Hospital, Zhejiang Province

Main academic positions:

Chairman of Emergency Medicine Professional Committee of Chinese Society of Integrated Traditional and Western Medicine

Vice President, Emergency Branch, World Federation of Chinese Medicine

Honorary chairman of the First Aid Professional Committee of Zhejiang Provincial Association of Integrated Chinese and Western Medicine

Main research interests: cardiopulmonary resuscitation, first aid of cardio-cerebrovascular disease, severe infection

Academic achievements: presided over 6 research projects, won a number of awards, two national patents. He has published more than 40 medical papers in journals above the provincial level. The first percutaneous emergency cardiopulmonary resuscitation percutaneous emergency cardiopulmonary bypass at bedside in China. He is good at combining traditional Chinese and Western medicine to treat organ failure, severe poisoning and severe infection.

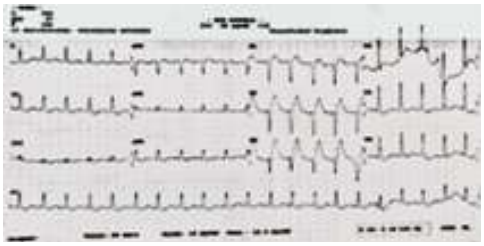
Calcium plunger extraction with the penumbra system in typo 5 infartation

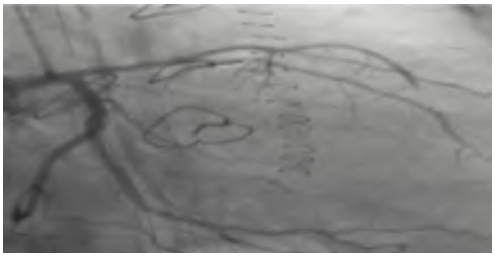
Ordóñez Salazar Bayardo and Estrada Gallegos Joel

Mexican Social Security Institute U.M.A.E. Cardiology Hospital of the National Medical Center Siglo XXI, Mexico

62-year-old male, Mestizo, public health worker with a history of high blood pressure (HTN), sedentary lifestyle, obesity. He presents a history of functional class deterioration secondary to dyspnea from moderate to mild exertion, an echocardiogram was protocolized, which reported severe aortic stenosis with a velocity of 4.65 m/sec, Gmx: 89 mmHg, mean G: 56 mmHg, valve área by planimetry of 0.63 cm, left ventricular hypertrophy, without mobility disorders, LVEF 58%. Electrocardiogram without data of injury, ischemia or necrosis. Previous diagnostic coronary angiography without evidence of coronary artery disease. Accepted for successful aortic valve replacement surgery with number 19 double disc mechanical valve implantation.

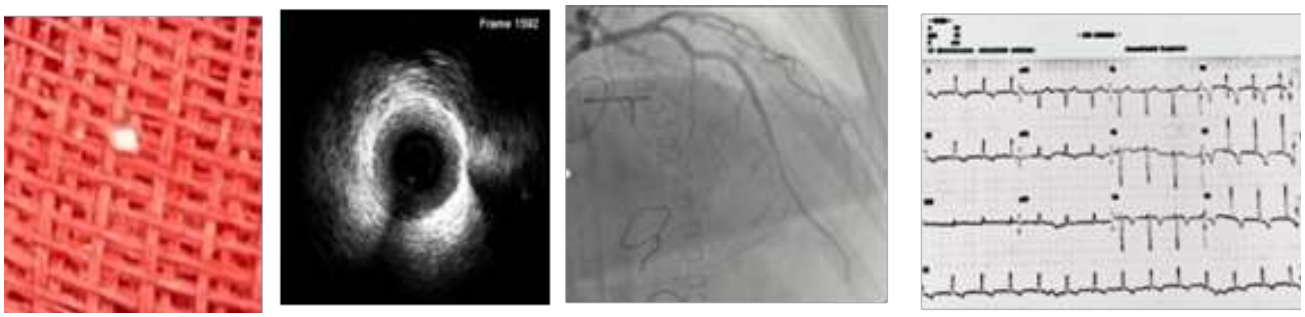
During the first 1 postoperative hours, he presented a decrease in blood pressure figures with a higher requirement for mines, a control EKG was performed with evidence of ST-segment elevation > 0.5 mm in the antero-septal face, echocardiogram with basal and mid-anterior hypokinesia, basal antero-septal and a half, Left Ventricular Ejection Fraction (LVEF) 43% with aortic valve with normal velocities and gradients.





Presented urgently to the hemodynamics service and underwent coronary angiography immediately, acute total obstruction of the distal segment of the LAD artery was found, Battle Guide coronary guide is advanced, which presents difficulty in crossing the site of obstruction, so the guide with greater support (Floppy) is advanced, which manages to pass the stenosis site, positioning itself in the distal segment of the LAD, Mechanical Thromboaspiration with a vacuum pump is performed, performing three runs with aspiration of multiple calcium spicules, it presents slow flow and vasospasm so vasodilator drugs are administered with adequate final flow.

Intracoronary ultrasound (IVUS) was performed without evidence of plaque at the site of stenosis, control angiography with adequate luminal gain and flow, so no stent was implanted.



Biography

I am of Nicaraguan nationality, 36 years old, I studied general medicine and a specialty in internal medicine in Managua Nicaragua, from 2017 to 2020 I completed my studies in adult cardiology and echocardiography at the National Autonomous University of México (UNAM-MÉXICO), 2021 continue My training in Interventional Cardiology to date, I have participated in many research projects as well as publications, I am currently responsible for the Structural Interventional Cardiology database at the hospital where I am training.

Virtual Event
3rd Global Conclave on
Advanced Cardiology and Cardiovascular Innovations
June 28, 2024

Vasorelaxant effect of Moroccan *Cannabis sativa* threshing residues on rat mesenteric arterial bed is endothelium and muscarinic receptors dependent

Youssef Mahou[1], Alae Chda[1], Nour Eddine Es-Safi[2], Angela Tesse[3], Nezha Fettoukh[4], Aziz El Bouri[4], Hamid Stambouli[4], Kaouakib El Abida[1], Rachid Bencheikh[1]

[1]LBM2B, FST, USMBA, Fes, Morocco
[2]Mohammed V University in Rabat, LPCMIO, Materials Science Center (MSC), ENS, Rabat, Morocco
[3]Nantes Université, INSERM, CNRS, l'Institut du Thorax, Nantes 44007, France
[4]Institut de Criminalistique de La Gendarmerie Royale, BP 6597 Rabat-Instituts, Rabat, CP 10000, Morocco

Introduction: Ethanolic fraction of Moroccan *Cannabis sativa* threshing residues (EFCS) has been tested for an eventual vasorelaxant activity. The current work aims to identify the active metabolites in the ethanolic fraction of the EFCS and illustrate their possible vascular mechanism of action.

Methods: Free radical scavenging capacity of EFCS was assessed using DPPH method. The EFCS vasodilation activities in phenylephrine-pre-contracted isolated rat mesenteric arterial beds were investigated in presence of L-NAME (nitric oxide synthase inhibitor), indomethacin (cyclooxygenase inhibitor), potassium channels blockers namely (Tetraetylamonium, Barium chloride and glibenclamide) and atropine. NO vascular release was measured by electron paramagnetic resonance (EPR) using a spin trap in rat aortic rings.

Results: EFCS induced dose-dependent vasorelaxation on mesenteric vascular bed. Incubation of the preparations with L-NAME, ODQ (a soluble guanylyl cyclase inhibitor) or potassium channels blockers, reduced the fall of perfusion pressure caused by EFCS. Endothelial denudation or atropine abolished the EFCS's vasorelaxant effect, suggesting the activation of muscarinic receptors and involvement of endothelium relaxing factors. The extract induced nitric oxide release in aortic rings in a similar manner as acetylcholine suggesting an effect of EFCS on the muscarinic receptor and the arteries conductance. Chemical investigation of EFCS identified potential active components namely apigenin and derivatives of luteolin skeleton and also additional components such as neophytadiene, squalene, β-sitosterol.

In conclusion, the vasorelaxant effect of EFCS on rat mesenteric arterial bed, which is dependent of muscarinic receptor activation, nitric oxide and EDHF, can account for potential therapeutic use against high blood pressure related cardiovascular diseases.

Physical activity improves health-related quality of life, 6MWT, and VO2 peak before and during COVID-19 in patients with heart failure: A meta-analysis

Ruku DM[1], Fandy AB[2] and **Chen H M[2]**

[1]*Faculty of Nursing, Klabat University, Indonesia*
[2]*Department of Nursing, College of Medicine, National Cheng Kung University, Taiwan*

Objective: To compare the effects of physical activity on improving health-related quality of life (HRQOL), six minutes walking test (6MWT), and oxygen consumption (VO2) peak before and during Coronavirus disease (COVID-19) in patients with heart failure.

Methods: Following PRISMA guidelines, we searched for relevant articles from five databases, including Embase, MEDLINE, CINAHL, PEDro, Cochrane, and additional resources. Study quality was assessed using Joanna Briggs Institution (JBI). RevMan 5.3 software was used to perform the meta-analysis.

Result: Fifteen randomized controlled trial studies met the criteria. Analysis of the subgroup before COVID-19 showed that PA had a significant effect on HRQOL, as measured by MLHFQ (SDM: −0.27, 95% CI: −0.47 to −0.07, n = 590), KCCQ (SDM: 2.10, 95% CI: 0.74 to 3.46, n = 53), 6MWT (SMD: 1.63, 95% CI: 0.80 to 2.46, n = 284), and VO2 peak (SMD: 0.97, 95% CI: 0.00 to 1.93, n = 106). Analysis of the subgroup during COVID-19 showed that PA resulted in a significant effect on HRQOL, MLHFQ (SDM: −0.62, 95% CI: −1.32 to 0.09, n = 221), KCCQ (SDM: 0.33, 95% CI: 0.15 to 0.50, n = 486), 6MWT (SMD: 0.47, 95% CI: 0.22 to 0.73, n = 493), and VO2 peak (SMD: 0.35, 95% CI: 0.10 to 0.60, n = 325).

Conclusion: The PA could increase HRQOL, 6MWT, and VO2 peak before and during COVID-19, and therefore should be considered as part of daily activities for patients with HF.

Biography

Worked as a lecturer at Klabat University from 2013 until now, and previously worked in the ICU department for 12 years

Beta-Blocker efficacy for intra- and interdialytic hypertension patients: A systematic review and meta-analysis

Eugenia Maria Alodia Hartono[1], Felicia Fransisca Saputra[2], Angeline Asti Shiela Permata[2] and **Jeanne Gabrielle Wibowo[2]**

[1]*Faculty of Medicine, University of Gadjah Mada, Indonesia*

[2]*Faculty of Medicine, University of Brawijaya, Indonesia*

Purpose: Intradialytic hypertension affects 5–15% of hemodialysis patients, yet relevant studies are relatively scarce. It is also associated with higher interdialytic blood pressure. Beta-blockers can be preferred as antihypertensive drugs due to their superior blood pressure control, decreased risk of cardiovascular events, improved endothelial cell function, and decreased noradrenaline levels. Through this study, beta blocker antihypertensive effects in intra- and interdialytic hypertension were analyzed.

Methods: Systematic review and meta-analysis were performed following PRISMA guidelines. We registered our PROSPERO protocol (Registration ID: CRD42023446184) and included relevant full-text clinical trials or RCTs from 2008 to 2023 with predetermined keywords and criteria from multiple databases including PUBMED, COCHRANE, SCOPUS, and citation searching. Seven eligible articles were included in this review study.

Results: Four studies with 82 participants for intradialytic hypertension evaluation were included. Meta-analysis showed a decrease in SBP in intradialytic hypertensive patients after beta-blocker intervention, with a significant estimated mean difference of -15.19 mmHg (P<0.00001; 95% CI −19.47 to −10.91). Supporting previous data, SBP remains constant between pre- and post-dialysis with beta-blocker therapy, with an insignificant estimated mean difference of -2.72 mmHg (P=0.29; 95% CI -7.80 to 2.36). Whereas five studies with 142 participants were included for interdialytic hypertension evaluation. Meta-analysis shows a significant decrease in SBP before-to-after therapy, with an estimated mean difference of -10.92 (P<0.0001; 95% CI -16.33 to -5.51).

Conclusion: Beta-blocker treatment resulted in significant reductions in post-hemodialysis systolic blood pressure among intra- and interdialytic hypertensive patients.

Biography

Eugenia Maria Alodia Hartono is a Medical Intern at RS PKU Muhammadiyah Wonosari and Puskesmas Wonosari 2, Yogyakarta, and a Research Assistant at RSUP Dr. Sardjito. Her dedication to healthcare evident through her clinical work and contributions to medical research. She actively engages in patient care while refining her skills under seasoned professionals. As a Research Assistant, she advances medical knowledge through rigorous analysis and participation in training sessions and symposiums. Alodia's scholarly pursuits include oral presentations and publications, showcasing her commitment to knowledge dissemination. Motivated by her passion for medicine, Alodia strives for exellence, embodying values of dilligence and empathy in her professional journey.

