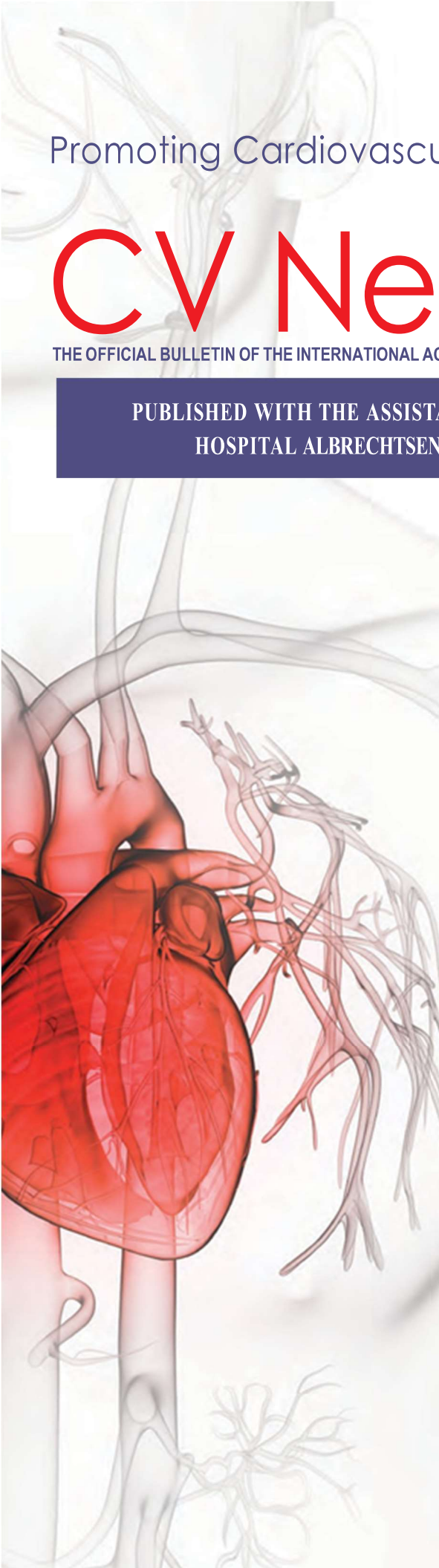
Vol. 19 No. 3 • September/October 2020

Promoting Cardiovascular Education, Research and Prevention

CV Network

THE OFFICIAL BULLETIN OF THE INTERNATIONAL ACADEMY OF CARDIOVASCULAR SCIENCES

PUBLISHED WITH THE ASSISTANCE OF THE ST. BONIFACE HOSPITAL ALBRECHTSEN RESEARCH CENTRE



In this Issue

Academy Pays Highest Tribute to Dr. James T. Willerson

It is with great sadness we report that Dr. James Willerson, who served as President of IACS during 2011 – 2014, passed away on September 16, 2020. Dr. Naranjan Dhalla, Executive Director of IACS says "not only was Dr. Willerson a great human being, but he was also truly an extra-ordinary leader in the field of Cardiovascular Medicine. His outstanding scientific contributions for improving cardiovascular health will be remembered for a long time". Excerpts of Dr. Willerson's vision for the development of the Academy are as follows (**originally published in CV Network Vol. 10 No. 2, Spring 2011**):

"The Burden of CVD should not be measured by deaths alone since CVD leads to overwhelming economic costs as well as human burdens. Already, researchers have estimated that between the developing economies of Brazil, Indian, China, South Africa and Mexico, 21 million years of future productive life are lost each year to CVD. These are only the economic numbers. The true cost in human terms of suffering and lost lives is incalculable."

"It is of paramount importance that global efforts be made to reduce the exploding burden of this pandemic. Our new program will be the GLOBAL NETWORK TO FIGHT CARDIOVASCULAR DISEASES. The International Academy of Cardiovascular Sciences (IACS) is structured with an international executive and directors, with headquarters in Winnipeg, Canada, to promote Cardiovascular Education, Research and Patient Care. IACS possesses essential elements of international connectivity, diverse expertise and established communication links to launch this dynamic new initiative to lower the effects of CVD. A Global Network Steering Committee will be developed to provide the leadership for the new initiative to extend the IACS Global Network into each and every country (using the United Nations as our model). Other members of the Steering Committee will include recognized experts with experience in mentoring international protégés."

"We will select one Ambassador from each emerging country. In their country, the Ambassadors will facilitate activities of the Network They will identify promising medical personnel and researchers including young people as well as mature professionals with potential to become leaders in the delivery of heart and vascular health. Those nominated to be Global Network Scholars will be considered through international screening by the experts on the Global Network Steering Commit-tee. Those selected will pursue advanced translational cardiovascular research training in centers of excellence in highly regarded laboratories in the USA, Europe, and Canada. The Scholars will be committed to develop extraordinary skills to discover new knowledge to be translated into early detection and treatment to reduce the morbidity and mortality from CVD on their return to their homes where we will encourage and assist their building of local centers of excellence for future education and training."