Evaluation of urban green space per capita with new remote sensing and geographic information system techniques

Sima Pouya[1] and **Majid Aghlmand**[2]

[1]*Department of Landscape Architecture, Faculty of fine Arts and Design, Inonu University Turkey*
[2]*Department of Civil Engineering, Eskişehir Technical University, Turkey*

A recently conducted study by the Centers for Disease Control and Prevention encouraged access to urban green space for the public over in that exposure to urban green space can positively affect the physical and mental health, including the reduction rate of heart disease, obesity, stress, stroke, and depression. In this regard, it seems that one of the problems related to Malatya is the uncoordinated distribution of green space in different parts of the city. Therefore, knowing the quantity and quality of these spaces in each region can play an effective role in urban planning. The aim of the present study has been to evaluate urban green space per capita and to investigate its distribution based on the population of the districts of Battalgazi county in Malatya city through developing an integrated methodology (remote sensing and geographic information system). Accordingly, in Google Earth Engine by images of Sentinel-1 and PlanetScope satellites, it was calculated different indexes (NDVI, EVI, PSSR, GNDVI, and NDWI). The data set was prepared and then by combining different data, classification was performed according to support vector machine algorithm. From the landscaping maps obtained, the map was selected with the highest accuracy (overall accuracy: 94.43; and kappa coefficient: 90.5). Finally, by the obtained last map, the distribution of urban green space per capita and their functions in Battalgazi county and its districts were evaluated. The results of the study showed that the existing urban green spaces in the Malatya were not distributed evenly on the basis of the districts. The per capita of urban green space is twenty-four regions which is more than 9m2 and in twenty-three ones is less than 9m2. The recommendation of this study was that Türkiye city planners and landscape designers should re plan and redesign the quality and equal distribution of urban green spaces.

Biography

Sima Pouya (Ph.D.) works at the Department of Landscape Architecture, Inonu University. She does research in Children's play areas, Healing Gardens, Landscape Design, Historical landscapes, School gardens, Hospital gardens, gardens for Disabled children, Sensory Garden, Roof gardens, Agronomy, and Agricultural Plant Science.

The prevalence, angiographic profile and clinical features, management, and outcomes of coronary artery perforation secondary to percutaneous coronary interventions in Pakistan: a retrospective cohort study

Ali Rubia[3], Khan Aiman[1] and **Kumar Rohan[2]**

[1]InstitutLiaquat College of Medicine and Dentistry, Pakistan
[2]Jinnah Sindh Medical University, Pakistan
[3]Liaquat National Medical College, Pakistan

Introduction: Coronary artery perforation (CAP) is a rare entity that is often fatal. The mortality rates reported as high as up to 21% hence prompt diagnosis, intervention, and treatment are paramount to survival for such patients. Several factors may predispose a patient to coronary artery intervention including chronic total occlusion, severe calcification and tortuosity, aggressive use of oversized balloons and stents, and use of at hero-ablative devices. Therefore, it is significant to have an insight related to it as despite being rare, it is one of the most feared complications of percutaneous coronary intervention (PCI).

Method: We conducted a retrospective study of the patients who have undergone PCI at our institution from January 2015 to December 2021. During this duration, all the patients who had developed CAP based on angiographic review during the PCI were selected.

The demographic, clinical, angiographic, procedure-related features, management of the CAP, and in-hospital and follow-up outcomes were gathered.

Result: Thirty-five thousand fifty-nine patients underwent PCI among which, only 93 (0.26%) patients were complicated with (CAP. Fifty-eight (62.4%) patients were in the 50–70 years age range. The most common vessel involved was the left anterior descending (36.5%) followed by the right coronary artery (32.3%). The angiographic calcification was present in 51.6% of patients, significant tortuosity greater than 90° was seen in 48.4% of patients, chronic total occlusion was observed in 42% of patients and In-stent restenosis was found in 8.6% patients. The highest mortality of four patients was seen in the CAP involving the right coronary artery.

Conclusion: Mostly the CAP involves large vessel perforations however both, the distal and large vessel perforations are related to the increased incidence of adverse clinical results which indicates the significance of the prevention and early identification and treatment of the perforation.

Biography

Introduction: I'm a final year medical student with an unwavering passion for medicine. My journey reflects dedication, academic excellence, and a commitment to making a difference.

Early Years: Born curious and empathetic, I always knew I'd pursue a healthcare career. My early years were marked by a relentless pursuit of knowledge and a genuine desire to help others.

Academic Excellence: Throughout my academic journey, I consistently excelled. Actively participating in various research projects, I published studies in renowned medical journals.

Extracurricular Engagement: Beyond class, I actively engaged in societies like "Helping Hands," displaying a deep commitment to improving society's less fortunate.

Philanthropic Endeavor: Driven by my desire to help the poor and destitute, I established a non-profit organization (NPO) providing essential supplies and monetary aid.

Medical Internships and Electives: Actively seeking internships and electives, I honed practical skills and deepened my commitment to medicine.

Future Aspirations: As I near the culmination of my medical education, I'm poised to begin my residency in internal medicine. My goal: providing exceptional care, making a lasting impact on patients' lives.

In conclusion, my journey exemplifies dedication and compassion, fueled by education and empathy. My future in medicine promises to transform lives and continues to inspire those around me.

Prevalence of hyper cholesterolaemia in outpatient children aged 9-11 years

Ahmad Chreitah and **Nour Ibrahim**
Tishreen University Hospital, Syria

Background: Hypercholesterolaemia is a silent disease that is considered to be one of the main risk factors for cardiovascular disease, often beginning in childhood, and early diagnosis and management may reduce the risk of developing atherosclerosis and early cardiovascular disease in early adulthood.

Objectives: The purpose of this study was to evaluate the importance of universal screening for dyslipidemia in children aged 9–11 years.

Methods: An observational, descriptive, cross-sectional study was conducted from July 2021 to June 2022. A total of 532 children (279 girls and 253 boys) aged 9–11 years were enroled, and non-fasting blood samples were obtained to measure total cholesterol (TC) levels in the blood.

Results: The mean serum TC was 136.4 ± 28.1 mg/dl. Thirty-two children (6%) of the screened participants had abnormal TC levels; those were tested subsequently by fasting serum TC, and 19 children were confirmed as dyslipidemic (3.5%). The prevalence of borderline blood cholesterol levels (TC between 170 and 199 mg/dl) was 2.6% CI 95% (2.2–3.2), and the prevalence of hypercholesterolaemia (TC ≥ 200 mg/dl) was 0.9% CI 95% (0.5–1.4). A positive correlation was found between body mass index and blood cholesterol level. (r = 0.55, P = 0.002).

Conclusions: Universal non-fasting TC screening in children aged 9–11 years old is effective in detecting hypercholesterolaemia. Since the authors found that the positive family history as the sole basis for selective examination in children is insufficient.

Biography

MD – DIS pediatrics

DIU Pediatric Endocrinology

DU Methodology of Medical Research

DU Clinical Epidemiology & Biostatistics

CU Bioethics Johns Hopkins USA

Scope of Interest:

1. Growth and puberty disorders.
2. Obesity and metabolic syndrome.
3. Methodology of medical research and biostatistics.
4. Evidence-based medecine

Administrative and cientific tasks:

1. Appointment as Vice Dean of the College of Medicine for Scientific Affairs, 2005-2007 and 2019-2020.
2. Member of the Scientific Committee of Arab Board since 2018
3. Representative of the Pediatricians Association - Lattakia Branch 2004/2010.
4. Chairman of the Scientific Committee of Endocrinology and Metabolism in the Arab Board since 2021
5. Shared in the supervision and the evaluation of more than 100 M.s.c and MD theses in different universities of Syria.

AI- Atria Oracle - an artificial intelligence sentinel for precision prognostication of atrial fibrillation risks in post-cardiac surgery care- pilot study

Anand Shankar Soundararajan
Institute of Cardiovascular and Thoracic surgery, India

Introduction: Embarking on the forefront of cardiac care, this study pioneers an AI-driven scoring system for predicting atrial fibrillation risks post cardiac surgery. Drawing insights from established methodologies, ChatGPT crafts a sophisticated tool, demonstrating robust performance in a diverse cohort. This innovative approach holds the promise of revolutionizing preoperative risk assessment and subsequent management strategies in cardiac surgical interventions.

Objective: This study endeavours to revolutionize the prediction of atrial fibrillation (AF) risk following cardiac surgery through the development of an innovative AI-driven scoring system. Drawing insights from five globally recognized articles on Scoring system for predicting the Post-Operative Atrial Fibrillation (POAF) in post-cardiac surgery, ChatGPT, an advanced language model, crafted a sophisticated tool for predicting complications before thoracic surgery.

Methods: The research involves a comprehensive examination and synthesis of existing scoring methodologies related to AF complications post cardiac surgery. Employing state-of-the-art machine learning techniques, ChatGPT engineers a robust scoring system designed to enhance the accuracy of preoperative assessments, enabling the early identification of individuals at higher risk for postoperative atrial fibrillation.

Validation: In a retrospective cohort study spanning from January 2023 to July 2023, this study evaluates 100 consecutive patients, 18 years and above, undergoing various cardiac surgical procedures. Focus is placed on the occurrence of atrial fibrillation within 30 days post-surgery. The AI-derived scoring system demonstrates compelling performance metrics, with an Area Under the Curve (AUC) of 0.85 in derivation and 0.77 in validation, indicating its efficacy in predicting atrial fibrillation risks.

Results: Out of the 100 patients studied over a 7-month period, 18.5% developed postoperative atrial fibrillation. Key predictors identified include Age, Transischemic attack/stroke, Ejection fraction, Left Atrial Size and Surgical Procedure Type.

Limitation: The study acknowledges potential limitations related to sample size, impacting generalizability. Additionally, inherent biases associated with retrospective study designs are duly recognized.

Conclusion: This study presents a cutting-edge AI model-based scoring system for the proactive assessment of atrial fibrillation risk following cardiac surgery. With a strong predictive accuracy and calibration, the developed system holds promise for optimizing preoperative risk stratification and subsequent management strategies in the context of cardiac surgical interventions.

Biography

Anand Shankar Soundararajan is a driven Master's Student specializing in Cardiovascular and Thoracic Surgery at the renowned Institute of Cardiovascular and Thoracic Surgery, Rajiv Gandhi Government General Hospital in Chennai, India. With an impressive academic background, he completed his MCh in Cardiovascular and Thoracic Surgery at Madras Medical College and his MS in General Surgery at Coimbatore Medical College and Hospital.

Anand's passion lies in advancing cardiothoracic surgery through innovative technologies, notably artificial intelligence (AI). His research spans diverse areas including cardiac, vascular, and thoracic surgery, focusing on harnessing AI to optimize patient care. With expertise in valve replacement, congenital heart disease repair, and aortic surgery, Anand is positioned to drive innovation in the field.

During his tenure as a Senior Resident at KMCH Institute of Health Science and Research, Coimbatore, Anand gained invaluable clinical experience, further fueling his commitment to advancing the discipline. His dedication is evident in his contributions to pioneering research projects, particularly in exploring the potential of AI in cardiac surgery.

Inhibitory effect of α-amylase and α-D-glucosidase by non-digestible arabinoxylan oligosaccharides extracted from Plantago ciliata Desf. seeds and their inhibition kinetics

A.S. CHENINE[1], Z. BOUAL[2] and **A. KHEMILI[3]**

[1]Department of Biological Sciences, Faculty of Natural and Life Sciences/ Amar Telidji University Laghouat, Algeria
[2]Department of Biological Sciences, Faculty of Natural and Life Sciences University Kasdi Merbah Ouargla, Algeria
[3]Laboratory of Biotechnology, Water, Environment and Health, University of Abbes Laghrour Khenchela, Algeria

For centuries, Plantago have been used in traditional medicine due to their various properties as healing, anti-inflammatory, antibacterial, antihyperglycemic and anti-asthmatic agents. These multiple pharmacological effects have been attributed mainly to their polysaccharides which are often described as heteroxylans. The primary objective of this study is to examine the influence of the partial acid hydrolysis of a polysaccharide derived from Plantago ciliata Desf. seeds into oligosaccharides on its antihyperglycemic activity. To achieve this, the resultant oligosaccharides were assessed for their ability to inhibit two enzymes involved in carbohydrate hydrolysis, namely α-amylase and α-D-glucosidase. Furthermore, the investigation extended to enzyme kinetics analysis to elucidate the inhibition mechanism. The study also evaluated the oligosaccharides' resistance to digestion through in vitro analysis. The results revealed that the arabinoxylan oligosaccharides derived from P. ciliata seeds (AXOPCs) have demonstrated significant inhibitory effects on α-amylase and α-D-glucosidase enzymes, with IC50 values of 2.36±0.38 and 1.19±0.16 mg/mL, respectively. Whereas acarbose used as reference in both tests had presented lower IC50 values of 0.34±0.18 and 0.703±0.27 mg/mL. These oligosaccharides act as effective uncompetitive inhibitors of α-amylase and exhibit non-competitive inhibition towards α-D-glucosidase, with inhibition constant values of 5.47 and 2.49 mM, respectively. The AXOPCs have been successfully tested as non-digestible oligosaccharides with maximum percentages of digestibility of 22.8% compared to 51.3% for fructooligosaccharides used as a reference. These results are consistent with traditional uses of P. ciliata seeds in medicine for reducing blood sugar levels. *In vivo* experiments should complete these results to assess their uses as new naturel healthy drugs.