"The development of the potential of promising people through training and education to fight these deadly diseases deserves, at the very least, the same fervor and financial support as that associated with dealing with AIDS, cancer, and communicable diseases. The Global Network initiative will require significant financial commitment from international donors and foundations, dedicated individuals and home countries with concern about the growing pandemic of cardiovascular diseases".

The Academy believes that this exemplary vision needs to be fulfilled. In accordance, the Academy has excelled in raising global awareness of CVD through education, teaching and training and believes that all Members and Fellows of the Academy will continue their efforts in fulfilling Dr. Willerson's dream.

Remembering Dr. James T. Willerson by IACS President Roberto Bolli

Dr. James Willerson was a truly GREAT person, not one of those people who are lauded just because they passed away.

Dr. James T. Willerson
1939 - 2020

When a true giant and a great man like Dr. Willerson passes away, it is difficult for me to write what I feel as a colleague and friend of his. I do not wish to write something that sounds perfunctory and non-specific; I wish to speak from the bottom of my heart.

Everyone knows Dr. Willerson's enormous professional, scientific, and medical accomplishments. He was a venerable icon in cardiology, an undisputed leader, and one of the most respected members of our community. As President of the International Academy of Cardiovascular Sciences, he contributed greatly to our organization; it was an honor to serve under his leadership. But that is not what I want to focus on in this brief essay. Rather, I wish to focus on the fact that besides his immense scientific, medical, and professional accomplishments, what set Dr. Willerson apart was that he was the epitome of a gentleman, a real gentleman and a truly great human being. To me, that is more impressive than his professional accomplishments.

There are so many "successful" professionals in the cardiovascular community whose human, moral, social, and/or philosophical attributes are wanting. These people do not impress me, no matter how many papers they publish, how many awards they get, or how much power they have. The people who impress me are those who are both professional giants and great human beings (a rare combination, to be sure). Dr. Willerson was one of them.

He was incapable of negative thoughts. No matter the circumstances, he managed to see good in everyone. I don't remember ever seeing him angry at someone. He treated everybody with fairness, kindness, and utmost respect. There was not a trace of arrogance in his behavior, even though he would have had a lot to brag about, which proves again the veracity of the old adage "the smaller the mind, the greater the conceit".

Dr. Willerson's intensity was legendary, and could be sensed after talking to him for just a few seconds. His dedication to others (patients, students, colleagues, staff, Faculty working in his department, etc.) was incredible. His patients could call him anytime, anywhere around the world when they needed him. He was known for taking calls from his patients in all continents. He allowed hospital Residents to call him at 3:00 a.m. when the patient's potassium was 3.4, which is barely below the normal limit. Most physicians would not tolerate being awakened at night for a potassium of 3.4, but for Dr. Willerson the patients' welfare was the single most important thing; everything else came second. I do not know of any other physician who was as dedicated to his patients as he was. He would start rounding between 4:00 and 5:00 in the morning, and would round again during the day. He never slept. Dr. Willerson was the hardest working person I have ever met (and I have met a lot of hard-working people). He lived his life as a mission – a mission to help others and advance medicine. Nothing else was as important as that. He was, throughout his life, a true inspiration for me and countless other cardiovascular physicians and scientists.

From a personal standpoint, I will never forget the incredible support Dr. Willerson offered me, never asking for anything in return. I still keep his emails in a folder labeled "special letters", so as to be sure that I don't lose them. And I will never forget the things he told me after I published my Farewell Special Article in Circulation Research in 2019; I wrote down those comments lest I would forget them. Those comments were more invaluable to me than gold.

Above all, he was a man of strong faith, and that's what really matters at the end of the day. Those who do not believe in God commonly refer to the passing away of a person as a sad event; they have nothing more to offer than commemorating the life of that person (which is obviously important, but not sufficient). Those of us who believe in God view death as the mechanism by which we can exit this evil world, where we do not belong, to enter eternity and be reunited with our Creator forever. In that sense, for a believer death is a joyful event. It is a liberation, a transition to a better life. Dr. Willerson was a man of strong faith (one of the things I admired in him) and I am convinced that he is now in a much better place.

I consider it a privilege to have worked with Dr. Willerson for many years and to have interacted with him in the IACS, in the Cardiovascular Cell Therapy Research Network, in several clinical trials, in the editorship of Circulation Research, and in many other venues. He was one of the people who made America great.

He epitomized the moral fabric, the work ethics, and the character of the old generations that lived before us and were not tarnished by the current moral and social decay of our culture. He will forever be in my thoughts and in my heart.