Analysis of COVID-19 vaccinations and symptom mapping diagnostic technique for viral diseases: Using data analytics, machine learning and artificial intelligence

Chikezie K. Kalu
Department of Management Sciences and Engineering, Jiangsu University, China

Background: The increasing challenge of modern medicine to continually improve to meet up with the evolving viruses, viral diseases and other forms of human diseases; requires urgent and a thorough approach for the good of humanity. Therefore, innovative measures must be applied in vaccination production and distributions, which have been identified as a most potent method to curb viral diseases and of current interest, the Corona Virus.

Objective: To analyse and measure the COVID-19 vaccination outlook in a developing country as Nigeria; and the non-clinical analysis, diagnosis, treatment and management of COVID-19 and other viral diseases, using Data/Machine Learning(ML)/Artificial Intelligence (AI) tools and Methodologies.

Methods: Using current and historical data from validated open source data stores, analysis was carried out on COVID-19 vaccination and related economic, demographic and geo-climatic data for a developing country, Nigeria and selected countries from all Continents of the World. The methodical and data-driven analyses were carried out using the following Data/Artificial Intelligence (AI) methodologies and algorithms: Multivariate Regression Analysis, Symptom Mapping Analysis, and Grey System Analysis.

Results: The COVID-19 vaccinations expectedly does reduce the number of active covid cases and the amount or number of vaccinations for a developing country as Nigeria is affected by a good number of economic, demographic and geo-climatic factors; and so COVID-19 vaccinations strategies must be unique to a Country and take into account influencing factors not only limited to number of active covid cases.

Conclusion: Medical practitioners can provide even more efficient diagnosis and treatment of viral diseases; and also patients can carry out personalised cost effective diagnosis and treatment/management of viral diseases, with also the advises of medical practitioners.

Biography

Mr. Chikezie Kennedy Kalu is currently a PhD Student at the Department of Management Science and Engineering, School of Management; Jiangsu University, China. His field of research is Technology and Innovation Management. He is from Nigeria and has a B.Eng. in Electronics Engineering from The University of Nigeria Nsukka; Enugu State, Nigeria (UNN) and a Masters (with Distinction) in Communication Engineering from The University of Manchester, UK. He has also had professional work experiences cutting across the Industries of: Telecom Engineering, Retail, Education, Oil and Gas, ICT and Logistics.

His research interests includes AI, Data Science/Analytics, Mathematical and Algorithms designs, Wireless Communications Systems and Electronics Engineering research and applications in various fields(including Health) for the good of humanity.

Determinants of inadequate health literacy among faculty of technical medical sciences students in Albania

Etleva Rustami[1], Dorina Toçi[2], Klodiana Poshi1 Irida Pano[1], Elinda Gjata[1] and **Alma Pula[1]**

[1]Department of Clinical Subjects, Faculty of Technical Medical Sciences, University of Medicine, Albania
[2]Institute of Public Health, Albania

Background: Health literacy of nursing students is important so that tomorrow's nursing professional deliver high quality healthcare and enhance patient education and communication.

Objective: The aim of this study was to assess the HL level of nursing students in order to shed light on this under-researched topic in Albanian settings.

Methods: A cross-sectional study involving 193 nursing students of various study branches was carried out during 22-29 June 2022, in the premises of the Nursing Faculty, in Tirana, Albania. The international HL-EU-Q standardized questionnaire, validated in Albanian language, was used to collect information about nursing students' general HL through a face-to-face interview. Basic socio-demographic information was collected as well. Binary logistic regression was used to assess the factors associated with inadequate/problematic (limited) HL.

Results: The mean level of general HL was 37.2 (on a scale form 0 - minimum HL to 50 – maximal HL). About one quarter of nursing students had inadequate (4.7%) or problematic (19.7%) HL. The prevalence of limited HL was higher among male students, and those with lower social and economic status. The only factor significantly increasing the likelihood of limited health literacy was male gender (OR=8.13, 95%CI:1.68-39.39). Findings suggested that low social and economic status also increase the likelihood of limited HL, but such associations did not reach statistical significance.

Conclusion: The prevalence of limited HL was relatively high among nursing students. There is need for target interventions to increase the HL of nursing students, such as the inclusion of HL subject in nursing curriculum.

Burden of stillbirths among women vaccinated with COVID-19 vaccines: A systematic review and meta-analysis

Shashi B. Singh
Department of Community Medicine, Rajendra Institute of Medical Sciences, India

Objective: To estimate the global burden of stillbirths among pregnant women with the COVID-19 vaccination.

Data source: In this systematic review and meta-analysis, a literature search was carried out in PubMed, Cochrane and Scopus until February 4, 2023, with language restriction (English).

Study selection: Title-abstract screening followed by full text review was done independently by two authors, based on the research question, "What is the prevalence of stillbirths among the pregnant women vaccinated with COVID-19 vaccines?"

Data extraction: Two authors independently extracted the relevant data from every study. The third author resolved the conflicts. This study was registered in PROSPERO and followed the PRISMA guidelines.

Data analysis: A Random effects model was applied to assess the pooled estimate of stillbirths. The I2 test was used to assess the heterogeneity of the articles included in the study. For checking the publication bias, the Doi plot and the contour-enhanced funnel plot were utilized.

Results: The database systematic search yielded 168 articles; 11 of them were determined to be eligible for systematic review and 8 of them ended up being included for meta-analysis. The pooled prevalence of stillbirth in pregnant women vaccinated against COVID-19 infection was 0.00509 (5 per 1000 live births delivered by pregnant women vaccinated against COVID-19 (95% CI: 0.00003–0.01676). Statistically significant heterogeneity was reported across studies (I2 = 98%; $p < 0.01$)

Conclusions: The study concluded that vaccination against COVID-19 among pregnant women had a low stillbirth rate. It adds to the existing evidence that the COVID-19 vaccine is safe and can be taken during pregnancy.

Biography

He is Associate Professor of Biostatistics .He has done Ph.D in Science from BIT Mesra, Ranchi. He is dedicated in teaching and research area since last 20 years in the field of Biostatistics. Major research areas are public health problems. He has also delivered several Lecture on SPSS, ICD-10, Role of Biostatistics in Medical Research in reputed institute like BIT Mesra, TMH, MGMCH, Tata ,Bioinformatics centre, Ranchi .He is also involved in design and data analysis of several extra mural research projects. He is expert in Regression analysis and Panel Data Analysis. He have published 36 original research papers in National and International Journal and 31 papers/posters have been presented in National and International Conference. A book has also been published tittled “Music and Medicine: Healing Brain Injury Through Ragas”, by CBH Publication (ISBN-9789383811298)

Use of pre-operative Hemoglobin A1c to predict early post-operative renal failure and infection risks in patients who are not diabetics and undergoing elective off pump coronary artery bypass graft surgery

Madhu M[1] and **Ankita Patni**[2]

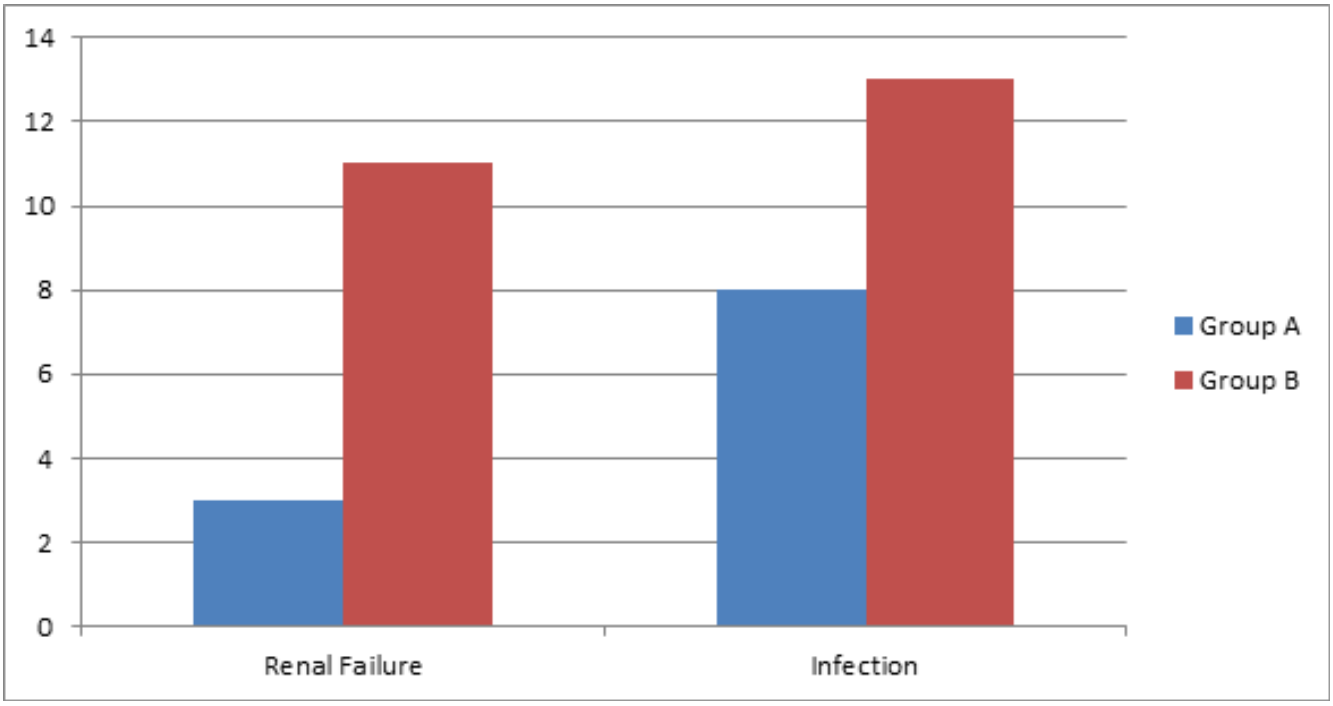
[1]*Department of Cardiac Anesthesia and Critical Care, Sri Sathya Sai Sanjeevani Centre For Child Heart Care, India*
[2]*Critical Care Registrar, Apollo Hospital, India*

Background: Recent studies have indicated that patients, both with and without diabetes with an increased HbA1c, have a higher rate of adverse outcomes following cardiac surgeries. Our study is focused on to evaluate the prognostic impact of admission value of HbA1c in non-diabetic patients for postoperative renal failure and infections.

Materials and Methods: Plasma HbA1c levels were collected from two hundred consecutive non diabetic patients who got admitted for elective off pump coronary artery bypass graft (CABG) procedure over a two years period under two groups, Group A whose HbA1c was < 6% at admission and Group B whose HbA1c was ≥ 6% and ≤6.4% at admission. After surgery, patients were followed up to see if they have got infection or renal failure as postoperative complication. Student's unpaired 't' test was used to test the significance of difference between the quantitative variables , Yate's and Fisher's chi square tests were used for qualitative variables.

Results: We found early postoperative renal failure in 14 (3/96 in Group A and 11/104 in Group B) out of 200 patients (7%) and infection in 21 (8/96 in Group A and 13/104 in Group B) out of 200 patients (10.5%).

After data analysis it was noted that there is a positive correlation between HbA1c and postoperative renal failure (P=0.0213) whereas no association was found between HbA1c and postoperative infections (P=0.175) in patients undergoing off-pump CABG surgery.



Conclusion: We found that in patients without diabetes, a plasma HbA1c ≥6% was a significant independent predictor for early post-operative renal failure. HbA1c may act as an independent screening tool to identify high risk non-diabetic cardiac surgery patients for early post-operative renal failure than merely using HbA1c for diagnosis of diabetes. Also, prospective intervention studies are required to evaluate whether improving HbA1c levels to < 6% decreases postoperative renal failure and infection complications.

Biography

I graduated in the field of Medicine from Adichunchanagiri Institute of Medical Sciences, India during 1991-1996 and completed my post-graduation in Anaesthesiology ,Diploma in Anaesthesia at Government medical college Mysore (2001) and Diplomate of National Board at Kamineni Hospitals,Hyderabad, India (2004) . I worked as a Consultant in General anesthesia at Vikram hospital and heart care , Mysore ,India for a period of 1yr and 6months before joining fellowship program in Cardiac anaesthesia at the prestigious 1000 beded Narayana Hrudayalaya Hospital , Bangalore , India. I also completed Fellow program of Indian association of cardiothoracic anaesthesia and in the year 2010 cleared the Fellowship exam of trans esophageal echocardiography (TEE) conducted jointly by Indian association of cardiothoracic anaesthesia, Indian academy of Echocardiography , Minnesota university, Leibzig University, Germany .

I joined Narayana Hrudayalaya hospital and worked as a consultant till 2016 during which period I had the opportunity to teach and guide DNB candidates of anaesthesia, Fellowship students in cardiothoracic anaesthesia . Later in the year 2016, I joined Sri Sathya Sai Sajeevani Center for child heart care as consultant and Head where all pediatric cardiac surgeries are done totally free of cost helping the nation in reducing the burden of congenital heart disease. I am actively involved in training pediatric cardiac anesthesia candidates affiliated to Maharashtra university of health sciences , India. I was a member of ethical committee of our institute for a period of three years (2020-2023).