Election of 2020 IACS Fellows

Dr. Roberto Bolli, President of IACS, is pleased to announce the election of the following nine Fellows for the year 2020. (The maximum number of active Fellows of the Academy does not exceed 250 at any given time):

1. Dr. Istvan Baczko, Szeged, Hungary
2. Dr. Manoj K. Barthwal, Lucknow, India
3. Dr. Antoinette Blackman, Belo Horizonte, Brazil
4. Dr. Galal Eldin Nagib Elkilany, Dubai, UAE
5. Dr. Peter Ferdinandy, Budapest, Hungary
6. Dr. Sivadasanpillai Harikrishnan, Trivandrum, India
7. Dr. Merry Lindsey, Omaha, USA
8. Dr. Ali J. Marian, Houston, USA
9. Dr. Ashok K. Srivastava, Montreal, Canada

Dr. Istvan Baczko

Dr. Istvan Baczko

Dr. Istvan Baczko graduated as a medical doctor at the Albert Szent-Györgyi Medical University, Szeged, Hungary in 1993. He joined the Department of Pharmacology and Pharmacotherapy at the Faculty of Medicine (director: Professor Julius Papp), teaching 4th year medical students pharmacology in Hungarian and in English, and working with in vivo arrhythmia models investigating the role of KATP channels in cardioprotection. He obtained his PhD degree in cardiovascular pharmacology in 1998 at the same university with the title "ATP-Sensitive Potassium Channel Modulators and Ischaemia-Reperfusion Induced Arrhythmias" (supervisor: Istvan Lepran). In 1998, he completed his clinical pharmacologist specialty doctor degree at the Semmelweis University, Budapest.

Between 2001 and 2005, he was a postdoctoral research fellow at the Department of Physiology and Biophysics, University of Calgary (supervisor: Wayne Giles) and Department of Pharmacology, University of Alberta, Edmonton (supervisor: Peter Light), Canada. We proved that reverse mode NCX activity was a major contributor to myocardial calcium overload in hypoxia/reoxygenation, identified a mechanism for KATP channel mediated cardioprotection, and I received the Witkowski Publication Award for one of these papers at the University of Alberta. We also identified a novel key player in the metabolic regulation of cardiac NCX.

Following my return from Canada to Hungary, as the head of the In Vivo Cardiac Electrophysiology Lab at the Department of Pharmacology and Pharmacotherapy, University of Szeged, established a large animal model of chronic atrial tachypacing induced atrial fibrillation. We found that a multifunctional resveratrol derivative compound significantly reduced AF incidence, the length of AF episodes and prolonged atrial effective refractory period. In addition, the compound was found to exert IKur, IKACh, INaLate, NFAT inhibitory and anti-inflammatory properties, all important targets in the prevention of AF. Based on these results, resveratrol derivatives can contribute to improved AF management.

The second main area of research in his lab is the creation and testing of methods and models for improved preclinical assessment of proarrhythmic adverse effects of candidate compounds in development (17533421, referring editorial:

17549050). Current regulations and methods for this purpose are unsatisfactory. In this regard, his group published two major reviews recently in the European Heart Journal and the British Journal of Pharmacology (29982507, 21545574). He was the first to create a transgenic rabbit model of congenital LQT5 syndrome, with the overexpression of the loss-of-function mutation of human KCNE1 (KCNE1-G52R, decreased IKs; LQT5), in cooperation with Professor Bősze from Gödöllő, Hungary. The model enables the study of mechanisms leading to ventricular arrhythmia development based on congenital channelopathies and may be useful for more reliable assessment of proarrhythmic drug adverse effects (27076034). He was also the first to create and characterize a double transgenic Long QT syndrome (LQT2-5) rabbit animal model. The model features impaired repolarization reserve by overexpressing loss-of-function mutations of both human HERG (HERG-G628S, loss of IKr; LQT2), KCNE1 (KCNE1-G52R, decreased IKs; LQT5), transgenes in the heart. The models in this study demonstrated increased sensitivity to different specific ion channel blockers (IKr blockade in LQT5 and IK1 and IKs blockade in LQT2 and LQT2-5), and their combined use could provide more reliable and more thorough prediction of (multichannel-based) pro-arrhythmic potential of novel drug candidates. This recent work was a cooperative effort of our lab with Professor Odening from Freiburg, Germany and with Professor Bősze from Gödöllő, Hungary.

The third major research area linked to the previous topic is the investigation of the electrophysiological mechanisms underlying sudden cardiac death in competitive athletes. In this regard, he showed that in Hungarian premier league soccer players the recently suggested biomarker for increased arrhythmia susceptibility (short-term variability of the QT interval) was significantly higher than in the age-matched control group. His team is currently performing studies in different groups of elite athletes in cooperation with Hungarian clinicians as well as with Professor Vladimir Jakovljevic from Serbia. In addition, his lab has been part of international cooperative projects investigating mechanisms of cardiac structural, metabolic and electrical remodeling associated with atrial fibrillation and heart failure, and the influence of age and sex on different aspects of cardiac remodeling in humans, resulting in a number of significant publications.

Dr. Baczko received the János Bolyai Research Scholarship twice (1999 and 2009) from the Hungarian Academy of Sciences and was twice awarded the Certificate of Merit for outstanding research work from the Hungarian Academy of Sciences (in 2003 and 2013), the Ivánovics Award for outstanding university teaching and research work at the Faculty of Medicine, University of Szeged in 2013. As a reward for my mentoring activities with young scientists, I received the Certificate of Merit for Excellent Student Scientific Circle Mentor at the same Faculty in 2014. I also received the Distinguished Service Award in Cardiovascular Science, Medicine and Surgery; by the International Academy of Cardiovascular Sciences, in 2016.

In 2011, he finished is habilitation process and obtained Dr. Habil degree from the University of Szeged, in multidisciplinary medical sciences. He was appointed as the Head of the Dept. of Pharmacology and Pharmacotherapy, University of Szeged, in 2019. Dr. Baczko has published 79 papers so far, with a cumulative impact factor of over 400 with H-index of 26.

Dr. Manoj K. Barthwal

Dr. Manoj Barthwal

Dr. Manoj Kumar Barthwal obtained his B.Sc. in 1994, M.Sc. in 1996 and completed his Ph.D. in 2001, all at Lucknow University. He was a post-doctoral fellow from 2000-2006 at Texas A&M University, USA. In 2006, he came back to Lucknow as Scientist at the CSIR- CSIR-Central Drug Research Institute (CDRI). Dr. Barthwal has moved up the ranks and is now Principal Scientist & Head of CSIR-CDRI. His laboratory is involved in understanding the role of inflammation in the progression of cardio-metabolic disorders and identifying novel therapeutic targets and interventions for this condition. He has several industry related/collaborative projects. To date, he has published 80 peer-reviewed papers and 2 invited reviews/commentaries. In addition, he has 1 US patent granted and 2 others have been filed.

Dr. Barthwal has received several awards and recognitions. In 2007, he was the recipient of the DST-Fast Track Young Investigator Award; in 2009, he received the Technology Award for Innovation from the Council of Scientific and Industrial Research, India and the International Atherosclerosis Society Visiting Fellowship. In 2010, he received Fellowship Award from the Indo-US Science and

Technology Forum, NIH, USA. On 4 occasions (2008, 2010, 2012 and 2015) he has been the recipient of the CDRI-Paper Incentive Award.

Dr. Barthwal is a life member of The Cytometry Society of India, life member of the Indian Society for Atherosclerosis Research, member of the European Atherosclerosis Society and member of the National Academy of Sciences, India.

Dr. Antoinette Blackman

Dr. Antoinette Blackman

Graduate in Medicine at the Federal University of Espírito Santo- Vitória-ES- Brazil, she is a Cardiologist, Echocardiographic Method, and Intensive Care Medical by the Brazilian Society of Cardiology- SBC and Brazilian Intensive Medicine Association – AMIB. Active Member of Brazilian Medical Academy – Chair number 25 – Brasilia-DF Brazil. President of the Department of Cardiovascular and Respiratory Physiology at the Brazilian Society of Cardiology. Council Member of International Academy of Cardiovascular Sciences - IACS – South American Session. She is a tenured Professor of Medical School at UniCEUB and Uniceplac – Brasília-Brazil to realistic simulation and tutorials. Assistant Professor at Instituto Cardiovascular São Francisco de Assis – Belo Horizonte- MG- Brazil. Her Master's degree at Brazilian University – UNB – Brasília – DF – studied "About EKG QT interval in the first days of Myocardial Infarction treated with or not Streptokinase and with distinct clinical outcomes.". Advisor prof. Luiz Fernando Junqueira Júnior. Her doctoral study at Instituto Cardiovascular São Francisco de Assis- BH- Brazil focused on the "Evaluation of QT dispersions in patients with Grade I Left Ventricular Diastolic Dysfunction" using Holter recording. Advisor prof. Otoni Moreira Gomes and co-advisor prof. Melchior Luiz Lima.

Her research focused on Grade I LV diastolic dysfunction and autonomic nervous system by Holter recording. These finding – dysautonomia - could identify patients at risk for cardiovascular events when they are without symptoms.

Modulating ANS is one way to postpone the progression to heart failure associated with the management of risk factors. Heart failure is a relevant public health issue, and the delay in its progress can impact hospitalizations, costs, and patient's quality of life.

She has a long-standing commitment to patient care in the emergency room and intensive care unit. Currently, she is coordinating the Academics Leagues of Cardiology- at UniCeub and Intensive Medicine at Uniceplac, promoting seminars and meeting among medical and other health students. The aim to engage institutions gathering knowledge, exchanging ideas, and encouraging young investigators. Throughout her career, she has involved in medical students' education programs, training and orientation for academic presentations, scientific and technical writing, organizing webinars to promote medical information, and exchange experiences.

In 2019 organized the XIII Intensicardio – Brazilian Congress of Intensive Cardiology in Brasília – Brazil, promoted by Instituto Cardiovascular São Francisco de Assis and its chairman Prof. Otoni Moreira Gomes. In 2020, during this ongoing global pandemic of coronavirus, she organized the International Webinar – Brazil – United States for discussing updates, concerns, and challenges about COVID-19.

The awards and honors received were Ricardo Gelpi Award for Excellence in Cardiovascular Sciences in 2015, from International Heart Academy, and Academic Merit at Uniceub in 2018. She served as an invited reviewer in European Heart Failure in 2017. Author of chapter "Low, medium, and high-fidelity scenario" at "Manual of Realistic Simulation" book, in 2019. Her work has prompted many invitations to speak at universities, meeting, symposia, congresses national, and international. She has relentlessly put in selfless commitment in her career for the promotion of medical studies. Some articles published in Scientific Journals.