Acoustic studies of changes in the characteristics of breathing and pulse during alternation of mental activity with relaxation

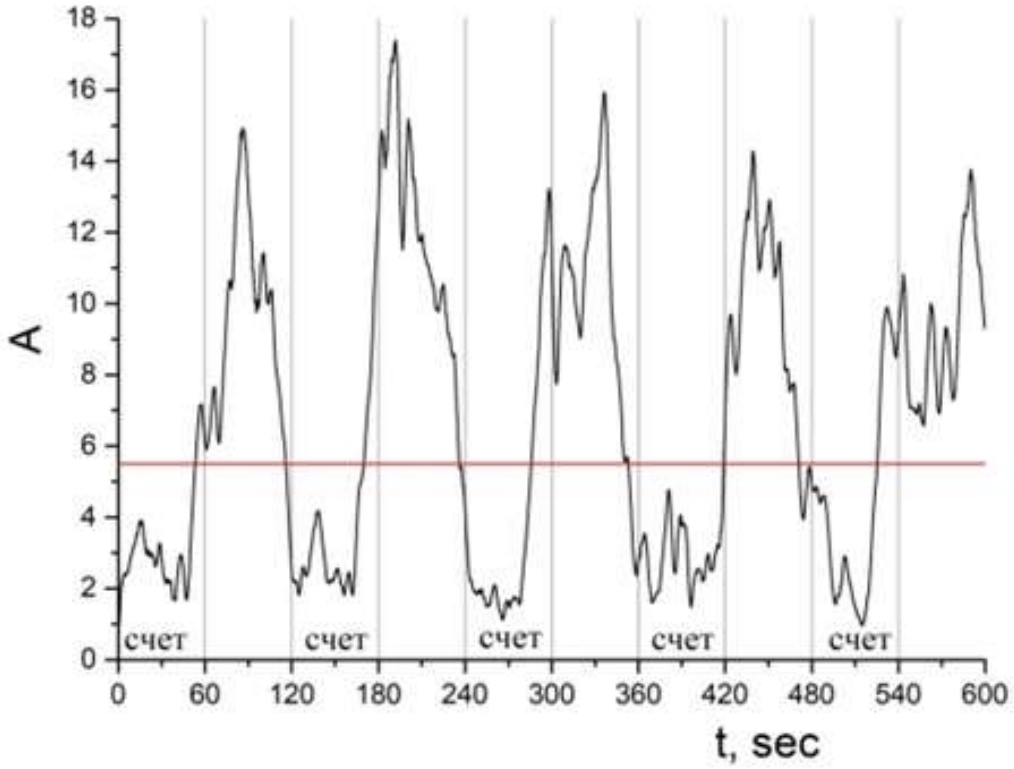
A. Gerus, V. Gerasimov and **E. Korablev**

Kotelnikov Institute of Radio Engineering and Electronics (Fryazino Branch), Russian Academy of Sciences, Fryazino, Russia

Acoustic signals recorded from the temples and parietal region of the subjects' heads during a change in mental activity were investigated. In this case, a minute-by-minute change in the mental calculation of the multiplication table for relaxation was used. A total of 18 people of both sexes, aged from 23 to 88 years, took part in the tests. From these signals, pulse signals and breathing signals were isolated. The signals were recorded using piezoelectric sensors mounted in the same housing with a low-noise amplifier. The sensors were installed in areas close to points T_3 and C_z.

Changes in the nature of pulse signals and breathing signals were detected, varying for different subjects. In addition, a special signal processing procedure was developed that makes it possible to quickly distinguish mental activity from relaxation for almost all subjects. In Fig. shows the result of signal processing for one of the subjects. It can be seen that the values of parameter A in odd minutes in which the counting was carried out are noticeably smaller than the values in even minutes during relaxation.

Comparison of the results obtained using this procedure with the time course of various characteristics of pulse and respiratory signals showed that the main reason for the observed differences in the values of A in different phases of mental activity is a change in the breathing period. A useful and unique property was that in order to determine mental activity, it was sufficient to process signals in a given period of time, without being tied to measurements in another phase of mental activity. In a certain sense, such a measurement is absolute. Let us add that the acoustic method of recording breathing differs from other known methods (spirometry and tensometry) in that it does not interfere with the breathing process itself and its measurements.



Biography

I was born in 1952. In 1976 I graduated from the Moscow Institute of Physics and Technology. And then I graduated from graduate school. In 1990, I defended my PHD thesis on the topic Features of resonant acousto-optical phenomena in semiconductors and dielectrics. I am a specialist in the field of acoustics, optics, and electronics. In recent years, I have been researching acoustic signals taken from the human head, from the region of the heart and trachea. Sinse 1996 to the present I have been working at the Kotelnikov Institute of Radio Engineering and Electronics (Fryazino Branch) Russian Academy of Sciences as a senior researcher.

Contribution of anti-β2 glycoprotein1 IgA testing in the diagnosis of seronegative-APS for patients with cerebral thrombosis

Imene Hocine[1,2]

[1]*Department of Pharmacy, Algiers University, Algeria*
[2]*Hemostasis Department, University Hospital of Bab El Oued, Algeria*

Seronegative antiphospholipid syndrome has been suggested for patients with clinical manifestations highly suggestive of APS but persistently negative criteria-aPLs. Evidence gathered over the last years of research in thrombosis reported the pathogenic significance of non-criteria aPLs, among them IgA isotype. However, their role in the occurrence of neurological thrombosis, has not yet been studied. In this article, we aim to: (1) determine the prevalence of aβ2GP1 IgA in cerebral thrombosis, (2) study the association and (3) assess the diagnostic value of aβ2GP1. This study enrolled 70 patients with cerebral thrombosis without underlying autoimmune disease referred for thrombophilia assessment and 165 healthy controls. In addition to a coagulation screen and inherited thrombophilia testing, patients and controls were tested for criteria (LA; aβ2GP1; aCL IgM/IgG) and non-criteria aPLs (aβ2GP1 IgA; aCL IgA; aPS-PT; IgM/IgG). The overall aβ2GP1 IgA prevalence in patients was 61.4 % (43/70) mostly isolated in 50 % (35/70) while 50 % were positive for criteria-aPLs. aβ2GP1 IgA were the most prevalent aPLs in cerebral venous thrombosis compared with stroke (92.3 % vs 54.4 %). A significative relationship between aβ2GP1 IgA and the occurrence of CVT and stroke has been established (x2 = 6.9, p = 0.008; x2 = 4.03, p = 0.045). There was a high specificity of aβ2GP1 IgA testing for stroke (79 %) and CVT (100 %) despite a lower sensitivity (73 %; 52 %, respectively). The aβ2GP1 IgA testing improved considerably (50 %) the diagnosis of patients with cerebral thrombosis and negative criteria-aPLs, who may benefit from an adapted therapeutic care. Laboratory consensus criteria might consider aβ2GP1 IgA and set up a sequential approach improving APS diagnosis.

Biography

Dr. Imene HOCINE studied pharmacy and graduated as pharm D in 2011, then she joined a Specialized Postgraduate Medical Studies in Hemo biology and Blood Transfusion at Algiers University 1, Algeria, where she received PhD degree in 2016. During 18 months, she worked as scientist and researcher in the Hemostasis Department of the University Hospital of BAB EL OUED in Algiers. In 2018, she obtained the position of Professor Assistant at Algiers University 1. She published two (2) research articles in ELSEVIER journal and participates to international congresses among them those organized by the International Society of Thrombosis and Hemostasis (ISTH).

Henoch–Schönlein purpura with antecedent allergic diseases in a 4-year-old child: A case report

Satkirti Bista,Yuvraj Adhikari and **Sammridhi Karmacharya**
Nepalese Army Institute of Health Sciences, Nepal

Henoch–Schönlein purpura (HSP)/immunoglobulin A vasculitis is an acute immunoglobulin-mediated vascular disorder compromising a triad of non-blanchable purpuric rashes, colicky abdominal pain and haematuria. The incidence rate of HSP is around 13–20 cases per 100 000 children under 17 years of age with a male-to-female ratio of 2:1. We the authors presented a case of a 4-year-old girl with antecedent allergic history associated HSP. She presented with non-blanchable purpuric rashes, abdominal pain with bilateral ankle swelling. She had been treated for atopic dermatitis seven days back and acute urticaria without angioedema two years back and acute tonsillitis fifteen days back. This case highlights the association of allergic disease and development of Henoch Scholein purpura and with this case report we wanted to draw attention of readers so as to increase future reasevh in this area it is very subordinate.

Diagnostic criteria by EULAR/PRINTO/PRES

Criterion	Description
Mandatory criterion	Purpura or petechiae with lower limb predominance
Minimum 1 out of 4 criteria	(1) Diffuse abdominal pain with acute onset
	(2) Histopathology showing leukocytoclastic vasculitis or proliferative glomerulonephritis with predominant IgA deposits
	(3) Arthritis or arthralgia of acute onset
	(4) Renal involvement in the form of proteinuria or haematuria

Biography

I am Satkirti Bista from Kathmandu Nepal. With regards to my academic qualifications I am currently persuading medical fraternity and I am. A fourth year medical student in a college affiliated under Tribhuvan University. I started by research journey from 2023 and have published 3 case reports and have other undergoing research work.

Virtual Event
3rd Global Conclave on
Advanced Cardiology and Cardiovascular Innovations
June 28, 2024

I-Center-Net: Interpretable hybrid model for automated multi-class classification of ECG signal based on the type of arrhythmia rhythms

Vidya K Sudarshan[1,2], Reshma A Ramachandra[2] and **Ru San Tan[3,4]**

[1]School of Computer Science and Engineering, Nanyang Technological University, Singapore
[2]DeepMed Systems Private Limited, India
[3]National Heart Centre Singapore, Singapore
[4]Duke-NUS Medical School, Singapore

Background: Artificial Intelligence (AI) methods are highly employed in faster Electrocardiogram (ECG) rhythm interpretation with minimal manual errors possible in the diagnosis of different arrhythmia episodes. However due to the black box nature of AI, models are lacking the explainability (transparency) and interpretability of the results becoming difficult for users. Therefore, recently, Explainable AI (XAI) approaches are gaining popularity for making the AI models more explainable and interpretable.

Methods: In this paper, a new interpretable hybrid model, named I-CEnter-Net (Interpretable-Convolutional Neural Network + Entropy + Classifier), is proposed for an automated classification of ECGs based on the type of arrhythmia rhythms present (Figure 1).

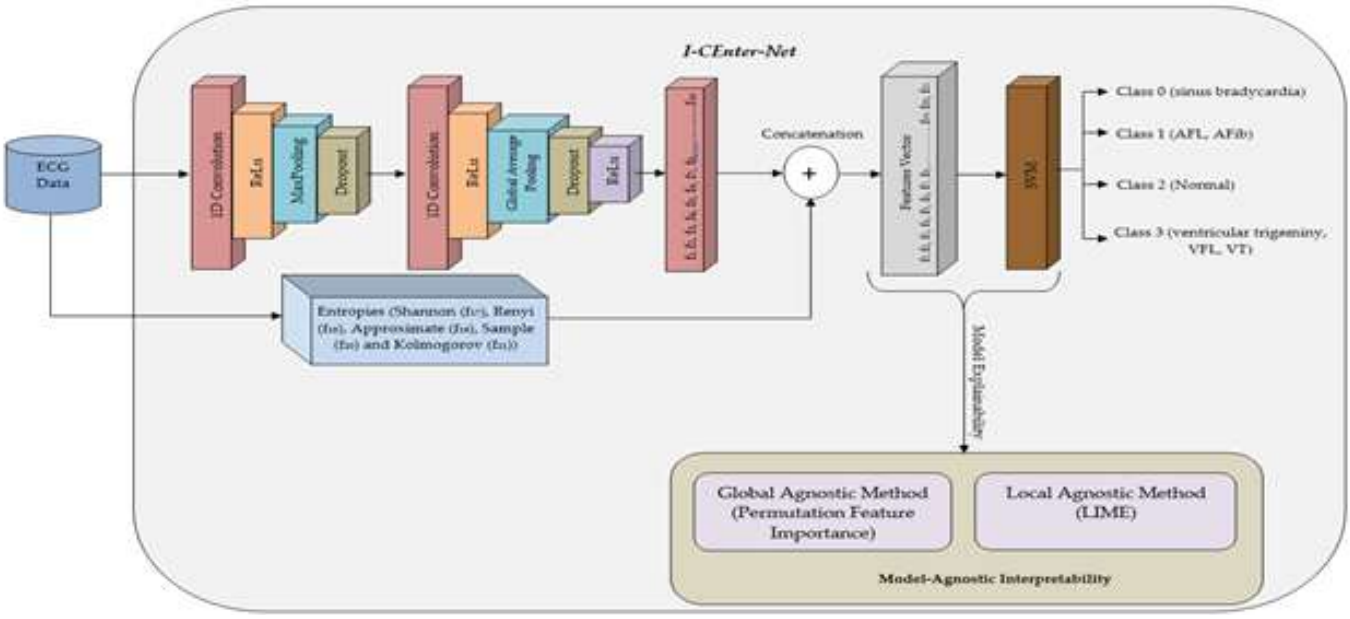


Figure 1: Proposed Architecture

Initially, normal and ECG signals having arrhythmia episodes are subjected to one dimensional Convolutional Neural network (CNN) to obtain deep features. These deep features are later concatenated with the handcrafted entropy features (Shannon Entropy (ShEn), Renyi Entropy (ReEn), Sample Entropy (SEn) and Approximate Entropy (ApEn)) extracted directly from ECG signals to form features vector. Finally, features vector is fed to Support Vector Machine (SVM) for automated multi-class classification of ECG signals as class0: sinus bradycardia, class 1: atrial flutter and atrial fibrillation, class 2: normal and class 3: ventricular trigeminy, ventricular flutter and ventricular tachycardia.

Results and Conclusion: The proposed CEnter-Net achieved an average accuracy of 98.5%, sensitivity of 99.32% and specificity of 97.60% (Table 1).

Iteration	Accuracy	Sensitivity	Specificity	Significant Entropy Features (Permutation Importance)
1	96.63%	96.55%	96.42%	Approximate, Sample, Renyi, Shannon
2	99.15%	100%	96.29%	Renyi, Sample, Approximate, Shannon, Kolmogorov
3	95.79%	100%	90.62%	Shannon, Sample
4	98.31%	100%	96.42%	Sample, Renyi, Approximate, Shannon
5	100%	100%	100%	Sample, Kolmogorov, Approximate, Shannon
6	98.31%	96.66%	100%	Renyi, Shannon, Approximate
7	100%	100%	100%	Sample, Approximate, Renyi, Shannon
8	100%	100%	100%	Approximate, Sample, Shannon
9	99.15%	100%	100%	Shannon, Renyi, Kolmogorov, Approximate, Sample
10	97.47%	100%	96.29%	Shannon, Renyi
Average	**98.5%**	**99.32%**	**97.60%**	

Table 1: Results of hybrid model during each-fold cross validation and the significant entropy features contributing to the results (interpretability)

To make the proposed hybrid model's prediction interpretable, Local Interpretable Model-agnostic Explanations (LIME) method is employed which demonstrated visual explanation by highlighting the significant features responsible for and considered in model's decision making (Figure 2).

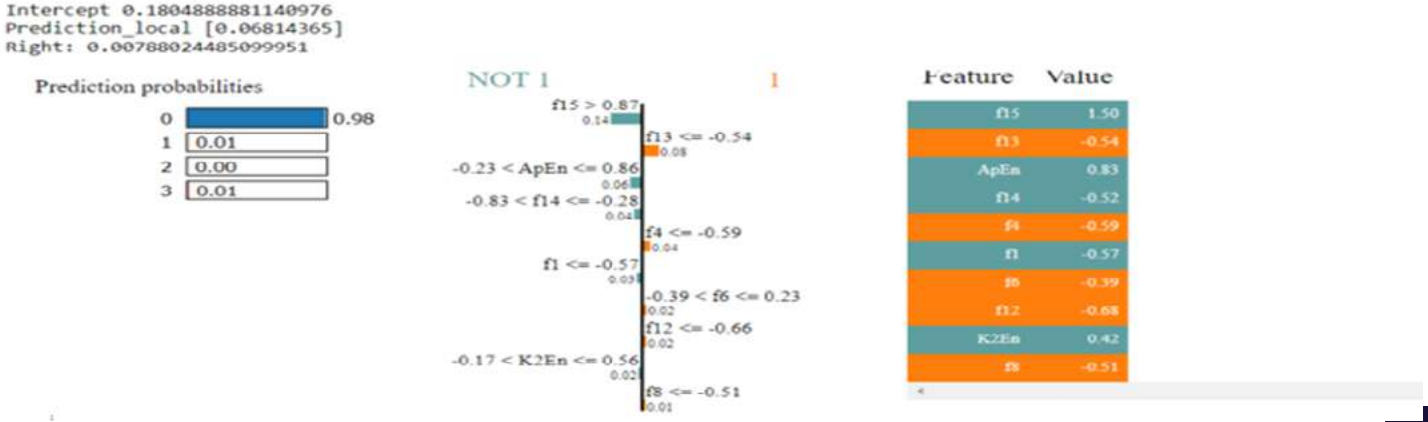


Figure 2: Visualization of the LIME results for Class 0 ECG categorization or prediction of classes

Thus, the proposed I-CEnter-Net can aid the clinicians in faster identification of type of arrhythmia rhythms/episodes and in addition the significant features to investigate while assessing patient's ECG signals. Proposed system can be used as an adjunct tool in the clinical settings or as a screening tool in the polyclinics.

Biography

Vidya Sudarshan is a Lecturer at School of Computer Science and Engineering, Nanyang Technological University, NTU, Singapore. She is also an Adjunct Lecturer in Singapore University of Social Sciences (SUSS), Singapore. She received her Postdoc from Southern University of Denmark and PhD from Nanyang Technological University (NTU), Singapore. She specializes in Biomedical and has more than 19+ years of clinical and academic research experience. Her expertise includes medical data mining, pattern recognition, predictive analytics, medical image processing, bio-signal processing, Intelligent Systems, and AI in medicine and has published more than 50+ research papers. She is also a founder of two start-up companies "CTX7095 Analytics" and "DeepMed Systems".

Triangular plasty of left atrium for atriomegaly during mitral-aortic-tricuspid valve correction: is it neccesary?

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National Amosov`s Institute of Cardiovascular Surgery, Ukraine

Objective: To determined possibillities of left atrium (LA)s reduction by original method of triangular plasty of LA (TPLA) during mitral valve replacement (MVR) for isolated mitral valve disease (MVD).

Methods: During 2005 – 2021 yy. 725 adult patients (pts) with MVD and LA`s atriomegaly (diameter of LA > 60 mm) average 68,4 ± 5,8 were operated at Institute. MVR were performed in 687 pts and MV`s plasty in 38. There were 330 (45,5%) males, 395 (54,5%) females. Average age was 55,5 ± 8,9 yy. There were 448 (61,8%) in IY NYHA class and 277 (38,2%) in III class. All data divided at 2 groups: group A - TPLA + ligation of LA`s auriculum was 148 pts and group B – 577 pts only MVR without LA`s plasty or ligation`s auriculum. All operations were performed with CPB, moderate hypothermia with crystalloid cardioplegia. Cross-clamping time of aorta (min) were: group A - 77,4 ± 8,6 and group B - 51,2 ± 4,9 (p< 0,05).

Results: The hospital mortality were: in group A - 2,0% (n=3/148) and in group B - 2,6% (n=15/577) (p<0,05). At the remote period (average was 8,2± 1,3 yy) 651 (91,7%) pts were followed–up. Data of echo for group A: diameter of LA (mm) - preoperative (PRE) - 63,2 ± 5,3, postoperative (POST) - 51,6 ± 3,8, remote period (RP) - 52,2 ± 2,7; ejection fraction of LV (EFLV): PRE – 0,52 ± 0,05, POST - 0,55 ± 0,04, RP - 0,58 ± 0,03 .

Data of echo for group B were: diameter of LA (mm): PRE- 68,5 ± 5,2 , POST - 69,3 ± 4,8, RP - 77,1 ± 5,1; EFLV: PRE – 0,53 ± 0,04 , POST - 0,54 ± 0,05, RP – 0,47 ± 0,04 . At remote period thromboembolic events and heart failure were marked respectively: in group A -1,7% and 2,9% and in group B – respectively 7,5% and 27,2% (p<0,05).

Conclusion: The original method of TPLA was allowing to improve better clinical results at group A than in B (p<0,05).

Improved healthcare monitoring of coronary heart disease patients in time-series fashion using deep learning model

Maria Daya Roopa[6], Shambhu Bhardwaj[1], Vipul Vekariya[2], Baldev Singh[3], Sri Vinay4 and **Alli Arul[5]**

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[2]Department of Computer Science and Engineering, Parul University, India
[3]Department of Computer Science & Engineering, Vivekananda Global University, India
4School of Computer Science Engineering and IS, Presidency University, India
[5]Department of MCA, Presidency College, India
[6]Department of Statistics, Christ University, India

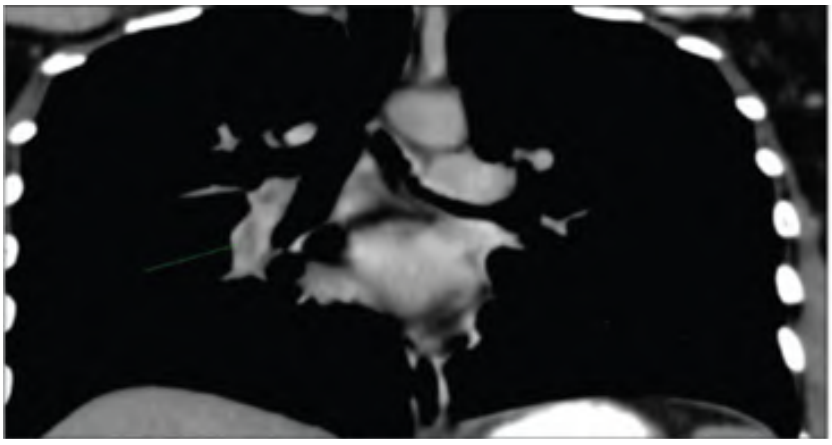
In this study, we present a novel deep learning approach for time series analysis aimed at improving healthcare outcomes in coronary artery disease (CAD) management. Leveraging the abundance of electronic health records, our model harnesses the power of recurrent neural networks (RNNs) and attention mechanisms to capture temporal dependencies and subtle patterns in patient data. By analyzing longitudinal data including medical history, diagnostic tests, and lifestyle factors, our model can accurately predict CAD progression and identify individuals at high risk of adverse events. We demonstrate the effectiveness of our approach on a large real-world dataset, achieving superior performance compared to traditional methods. Our findings highlight the potential of deep learning models in transforming CAD management by enabling personalized interventions and proactive healthcare strategies, ultimately leading to improved patient outcomes and enhanced healthcare delivery.).

Incidental peri-operative diagnosis of pulmonary thromboembolism and its successful management in rural tertiary cancer care center with limited resources

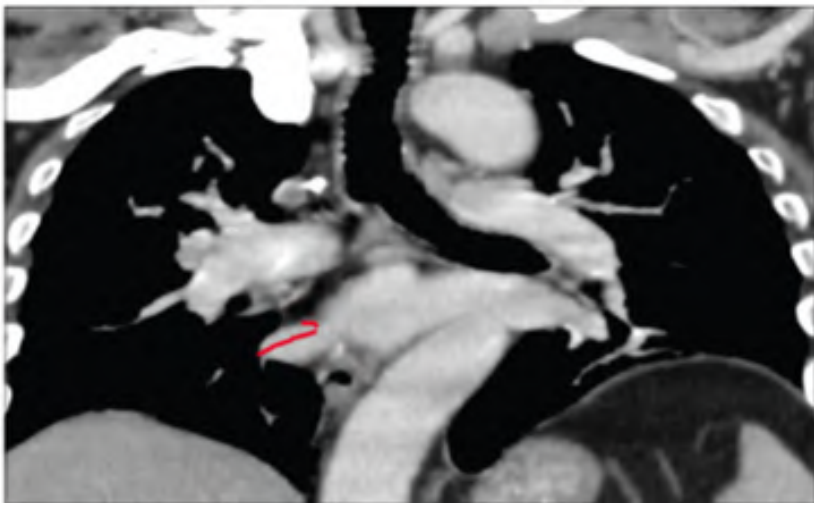
Jagdeep Sharma, Harsimran Walia, Sofia Jaswal and **Lalita G. Mitra**
Homi Bhabha Cancer Hospital & Research Centre, India

Pulmonary thromboembolism is a substantial cause of morbidity and mortality in patients with malignancy. Cancer patients have a four-to-eight-fold higher risk of dying than patients without cancer. Patients with pulmonary thromboembolism can be asymptomatic, with incidental findings on routine imaging before surgical procedures. Our patient with carcinoma ovary was posted for interval debulking surgery. She had undergone 3 cycles of Cisplatin-based chemotherapy. At the time of pre-anesthetic examination, Contrast-enhanced CT thorax showed a thrombus in the right descending pulmonary artery. She was started on the tab.

Rivaroxaban 15mg BD, for 2 to 3 weeks, followed up with review later. Review color Doppler showed complete resolution of the thrombus. Pre-operatively we shifted the patient on low molecular weight heparin. The patient was operated under general anesthesia with thoracic epidural analgesia. Careful evaluation with a multi-disciplinary approach helped safely complete this surgery. Instead of breaking an already overburdened higher tertiary cancer care setup, strictly monitored pre-operative optimization can help in getting these high-risk cases done in a resource-limited peripheral setup.