Dr. Galal Eldin Nagib Elkilany

Dr. Galal Eldin Nagib Elkilany

Dr. Galal Eldin Nagib Elkilany is currently Assistant Clinical Professor of Cardiology, UAE, Consultant Cardiologist at Burjeel Specialty Hospital, SHJ and AMMC, Dubai, UAE and Distinguished Fellow at ISCU, USA. His has expertise in cardiology, adult and pediatric echocardiography, as well as experience in Nuclear Cardiology and Cardiac Imaging. Dr. Elkilany obtained his Bachelor Degree of Medicine in 1987 and Master's degree in cardiology and Angiology, both from Tanta University, Egypt. In 1998, he received his Medical Doctor (Doctorate) degree in cardiology also from Tanta University. His PhD/MD academic records have been approved by WES (World Education Services), New York, NY 10004, USA. In 2003 he became Fellow of the European Society of Cardiology, Paris, France, Fellow of the International Society Of Cardiovascular Ultrasound [ISCU] , USA in 2004 and in 2013 received Distinguished Fellowship of the ISCU.

He is Consultant Cardiologist at Elaj Medical Center, Ajman, Kings College Hospital, London, Dubai and Almoosa Day Care Hospital, Dubai UAE. He was Consultant Cardiologist at Enjab Medical Center, Sharjah and Ajman, UAE (2018-2020), Consultant Cardiologist and Assistant Clinical Professor, Thumbay Hospitals (GMC) and Gulf Medical University, Ajman, UAE (2016-2018). Dr. Elkilany was also Visiting Professor, Sapienza University Hospital, Interventional cardiology department in Rome, Italy in 2018. He has served as Consultant Cardiologist: Dibba Hospital. Eastern Emirates, AlFujairah, UAE (2012-2015), Cardiology Specialist – Senior Registrar: Chest Disease Hospital, Kuwait Cardiac Center (Under Medical Supervision of Mc Gill University, Montreal, Canada) from 2006-2011, Visiting physician "Partner Fellowship." UAB Birmingham Alabama USA in 2011 and Clinical Fellow, Milano Majoree Policlinico, Milan, Italy in 2007. Since 1998, he a Consultant of Cardiology and degree of Professor of Cardiology and Cardiovascular Diseases, Tanta University Hospital, Egypt.

Dr. Elkilany is Editor-in-Chief: International Journal of Cardiology Research and Editor or Editorial Board Member: Journal of Cardiology & Cardiovascular Therapy (JOCCT); Integrative Clinical Cardiology; Journal of Clinical Cardiology and Cardiovascular Interventions; Austin Cardiology; World Heart Journal (WHJ); Current Genomics (CG). He is Associate Editor: Journal of Molecular and Translational Research (JMTR), Creighton University School of Medicine, USA. He has published more than 80 papers in refereed international journals, 25 reviews and 2 book chapters.

Dr. Elkilany served as President of the ISCU: Middle East Chapter and the International College of Cardiology (2018-2020). He is member: European Society of Cardiology, Emirates Cardiac Society, Kuwait Medical Society, Egyptian League of Nuclear Cardiology, Egyptian Working group of Echocardiography, International Society of cardiovascular ultrasound , USA; EACVI , European Association of Cardiovascular Imaging , France; Egyptian society of cardiology; Egyptian Society of Atherosclerosis; Egyptian society of Hypertension; Egyptian Society of Cardiovascular Drug Therapy; Egyptian Society of Hemostasis & Thrombosis; Mediterranean Association of Cardiology and Cardiac Surgery.

Attended many international conferences, congresses, symposia and meetings. Supervised: over 20 postgraduate students for Master, PhD and MD

Dr. Peter Ferdinandy

Dr. Peter Ferdinandy

Péter Ferdinandy is a professor of pharmacology and clinical pharmacology, director of the Department of Pharmacology and Pharmacotherapy, Semmelweis University, Budapest) and the CEO of Pharmahungary Group.

He received an MD diploma in 1991 and a PhD degree in 1995 from the University of Szeged, Hungary. He was a postdoctoral fellow of MRC Canada for 2 years (1997-1999) at the Department of Pharmacology, University of Alberta, Edmonton, Canada. He became a registered clinical pharmacologist in 1999, and obtained a DSc degree from the Hungarian Academy of Sciences in 2004. He completed MBA studies in Finance and Quality Management in 2004 at the Budapest University of Technology and Economics. He was the founder of Pharmahungary Group, a group of R&D companies and consulted hundreds of industrial drug development projects in cardiovascular and metabolic diseases.

He published over 200 papers and listed on Highlycited 2014 and 2017 the most influential scientists) in the field of pharmacology and toxicology. He is member of the editorial boards of Br J Pharmacol, Basic Res Cardiol, J Mol Cell Cardiol, and J Pharmacol Toxicol Methods. He was the president of the International Society for Heart Research, European Section, and currently the past chair of the Working Group of Cellular Biology of the Heart, European Society of Cardiology.