Pulmonary Angiogram Showing thrombus



After Anticoagulant therapy (Resolved Thrombus)

Biography

- Assistant Professor 'E' in the Department of Anesthesia, Critical Care and Pain in Homi Bhabha Cancer Hospital and Research Center, Punjab.
- Diplomate of European Society of Anaesthesiology, Critical Care & Pain. (DESAIC)
- American Heart Association accredited, Basic and Advanced Cardiac Life Support Instructor (AHA)
- Difficult Airway Society (DAS) UK accredited, Advanced Airway Course from Sri Ramachandra Medical College, Chennai.
- Certified Member of various societies like the Indian College of Anesthesiologists, SOAPC, European Society of Anesthesiology and Intensive Care, and European Airway Management Society.
- Areas of Interest: Managing Critically ill patients, Difficult Airway, Thoracic & HIPEC Anaesthesia, Advanced Haemodynamic Monitoring
- Around 20 National & International Publications in various Indexed Journals.
- Reviewer in various Indexed journals.
- Faculty at various National and International Conferences

The combination of three exercise modalities aerobic interval, inspiratory and resistance trainings improve cardiac, respiratory and skeletal function in heart failure patients

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[1]Lebanese Institutes for Biomedical Research and Application (LIBRA), Lebanese International University (LIU), Lebanon
[2]Rammal Hassan Rammal Laboratory, PhyToxE Physio-Toxicité Environnemental, Faculty of Sciences, Lebanese University, Nabatieh, Lebanon
[3]Laboratory EA-3300 (APERE), Adaptations Physiologiques à l'Exercice et Réadaptation à l'Effort, Picardie Jules Verne University, France

Objectives: Chronic heart failure (CHF) is a public health problem in which exercise intolerance and dyspnea are the major symptoms. There are various reports of the success aerobic interval training (AIT) and inspiratory muscle training (IMT) in the management of CHF patients. The aim of this study is to evaluate the effect of a combined program of two or three modalities: (AIT), (IMT), and resistance training (RT), on cardiac function, exercise capacity, skeletal muscle function, inspiratory muscle function, dyspnoea and quality of life in CHF patients.

Methods: 60 patients with HF, left ventricle ejection fraction (LVEF) < 45% and inspiratory muscle weakness, were randomly assigned to one of the following groups (n=10/group): Control, AIT, IMT, RT, AIT+IMT and CT (AIT+IMT+RT). Trainings were performed 3 times per week for 12 weeks. Control group had no training.

Results: No changes were detected in the control group. All trained groups showed significant positive effects on almost all the parameters. The AIT+ IMT and CT groups were the most powerful modalities. The combined group resulted in significant improvement in maximal inspiratory training and exercise time. Significant amelioration was proved in functional capacity and dyspnoea after all types of training but was performed at 18% higher in 6 minutes' walk test and 43% lower in dyspnoea for the combined group. LVEF was improved significantly with a high percentage of amelioration (17%, $p<0.042$) in CT group.

Conclusion: The combination of AIT, IMT and RT resulted in additional benefits in respiratory muscle function, exercise performance, and quality of life in CHF patients. Thus, the combination of three exercise training could be the recommended protocol in cardiac rehabilitation programs. This combination has optimized exercise training benefits in reversing the cardiac remodelling process and improving skeletal muscle function, functional capacity and dyspnoea in patients with CHF.

Biography

Dr. Wiam Ramadan is an associate professor in the school of arts and sciences (SAS) at the Lebanese International University. He was the assistant dean for seven years where he was responsible to supervise the academic and administrative affairs of the departments in the SAS. Actually, he is the chairperson of the Nutrition and Food Sciences department. In 2005, he completed his PhD. in biomedical engineering, specialty physiology in France. He studied the repercussions of a high fat diet and diabetes mellitus on respiration in rats. As postdoctoral researcher at college de France, he investigated how attention and motivation are mediated in the nervous system to influence memory processes. His actual research interests lie on the effect of exposure to environmental factors on the neurophysiological parameters in rats. In addition, he is working on the effect of different types of exercise on cardiac remodelling and exercise capacity in heart failure patients.

Combined Bifrontal transcranial direct current stimulation and auditory Stroop training in chronic tinnitus

Maryam Emadi
Faculty of Rehabilitation Hamadan university of Medical Sciences, Iran

Patients with tinnitus experience difficulties in cognitive control and executive functions. Many of which are regarded as the cause of tinnitus rather than its complications. Methods for the improvement of inhibitory and cognitive control seem to be effective in the control of tinnitus. In this study, transcranial direct current stimulation and auditory Stroop exercise were have been to improve inhibitory control and the ability to ignore tinnitus in patients suffering from chronic tinnitus. 34 patients with chronic tinnitus (>6 months) were randomly divided into two groups. The first group consist of 17 patients who received 6 sessions of tDCS followed by 6 sessions of auditory Stroop training. The second group received 6 sessions of sham tDCS followed by 6 sessions of auditory Stroop training. The initial evaluations including pure tone audiometry, psychoacoustic measurements, tinnitus handicap inventory (THI) survey and visual analog scale (VAS) of annoyance and loudness were performed before, immediately after, and one month after the tDCS, sham, and Stroop training. The results of this study revealed a signifcant reduction in THI score, VAS of loudness, and annoyance of tinnitus. A significant correlation was detected between the reaction time of incongruent words in the Stroop task and improvement of THI score and VAS of annoyance. Combined tDCS and Stroop training efciently improve chronic tinnitus.

Biography

I have PhD in Audiology and now work as an assistant professor in audiology department of Hamadan University of Medical Sciences. I have been studying on tinnitus and general field of audiology.

My PhD thesis was about effect of neuromodulation and auditory Stroop training in tinnitus. Through which I especially focused on treating tinnitus patients. Now days, I am trying my hardest to study Cognitive Behavioural Therapy (CBT) and combination therapies of tinnitus.

Intravenous injection of curcumin pretreatment with bone marrow-derived mesenchymal stem cells protects MI injury in rats via induction of VEGF

Niki Mirfakhraie and **Masoumeh Zirak Javanmard**
Department of Anatomical Sciences, School of Medicine, Urmia University of Medical Sciences, Iran

Introduction: Myocardial ischemia is one of the most common cardiac diseases which, it's pathological mechanism is related to irreversible damage of myocardium. Prevention of necrosis is the key strategy to cell loss following hypoxia. Curcumin and stem cells are a cardioprotective factors which attenuate MI injury through increase of vascular Endothelial Gross Factor (VEGF) level. The main goal of this study was finding the time point of angiogenesis and tissue repair.

Methods: Sixty-five male rats were divided into four groups including G1 (normal), G2 (MI included by 100 mg/kg isoproterenol hydrochloride), G3 (BMSCs), and G4 (CUR-BMSCs). The efficiency of stem cell and combined therapy were evaluated by measurement of lactate dehydrogenase (LDH) serum levels, creatine kinase (CK) and cardiac troponin I (cTnI),7 days after treatment and then on days 1, 7, 15, and 21 after MI induction, histopathological assessments were performed using H&E and immunofluorescence staining of CD31. Also, biochemical assessments were carried out for serum levels of lactate dehydrogenase (LDH), creatine kinase (CK), cardiac troponin I (cTnI) and VEGF, whereas both mRNA and protein expression of VEGF were assessed by using RT-qPCR and western blot techniques.

Results: The elevation of serum levels of CK, LDH, and cTnI ($P< 0.001$) were decreased significantly in (CUR-BMSCs) group. Molecular evaluations showed that the maximum level expression of VEGF (Real-time RT-*q*PCR) and protein (western blot) occurred on day 7 in CUR-BMSCs group. The serum levels of VEGF (ELISA) reached to the highest point on day 7 post-MI in CUR-BMSCs group. Morphometric data showed a statistically significant increase in micro-vessels formation and myocardial regeneration in the CUR-BMSCs ($p<0.05$) on days 7 and 15 after MI.

Conclusion: The rats that received BMSCs pretreated with CUR were the most effective combination compared to the MSC group and modulate serum parameters such as VEGF. To our knowledge, myocardial reorganization is associated with VEGF production, which promoted histological improvement in the second week post MI.

Table 1: The serum levels of cardiac injury markers

Group	LDH (u/l) (Mean ± SD)	CK (u/l) (Mean ± SD)	cTnI (ng/ml) (Mean ± SD)
Normal	135.6± 6.5	140.6 ± 5.1	4.9 ± 0.3
MI	419.6 ± 20.7[acd]	374.8 ± 27.2[acd]	22.9 ± 2.3[acd]
MI+BMSC	274 ± 19.1[abd]	305.4 ± 16.3[abd]	18.2 ± 2.1[abd]
MI+Cur+BMSC	211.4 ± 14.6[abc]	238.2 ± 31.7[abc]	12.2 ± 1.4[abc]

A : versus normal group ; P <0.05.

b: versus MI group at same day; P <0.05.

c: versus BMSCs group at same day; P <0.05.

d: versus BMSCs- CUR group at same day; P <0.05.

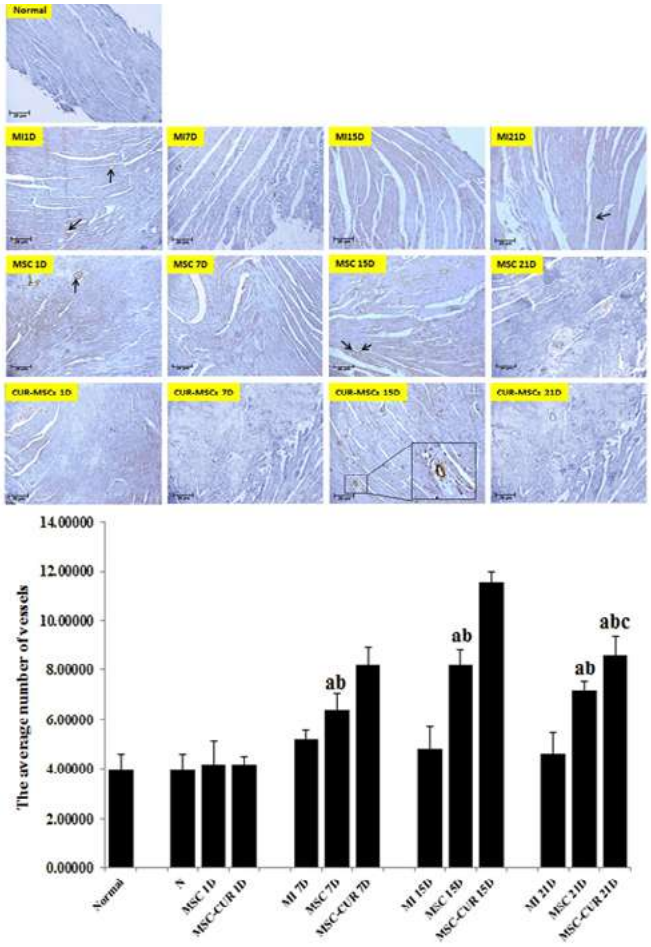

Figure1: The impact of intravenous transplantation of BMSCs and CUR-BMSCs on myocardium neovascularization after MI at different days. Positive immunoreactivity for CD31 on the endothelial cells of blood vessels is shown with brown color.

Assessment of the risk of cardiovascular complications in an unorganized adult population in the central region of Russia

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National Research Center for Therapy and Preventive Medicine Moscow, Russia

Aim: The study is to analyze the risk of cardiovascular complications (CVC) in an unorganized population of men and women of working age in the Vladimir region.

Material and methods: The cross-sectional population-based study included 1,350 men and women aged 30-69 years from 5 cities of the Vladimir region (Vladimir, Kovrov, Murom, Yuryev-Polsky and Vyazniki). The response to the study was 87%. In total, 1174 people completed the study. Of these, 424 were men (36.1%) and 750 women (63.9%). The risk of developing fatal cardiovascular complications was assessed using the European SCORE scale (in the absence of verified CVD). Depending on the total score, the risk was assessed as follows: low risk <1%, moderate risk - from 1% to 5%, high risk - from 5% to 9% and very high risk - 10-14%.

Results: In the examined unorganized population, the high and very high risk of cardiovascular complications according to the European SCORE scale among men was 32%, among women this figure was 2 times lower (15.5%). Thus, the majority of women had low and moderate risk (66.3%), which is 1.5 times more likely than men (43.6%). With comparable rates of hypertension (41.5% in men and 39.9% in women) and hypercholesterolemia (57.8% in men and 55.7% in women), male gender and smoking status (38.4% in men and 9.3% in women) contributed to the total cardiovascular risk values. The frequency of very high risk of cardiovascular complications among men in certain cities of the Vladimir region was 2.5-4 times higher compared to women.

Conclusion: Thus, in 5 cities of the Vladimir region, every third man of working age had a high and very high cardiovascular risk, which is due to the prevalence of smoking, hypercholesterolemia and hypertension. Among women, high and very high cardiovascular risk was 2 times lower (15.5%), while a high incidence of hypercholesterolemia and hypertension was also observed. There is variability in the very high risk of cardiovascular complications in different cities of the Vladimir region.