Dr. Sivadasanpillai Harikrishnan

Dr. Sivadasanpillai Harikrishnan

Dr. Sivadasanpillai Harikrishnan is currently Professor in the Department of Cardiology at Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST), Trivandrum, Kerala, India. He graduated from Medical College, Trivandrum in 1991, took Masters in Internal Medicine from University of Calicut in 1995 and completed post-doctoral (DM) training in Cardiology from SCTIMST in 1998. He then completed National Board examinations in Cardiology, the next year. Subsequently he received a Commonwealth Fellowship in Interventional Cardiology and had training at Leeds University, United Kingdom. He also had training in Public Health leadership (PH-LEADER Program) from Rollins School of Public Health, Emory University, USA, in 2015. Dr Harikrishnan became Fellow of the American College of Cardiology(FACC) in 2009 and became the Fellow of the Royal College of Physicians, London (FRCP) in 2013.

Primarily being an Interventional Cardiologist who is involved in training post-doctorals and Fellows at SCTIMST, he is very passionate about clinical research. Dr Harikrishnan's main research interest is in heart failure. He established the first heart failure cohort in India, – the Trivandrum Heart Failure cohort which has completed 5 years of follow-up. He is now coordinating the National Heart Failure registry which is the largest in the country and has enrolled 10500 patients. In 2019, Dr Harikrishnan was awarded one of the ten National Centers of Excellence in Clinical Research (CARE), established nationwide by Indian Council of Medical Research (ICMR) with a funding of Rupees 5 Crores. Under this initiative, the first heart failure biobank in India is being established along with other six research projects. He has also received research grants from The Wellcome Trusts, European Commission and NHLBI.

Dr. Harikrishnan has more than 100 publications in international peer reviewed journals with more than 19000 citations and an h-index of 37. He has edited two books, one a unique monograph on Balloon Mitral Valvotomy and another one titled – A RACE AGAINST TIME – describing the epidemic of cardiovascular diseases in developing economies. He is also the founder editor of the international peer-reviewed journal - Pulmonary Circulation.

He is currently the President of the Heart Failure Association of India and was the Co-Leader of the South-East Asia Task force of the Pulmonary Vascular Research Institute. (pvri.info). He was awarded the Prof. JP Das Heart Failure oration of the Indian College of Cardiology in 2017. He was conferred the award for outstanding research and publication in Heart Failure by the Society for Heart Failure and Transplantation at Bombay in 2019. In 2019 he was awarded the prestigious Amrut Modi Unichem Prize for Cardiovascular Research by the Indian Council for Medical Research.

Dr. Merry Lindsey

Dr. Merry Lindsey

Dr. Merry Lindsey joined the University of Nebraska Medical Center in February 2019 to become Chair of the Department of Cellular and Integrative Physiology and the Founding Director of the Center for Heart and Vascular Research. She is also a Research Health Scientist with the Omaha VA Medical Center. Dr. Lindsey received a B.A. in Biology, with minors in Chemistry and English, from Boston University, was awarded a Ph.D. in Cardiovascular Sciences from Baylor College of Medicine, and completed a postdoctoral fellowship in cardiovascular research at Harvard Medical School and Brigham and Women's Hospital. She served on the faculties of the Medical University of South Carolina from 2002-2005, the University of Texas Health Science Center in San Antonio from 2005-2013 where she was promoted to full professor in 2012, and the University of Mississippi Medical Center from 2013-2019.

Lindsey's laboratory is dedicated to performing cardiovascular research that involves (1) Developing multidimensional approaches to examine the mechanisms whereby the left ventricle responds to injury; (2) Applying the knowledge gained to develop therapeutic strategies to prevent, slow, or reverse the progression to heart failure; (3) Disseminating results to the general, scientific, and medical communities; and (4) training the next generation of scientists.

Lindsey's research has led to more than 200 publications, and she has received over $30M in grant support from the American Heart Association (AHA), the Voelcker Foundation, Novartis, the Veterans Administration, and the National Institutes of Health. Dr. Lindsey has reviewed over 1,100 manuscripts and is the incoming Editor of the *American Journal of Physiology - Heart and Circulatory Physiology*. She has reviewed grants for the AHA, the numerous NIH study sections, and a variety of international funding agencies.

Dr. Ali J. Marian

Dr. Ali J. Marian

Dr. Ali Marian is the James T. Willerson Distinguished Chair in Cardiovascular Research, Professor of Molecular Medicine (Genetics), Professor of Internal Medicine (Cardiology), Director, Center for Cardiovascular Genetics Institute of Molecular Medicine, The University of Texas Health Science Center-Houston, Texas.

Dr. Marian received his training in clinical cardiology and human molecular genetics at Baylor College of Medicine. He served as a faculty at the Section of Cardiology at Baylor College of Medicine from 1992 to 2006. He was recruited to The Brown Foundation Institute of Molecular Medicine for the Prevention of Human Diseases to lead the Center for Cardiovascular Genetics.

Dr. Marian is recognized for his research achievements and expertise in molecular genetics and genomics of cardiomyopathies. He received the Young Investigator Award from the American College of Cardiology, the Junior Faculty Award for research from the American Federation of Medical Research, the Award for Excellence

in Research at Baylor College of Medicine, the Established Investigator Award by the American Heart Association, the Clinician-Scientist Award in Translational Research from Burroughs Wellcome Fund, Distinguished Scientist Award from Baylor St Luke's Medical Center, and the Best Editor Award from Roberto Bolli, M.D., The Editor-in-Chief of *Circulation Research*.