Pharmacogenetic analysis of renin angiotensin aldosterone system genes and efficacy of antihypertensive drug

Misbah Hussain[1,2] and **Fazli Rabbi Awan**[1]

[1]*National Institute for Biotechnology and Genetic Engineering (NIBGE), Pakistan*
[2]*Department of Biotechnology, University of Sargodha, Pakistan*

Blood pressure is mainly regulated by the renin angiotensin aldosterone system (RAAS). RAAS blockade drugs (e.g. angiotensin converting enzyme inhibitor, ACEis; and angiotensin receptor blockers, ARBs) are used to control hypertension for improving cardiovascular health. However, different populations have shown inconsistent efficacy of these drugs, which is mainly attributed to genetic polymorphisms in the RAAS and other associated pathways involved in hypertension and cardiovascular diseases (CVD). Hence, the objective of current study was to investigate the influence of these genetic variants on the efficacy of ACEi and ARB in Pakistani population. For this study, PCR, PCR-RFLP and in-house developed ARMS-PCR assays were used for genotyping a cohort of Punjabi Pakistani subjects (n=870). In all subjects, 11 genetic polymorphisms in RAAS and related pathways (*ACE* rs4340 I/D, *AGT* rs699 T/C, *AGT* rs4762 C/T, *AGT* rs5049 G/A, *AGT* rs5051 G/A, CYP11B1 rs6410 A/G, CYP11B1 rs6387 G/A, CYP11B2 rs1799998 T/C, NOS3 rs61722009 b/a, NOS3 rs2070744 T/C and NOS3 rs1799983 G/T) were analyzed. Furthermore, clinically important biochemical parameters were also measured for same sample cohort. Results demonstrated that *AGT* rs699 CC genotype carriers in this cohort had significantly higher concentration of total cholesterol and LDL-C, while concentration of HDL-C was significantly lower. Genetic association study showed that *AGT* rs699 CC genotype carriers were at ~40% higher risk of CVD, while pharmacogenetic investigations demonstrated that AGT rs699 CC or AGT rs5051 AA genotype carriers responded better to ACEi by 31% and 33%, respectively. These subjects showed significant reduction in systolic blood pressure in response to ACEi as compared to ARB or combination therapy. In conclusion, current study demonstrates that carriers of AGT rs699 CC or AGT rs5051 AA genotype respond better to ACEi and showed significant reduction in systolic blood pressure.

Biography

Dr. Misbah Hussain started her education in 1994. She completed her bachelors Biotechnology and Bioinformatics in 2011 with a gold medal. In 2013, she passed her MPhil Biotechnology and worked on the genetics of Parkinson's disease. In PhD, she shifted her research domain and investigated the effects of genetic polymorphisms on efficacy of anti-hypertensive drugs in cardiac patients. She is working as lecturer in University of Sargodha, Pakistan since 2021. Along with teaching, she is also supervising masters and PhD students. She has published more than 20 articles and supervised more than 15 students.

Antiplatelet and thrombolytic activity of phenolic-insistent fractions of new-fangled stem buds *Ficus religiosa L.*

Muhammad Arif and **Sunil Kumar**
Department of Pharmacognosy, Faculty of Pharmacy, Integral University, India

Different parts of Ficus religiosa are the common components of various traditional formulations for the treatment of several blood disorders. The new-fangled stem buds of plants are a good source of bioactive metabolites of various pharmacological events. The powdered plant material was extracted with 80% ethanol and successively fractionated by chloroform and methanol. The chloroform and methanol fractions (CFFR & MFFR) were tested for anti-platelet, anti-thrombotic, thrombolytic, and anti-oxidant activity in ex vivo mode and MFFR was particularly investigated for GC-MS and toxicity study. The antiplatelet activity of CFFR, MFFR, and standard drug Aspirin at 50 µg/mL was 54.32, 86.61, and 87.57%, and a significant delay in clot formation was noted in the different concentrations of MFFR. The antiplatelet activity of CFFR, MFFR, and standard drug Aspirin at 50 µg/mL was 54.32, 86.61, and 87.57%, and a significant delay in clot formation was noted whereas CFFR at different concentrations did not show a significant effect on the delay of clot formation, antiplatelet activity. The CFFR, MFFR and standard drug at a dose of 300 µg/mL showed a maximum of 12.43, 78.1, and 96.4 % inhibition of free radical with IC50 value of the MFFR and Ascorbic acid was 147.28 ± 0.57 and 98.14 ± 0.66 µg/mL. The most possible marker com-pounds for the antiplatelet and anti-oxidant activity identified by GC-MS in MFFR are Salicylate derivatives aromatic compounds like Benzeneacetaldehyde; Phenylmalonic acid; and Salicylic acid; Benzamides derivatives like Carbobenzyloxy-dl-norvaline; 3-Acetoxy-2(1H)-pyridone and 3-Benzylhexahydropyrrolo[1,2-a] pyrazine-1,4-dione. A toxicity study of the MFFR did not show any physical symbols of toxicity and mortality up to 1500 mg/kg body weight and nontoxic up to 1000 mg/kg which will be promising in the pharmaceutical sector utilized in the treatment of Atherothrombotic diseases.

Biography

Dr. Muhammad Arif is an Associate Professor of Pharmacognosy at the Faculty of Pharmacy, Integral University Lucknow (INDIA). Dr. Arif completed B. Pharm from Rajiv Academy for Pharmacy Mathura, U.P. in 2004 and M. Pharm from Dibrugarh University, Assam (INDIA). Dr. Md. Arif obtained Ph.D. degree in Pharmacognosy from Integral University Lucknow (INDIA). Dr. Arif taught B. Pharm, M. Pharm, Pharm D, and Ph.D. courses and always accelerates students' teaching-learning process with passion. He holds more than 17 years (including 8 years Post Ph.D. experience) of research and teaching experience. He has guided 18 projects for M. Pharm and 03 projects for Ph.D. He has extensively published more than 70 research and review articles in various journals of national and international repute. He has filled one patent and published one book and four book chapters. The research interests include extraction, isolation, and characterization of phyto-constituents and their biological evaluations.

Physical activity improvement A convenient solution for cardiovascular diseases problem in Iran

Niloofar Peykar[1] and **Moloud Payab**[2]

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[2]*Tehran University of Medical Sciences, Iran*

Across recent three decades, the number of death due to CVDs has been increased from 13.7 to 18.5 billion in the world (1990-2019). In addition, the percent of deaths attributable to Low physical activity have been increased about 12% in global level. Global Burden of Diseases study's data (2019) revealed the situation of the death pattern and the attributed Low physical activity risk factor to CVDs' death in Iran.

In Iran, the CVDs' deaths number approximately doubled from 1990 to 2019. Also among mentioned time, the number of CVDs attributable deaths to Low physical activity have been increased from 5030 to 14,446.

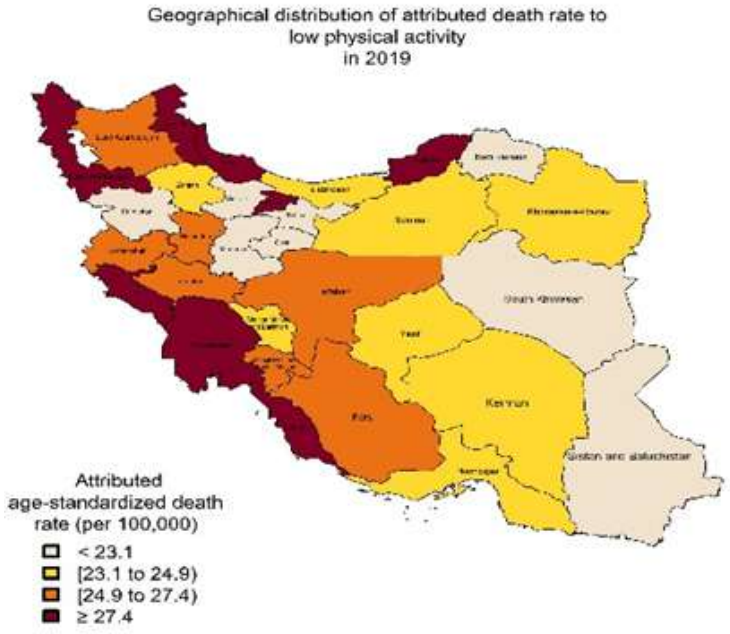

Figure 1: Geographical pattern of attributed death rate to low physical activity in Iran, 2019

It is projected 3,673,912 deaths would be occurred due to CVDs (2022 to 2030). In the better scenario by appropriate interventions, more than half a million deaths because of CVDs would be preventable. Similarly, implementation proper interventions for physical activity improvement could avoid from 29,235 deaths.

Therefore, addressing these alarming results by reduction low physical activity could be a convenient solution for CVDs' deaths reduction, specially through multi-sectoral mechanism. Prevention and control cardiovascular diseases and their risk factors has been considered in national action plan for NCDs' prevention and control in Iran. By collaboration health system and other organizations (public and private), and community engagement, we could arrange feasible, scalable, affordable, and cost effective interventions for prevention and control of risk factors.

Biography

Niloofar Peykari MSc, PhD is an epidemiologist. She currently works at the Ministry of Health and Medical Education as associate professor. Niloofar does research in Non-communicable diseases Prevention and Control. She has more than 26000 citations and an H-index of 31 recorded by Google Scholar in 2024.

Value of adding bioelectrical impedance analysis to Anthropometric indices in the diagnosis of metabolic syndrome in 10–16 years old schoolgirls

Rawan G. Muhanna[1], Ghadeer S. Aljuraiban[1], Najwa K. Almadani[1], Mohammed Alquraishi[1], Mohamed S. El-Sharkawy[2] and **Mahmoud M. A. Abulmeaty[1]**

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The use of bioelectrical impedance analysis (BIA) in clinical settings is common. However, the value of BIA-based parameters in diagnosing metabolic syndrome (MetS) in children is under-investigated. Herein, we aimed to study the usefulness of BIA-indices in the diagnoses of MetS in 6–10-year-old girls. Therefore, a diagnostic accuracy case-control study was conducted, which included 75 girls aged 10–16 years, divided into three age-matched groups (normal, None-MetS, and MetS). Anthropometric indices, BIA parameters (including fat-free mass (FFM), body fat percent (BFP), and total body water (TBW)), blood pressure (BP), and blood samples were collected. Our main findings show that for girls in None-MetS and MetS groups, the waist circumference (WC) correlated positively with waist-hip ratio and mid-arm circumference (r = 0.58, 0.47, respectively), but not with BFP based on skinfold thickness (SFT), or mid-arm muscle area. WC was positively correlated with FFM and TBW, while high-density lipoprotein was inversely correlated with FFM. However, fasting blood glucose, triglycerides and BP showed no association with anthropometric measurements and BIA components. WC was the best indicator of MetS (AUC = 0.88, cut-off = 81.5 cm), followed by BMI (AUC = 0.84, cut-off = 26.9 kg/m2), while BFP based on SFT was the least sensitive (62.5%). In conclusion, apart from the FM index, anthropometric parameters such as WC are more valuable in diagnosing MetS in young adolescent girls.

Biography

I am a clinical dietitian with more than 8 years of experience in the field of clinical nutrition. I started my career in Riyadh, Saudi Arabia, in the critical care unit in which it caught my attention and became passionate about overcoming the challenges in feeding the critically ill. By joining King Faisal Specialist Hospital in 2014, my passion to this field became fulfilled with broader exposure to such cases allowing me to participate as a speaker in different critical care conferences and courses. Carrying my experience to Dubai, UAE got me exposed to different cultures and hence different etiologies behind obesity in both adults and children in which I became the lead dietitian in our Bariatric Surgery team. I graduated from King Saud University with 2nd honor degree in 2009 and gained my Master degree in Clinical Nutrition from the same faculty in 2018.

Cardiotonic Steroids; Novel anti-tumor anti-inflammatory compounds

Reza Nejat

Anesthesiology and Critical Care Department, Laleh Hospital, Iran

Cardiotonic steroids (CTSs), also called cardiac glycosides (CGs), have long been prescribed in treating heart failure [1]. As a group of compounds found in plants and animals, they are structurally composed of an unsaturated lactone ring, a steroid core and sugar residues [2]. Synthesized de novo in mammalian tissues (brain, adrenal gland, placenta) even in the fetus [2, 3], these compounds, whether of endogenous or exogenous origin, as the ligands of Na-K/ATPase (sodium pump) inhibit this enzymatic ionic pump [4, 5]. This enzyme, ubiquitously distributed in eukaryote cells and as a member of P-type ATPase family [6], in combination with CTSs is involved in regulation of osmotic pressure, salt metabolism, cell volume, maintenance of electrochemical gradients across the plasma membrane, glucose and amino acid transport as well as hypertension [4, 5, 7].

Classified into two distinct groups named as cardenolide (digoxin and ouabain) and bufadienolides (marinobufagenin, telocinobufagin and bufalin) [8, 9], CTSs have been found to play crucial roles in many critical cell functions such as cell growth, differentiation, apoptosis, modulation of immune responses and even carbohydrate metabolism [10-12]. CTSs depending on their structure, the cell type, exposure time and concentration modulate a variety of cellular and signaling pathways in interaction with NKA which contribute to their anti-viral (including anti-COVID), anti-tumor, DNA repairing and anti-inflammatory potencies [13-17]. Digoxin suppresses Src protein expression and activity in a dose- and time-dependent manner. It also reduces the activity of EGFR and STAT3 [18]. Bufalin-induced inhibition of PI3K-Akt pathway results in mitotic arrest through inactivation of AuroraA/B [19]. Moreover, cytotoxic compounds of CTS family have recently been extracted [20]. furthermore, migration-inhibitory effects of CTS in some tumor cells have been described [21, 22]. Considering and designing studies on the CTSs or the relevant derivatives as promising anti-viral, anti-inflammatory and anti-tumor compounds seems rational.

Biography

Dr. Reza Nejat, an ECFMG certified physician, is an Iranian Board Certified Anesthesiologist and a Fellow of Critical Care Medicine, graduated from Tehran University of Medical Sciences (TUMS), earned his certificate in Anesthesiology from Iran University of Medical Sciences (IUMS) and completed the fellowship training in Critical Care Medicine at Sina Hospital, TUMS. As an assistant professor he was a faculty member at Shahid Beheshti University of Medical Sciences (SBMU) for 8 years. Having contributed to several articles and book chapters especially in the field of molecular pathobiology of COVID-19, he collaborates with some medical journals as a reviewer. In addition he participated and delivered lectures in several conferences as an invited keynote speaker.

Effect of transverses abdominis block and subcutaneous wound infiltration on post-operative pain analgesia after caesarean section

Sleshi Hailu2 , Million Habetemariam1 and **Hailemariam Mulugeta2**

[1]*Hawassa University, Ethiopia*
[2]*Dilla University, Ethiopia*

This study aimed to compare the analgesic effectiveness of transverse abdominis plane block and local anesthetic wound infiltration for elective cesarean section surgeries under spinal anesthesia. The study involved 68 adult females aged 18-65 years who underwent elective cesarean under spinal anesthesia and wound infiltration a non-exposed group. The results showed that the overall Tramadol consumption within 24 hours was 100 mg in the TAP group compared to 150 mg in the subcutaneous wound infiltration group ($p < 0.001$). The study concluded that TAP block could be considered superior to subcutaneous wound infiltration anesthesia for postoperative pain management and recommends using TAP block as part of multimodal analgesia after cesarean section with spinal anesthesia.

Biography

Assistance Professor Sleshi Hailu, has a passion for enhancing people's health and wellness and competence in evaluation. He opens up new avenues for healthcare improvement with his open and contextual evaluation paradigm built on responsive constructivists. He developed this approach because of his many years of experience working in hospitals and educational institutions doing research, evaluating outcomes, teaching, and managing staff.

Risk factors for stroke-related functional disability and mortality at Felege Hiwot referral Hospital, Ethiopia

Tegenu Tento[1], Abreham Kume[1] and **Sebisibe Kumaso[2]**

[1]Department of Statistics, College of Natural and Computational Sciences, Jinka University, Ethiopia
[2]Health Monitoring and Evaluation Department, Alle Special Woreda, Ethiopia

Background: Stroke is one of the top causes of functional disability around the world. A large number of risk factors are measured in stroke disease studies, but it is often unclear whether all of them are relevant variables and whether the impact of these variables changes over time or remains constant with the rate of transition between various states of functional disability in stroke patients.

Method: Adult (18 or above) stroke patients with the Modified Rankin Scale who attend outpatient clinics every three months at Felege Hiwot Referral Hospital between September 2019 and August 2021 were eligible for inclusion in the study. A retrospective cohort analysis was used to observe factors in 298 eligible stroke patients in order to predict outcomes. The transition of patients among different stages of functional impairment was studied using a multi-state Markov model.

Result: The likelihood of dying from poor function was 9%, and the likelihood of recovering to good function was 24%.

Table: The transition probability matrix was computed using data from stroke patients in various states

From To	Good	Poor	Death
Good	1505 (0.899)	167 (0.10)	2 (0.001)
Poor	256 (0.24)	730 (0.67)	102 (0.09)
Death	0 (0.00)	0 (0.00)	104 (1.00)

The average time spent in good and poor functions for different levels of independent variables varies according to their risk. During the first three years of follow-up, the instantaneous risk with a 95% confidence interval of transitioning from good to poor functional ability in the women stroke patients, aged 60 or above, with hypertension, with atrial fibrillation, and hemorrhage types of stroke versus men stroke patients, aged 18 to 59, without hypertension, without atrial fibrillation, and ischemic types of stroke were 1.54 (1.10, 2.15), 1.73 (1.19, 2.52), 2.34 (1.55, 3.53), 2.74 (1.64, 4.56), and 1.52 (1.10, 2.19) respectively. The hazard ratio with a 95% confidence interval of

transitioning from poor to death in the stroke patients with diabetes mellitus and with atrial fibrillation versus without diabetes mellitus and without atrial fibrillation was estimated to be 1.95 (1.10, 3.46) and 3.39 (1.67, 6.89), respectively.

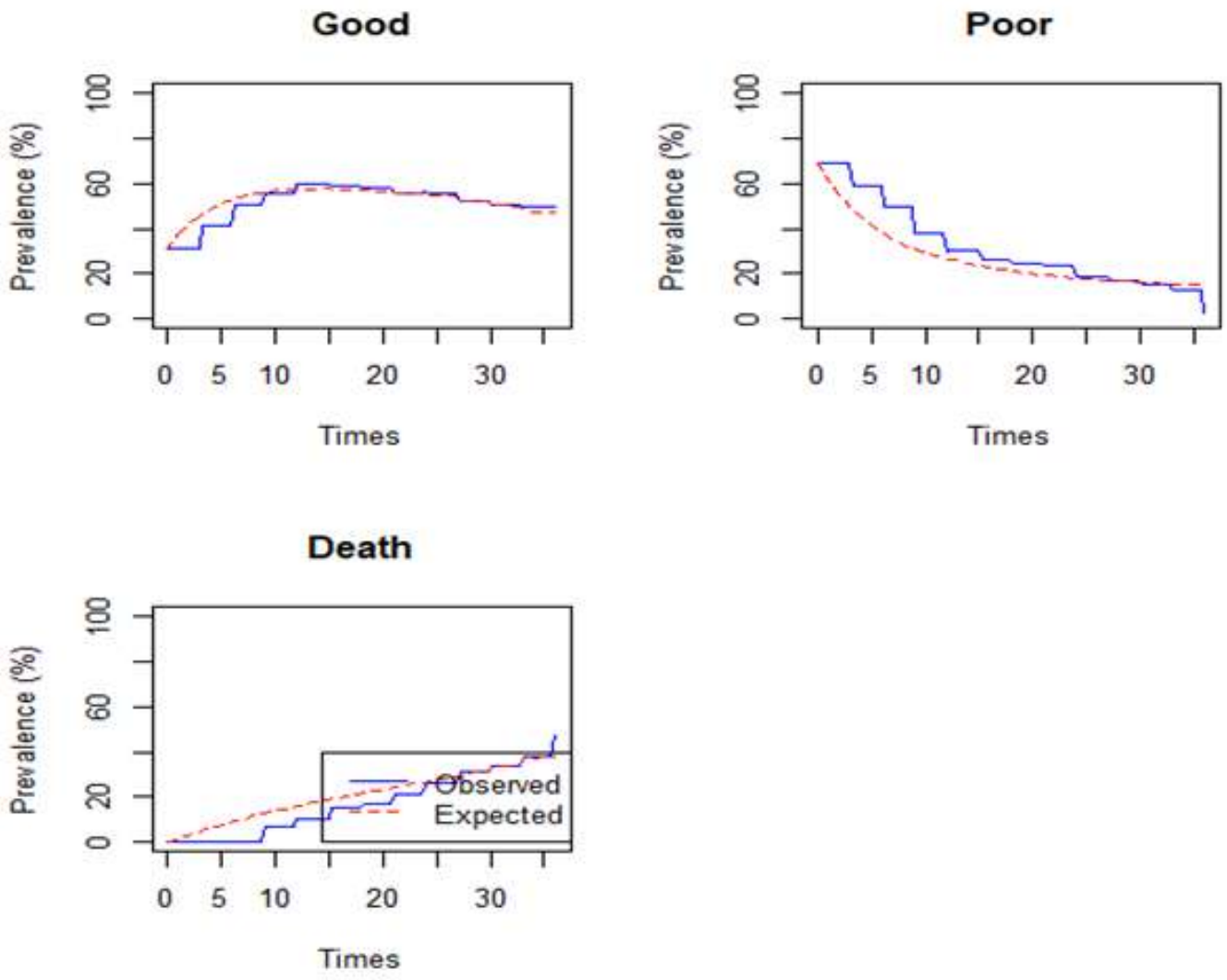

Figure: Prevalence plot of fitted model with covariates

Conclusion: Women stroke patients aged 60 or above, with hypertension, atrial fibrillation, and hemorrhage types of stroke were significant risk factors for transitioning from good to poor functional ability. Also, the stroke patients with diabetes mellitus and atrial fibrillation were significant risk factors for transitioning from poor to death. Having the states and transitions, and clinical understanding risks for the transition through states can enhance the physician decision-making process when treating patients with stroke. Since gender and age are unchangeable or difficult to control, early intervention of patients and the hospital may be critical influencing functional outcomes.

Chest computed tomography severity score is a reliable predictor of mortality in patients with chronic obstructive pulmonary disease co-infected with COVID-19

Yalda Alipour Khabir and **Sevda Alipour Khabir**
Ardabil University of Medical Sciences, Iran

Background: Coronavirus disease 2019 (COVID-19) pandemic is considered a global health crisis. The data related to chronic obstructive pulmonary disease (COPD) patients with COVID-19 are incomplete, especially the findings of the chest computed tomography (CT). The aim of the current study was to investigate the severity of the disease of COVID-19 in patients with COPD based on CT severity score and to evaluate its predictive power in the mortality of patients.

Methods: In a retrospective study, demographic, clinical, and CT scan findings of COPD patients with COVID-19 were extracted from March 2020 to February 2022. CT severity score was determined based on the extent and nature of involvement of lungs in CT scan findings. By performing receiver operating characteristics (ROC) and Kaplan–Meier survival analysis were determined the disease severity and survival probability.

Results: The most frequent radiological findings in chest CT scan included ground glass opacities (89.3%), consolida- tions (51.8%), crazy-paving pattern (46.4%), and septal thickening (35.7%). The mean CT severity score of deceased patients (34.61 ± 18.73) was significantly higher than recovered patients (16.71 ± 14.01, $p < 0.001$). Based on the ROC and Kaplan–Meier survival curves, it was revealed that CT severity score was a valuable criteria in the diagnosis of mortality in COPD patients with COVID-19.

Conclusion: The findings of this study revealed that the CT severity scoring in COPD patients with COVID-19 was val- uable in identifying poor prognosis, although further studies are needed.

Effect of Thymoquinone on hypertensive maternal parents and developmental neuropathy of F1 male offspring in rats exposed to mixture of bisphenol-a analogues

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[2]Department of Biochemistry, Federal University of Agriculture, Nigeria
[3]Department of Animal Breeding and Genetics, Federal University of Agriculture, Nigeria

Bisphenol-A (BPA) analogues are used as components of numerous domestic and industrial products; but exposure to these analogues has been implicated in diseases, some of which have been reported to be transferred from maternal parents to the male offspring of F1 generation. This study investigated the effect of thymoquinone (TMQ) on Nβ-nitro-L-arginine methyl ether hydrochloride (L-NAME)-induced hypertensive maternal parents and developmental neuropathy of their F1 male offspring, on exposure to a mixture of Bisphenol-B, Bisphenol-F and Bisphenol-S (MBFS) in rat model. Neurobehavioral assessments of emotionality, locomotor activity and memory were conducted in the dams and pups using Elevated Plus Maze (EPM), Open Field (OF), and Novel Object Recognition (NOR) tests. From the results, exposure to MBFS mediated developmental neuropathy in three regions (hippocampus, prefrontal cortex and striatum) of the brain via p53 upregulation and decreased Ki-67; culminating in significant decrease in NeuN. MBFS also increased GFAP, nissl bodies and caused deposition of β-amyloid. Dysregulation of cholinergic, dopaminergic and adenosinergic enzymes in addition to decreased nitric oxide level were also observed. Hypertension was found to exacerbate MBFS toxicity both in the pups and dams. The mechanism of toxicity in the dams followed similar pattern of increased apoptosis, decreased anti-apoptotic activity, vasoconstriction, and dysregulation of the cholinergic, dopaminergic and adenosinergic enzymes. From EPM, OF, and NOR tests; anxiety, decreased psychomotor activity and memory impairment were associated with exposure to MBFS. However, co-treatment with thymoquinone prevented developmental neuropathy; and abrogated the risk of neurodegenerative diseases in hypertensive maternal parents and their F1 male offspring. Conclusively, disruption of the delicate balance between apoptosis and cell proliferation culminating in reduction of mature neurons is responsible for neurodegeneration and neuropathy associated with MBFS exposure. However, these can be prevented through regular consumption of natural products and supplements rich in thymoquinone.

Biography

Okoh Olayinka Sunday is a Biochemistry Lecturer with Anchor University, Lagos, Nigeria. He had his undergraduate studies at the Federal University of Technology, Akure, Ondo State; where he graduated with a Second Class Upper (Hons) degree in Applied and Pure Biochemistry. He proceeded to University of Ibadan, Ibadan, Nigeria in 2010 for his M.Sc. Biochemistry (Cancer Research and Molecular Biology) and graduated in 2012. O. S. Okoh concluded his PhD Biochemistry under the mentorship of Dr J. K. Akintunde – an astute researcher of international repute. He belongs to various professional bodies locally and internationally. His area of research interest includes Molecular Toxicology, and Bioinformatics. His current research is centred on the impact of the interaction between hypertension and environmental toxicants on mental health. He has flare for data analysis having acquired R programming, python and Power BI skills. O. S. Okoh has attended and presented papers at various conferences.

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