Dr. Marian is currently an Associate Editor for Cardiovascular Research, Section Editor on Genetics for *Current Opinion in Cardiology* and Section Editor on Genetics and genomics for *Current Atherosclerosis Reports*. He is a former Deputy Editor for *Circulation Research*, former Associate Editor for *Circulation,* and former Associate Editor for *European Journal of Clinical Investigation*. Dr. Marian's research is supported by grants from NHLBI-NIH, Leducq Foundation Trans-Atlantic Network of Excellence and local foundations.

Dr. Ashok K. Srivastava

Dr. Ashok Srivastava

Dr. Ashok K. Srivastava is a Professor in the Department of Medicine, Université de Montréal, and Director of the Laboratory of Cell Signaling at the Research Center of the Centre hospitalier de l'Université de Montréal (CHUM). Dr. Srivastava did his Ph.D. research at the Central Drug Research Institute, Lucknow, India. He received post-doctoral training at University of Southern California, Los Angeles, California and Vanderbilt University, Nashville, Tennessee. The focus of Dr.Srivastava's research is to understand the role of vasoactive peptide, growth factor and oxidant-induced signaling pathways in the pathogenesis of vascular abnormalities and diabetic complications. The research program in Dr. Srivastava's laboratory has been continuously funded by grants from Medical Research council of Canada/ Canadian Institutes of Health Research since 1982. He has also received operating grants from the Canadian Diabetes Association and the Heart and Stroke Foundation of Canada. His studies have resulted in the publication of more than 100 full-length papers and book chapters. He has edited 4 books on the topics of insulin action and cellular signaling mechanisms in health and disease. Dr. Srivastava has also been invited to deliver talks at academic Institutions and conferences both Nationally and Internationally. He has trained several graduate students and post-doctoral fellows. In recognition of his achievements in cardiovascular research, he was awarded Vincezo Panagia distinguished lecture award in 2008 from the Institute of Cardiovascular Sciences, University of Manitoba, Winnipeg. Dr. Srivastava is a member of the editorial boards of several journals including Molecular and Cellular Biochemistry, Experimental and Therapeutic Medicine, Recent Patents on Endocrine, Metabolic and immune Drug Discovery and Indian Journal of Biochemistry and Biophysics. He has also served as a guest editor of many journals such as Antioxidant and Redox Signaling, Canadian Journal of Physiology and Pharmacology, Cell Biochemistry and Biophysics and Molecular and Cellular Biochemistry. He has organized several International symposia and chaired the organizing committee of the 12th International Conference on Cyclic Nucleotides and Phosphoproteins in Montreal in 2004. He also serves/served on the grant review panels of the Canadian Institutes of Health Research, the Heart and Stroke Foundation of Canada and the National Institutes of Health, USA.

Canadian Cardiovascular Society Bestows Dr. Lorrie Kirshenbaum with Highest Honor

Dr. Lorrie Kirshenbaum

On Oct. 21 during a Canadian Cardiovascular Society (CCS) virtual event, Dr. Lorrie Kirshenbaum was elected to be the recipient of the 2020 CCS Research Achievement Award. This award recognized Dr. Kirshenbaum's research excellence and outstanding contributions to Canadian cardiovascular health and care. Dr. Kirshenbaum, Director, Institute of Cardiovascular Sciences at St. Boniface Hospital Albrechtsen Research Centre and Professor in the Department of Physiology and Pathophysiology, University of Manitoba, Winnipeg, Canada. He is Canada Research Chair Tier II in Molecular Cardiology (2005-present).

He said, *"Having been recognized among other leaders who have received this award in the past is very humbling, it speaks to the high caliber of research at St. Boniface Hospital and our team of researchers".*

Dr. Kirshenbaum is a world leader in the field of cell death for the last 25 years. His expertise is in developing molecular and biochemical techniques that study cell death signaling in the heart. His team has made several important and seminal contributions; including demonstrating for the first time that Bcl-2 related protein Bnip3 plays a major role in regulating mitochondrial quality control and cell death pathways in the pathogenesis of myocardial infarction and cancer. His lab has also developed several techniques for monitoring mitochondrial dynamics, mitophagy, respiration by live cell imaging to study cell death signaling pathways during normal and diseased conditions. Dr. Kirshenbaum's approach is to understand heart disease at the genetic level. His lab was among the first to demonstrate the use of human viruses to deliver genes in the adult heart muscle cells. The ultimate goal will be to correct the disease at the genetic level employing similar techniques. Dr. Kirshenbaum has published more than 140 papers in high impact peer-reviewed journals with more than 10,000 citations and H-index of 47.

Impact of COVID-19 on the Heart

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The outbreak of a novel coronavirus disease was first reported from Wuhan in the Hubei province of China on 8th December 2019. The disease which later came to be known as COVID-19 rapidly spread across continents and was declared a global pandemic by the World Health Organization (WHO) on 11th March 2020. Hardly six months after the first case was reported, as of 5th June 2020, more than 67.5 lakh people have been affected worldwide and close to 2.35 lakh people have been affected in India. As the health-care systems across the world continue to grapple with an exponential surge in the reported cases, it is critical to understand the prognostic factors associated with morbidity and mortality of this new disease. Though the disease primarily affects the lung, a growing body of evidence suggests that multiple organs, particularly the cardiovascular system is affected by the COVID-19 disease. In the present article, we will look at some of the key evidence from the scientific literature on the implications of the COVID-19 disease on the heart.

Several cardiovascular indications have been reported in patients with COVID-19 disease including heart injury,

inflammation of the heart (myocarditis), heart failure and heart rhythm disorders. Studies indicate that around 10% of the COVID-19 hospitalizations are associated with elevated serum troponin levels indicative of damage to the heart muscle cells, with the proportions rising to 25-30% or more when the patients are critically ill or present with existing cardiovascular conditions [1]. However, the exact reasons for heart muscle damage in different cases is currently not clear. Further, reminiscent of other acute viral infections, there have been reports of low-grade heart inflammation in the case of COVID-19 disease [2]. Cardiac muscle studies have found inflammatory cell infiltrates and signs of muscle cell death, indicating myocarditis [3]. Though SARS-CoV-2 has been detected in the macrophage infiltrates in the heart, there is currently no clear evidence on whether the virus directly infects the heart muscle cells (cardiomyocytes). In addition to cardiac injury and myocarditis, heart failure has been reported as a significant outcome of COVID-19 in a study of Chinese subjects, with a strikingly higher prevalence among non-survivors (52%) when compared to survivors (12%) [4]. It is possible that heart failure may develop as a consequence of cardiac injury or acute myocarditis although it is difficult to ascertain this. Besides, a study of 138 subjects from a hospital in Wuhan reported heart rhythm disorders (cardiac arrhythmia) and acute cardiac injury in 16.7% and 7.2% of the patients respectively, with patients who received care in intensive care units being more likely to develop these complications [5]. Collectively, these evidences indicate widespread cardiovascular complications in patients with COVID-19 and also indicates a poor prognosis in patients with these complications.

In addition to being one of the major organs affected by the COVID-19 disease, pre-existing cardiovascular conditions also portends a severe clinical outcome upon contracting COVID-19. In one of the most extensive studies which included 44,672 confirmed cases of COVID-19 reported by the Chinese Center for Disease Control and Prevention, the case-fatality rate (CFR) was found to be markedly higher in patients with pre-existing disease conditions [6]. Notably, the CFR in patients with cardiovascular diseases (CVD) was strikingly high at 10.5%, the highest among patients with other co-morbidities such as diabetes (7.3%), chronic respiratory disease (6.3%) or hypertension (6.0%), while the overall CFR stood at 2.3% [6]. Similarly, many other smaller studies have also noted a similar trend, suggesting an increased risk of adverse events in CVD patients who contract COVID-19 (reviewed in [7]).

Another topic that has received much attention during the pandemic is the relation between certain blood pressure reducing medications and the severity of COVID-19 disease. The involvement of ACE (angiotensin converting enzyme)-2, a vital component of the renin-angiotensin-aldosterone system (RAAS), as a receptor for the SARS-CoV-2 has led to confusion about the use of RAAS blockers such as ACE inhibitors and angiotensin receptor blockers (ARBs) in hypertensive patients. It must be noted here that ACE-2 is distinct from its close homolog ACE, and ACE inhibitors or ARBs do not target ACE-2 directly. Indeed, ACE-2 acts to counterbalance the effects of ACE by hydrolyzing angiotensin II and reduces blood pressure. It was initially hypothesized that a compensatory increase in ACE2 due to RAAS inhibitors could increase the risk of developing severe COVID-19 disease [8]. However, it is essential to note that there is no clear evidence for upregulation of membrane-bound ACE-2 in human tissues due to RAAS inhibitors [9]. Further, in the absence of any established link between RAAS inhibitors and COVID-19 severity and considering that any destabilization of blood pressure in hypertensive patients because of changes in medication can precipitate the risk of strokes and heart attacks, there is no strong justification for discontinuing anti-hypertensive drugs. Several cardiovascular societies such as the European Society of Hypertension, American College of Cardiology and the European Society of Cardiology have now issued guidelines advising against discontinuing anti-hypertensive drugs in the wake of the pandemic (summarized in [10]). Finally, it has even been proposed that increased ACE-2 activity might exert a protective effect against cardiac or lung injury, as it acts to reduce the angiotensin II levels [11].

While the studies and the data discussed here provide vital insights into the cardiovascular sequelae following infection as well as the severity of COVID-19 in patients with pre-existing cardiovascular conditions, it is important to be mindful of the limitations associated with the studies. Firstly, the vast majority of the initial data has come from China, where the disease was first reported. Second, the majority of the studies reported in the literature are based on retrospective and single-center series. Third, many studies report analyses of small groups or even involve a description of a single isolated case. There is therefore a need to analyze larger groups and include data from diverse populations to arrive at a clearer picture. Further, the clinical presentation of COVID-19 is exceptionally diverse, with more than 80% of the patients being asymptomatic or showing only mild symptoms [6]. When combined with the selection bias in testing strategies and reporting, this can lead to important differences in the estimated prevalence of the underlying risk factors. These shortcomings and the confusion surrounding the use of certain medications can be addressed by prospective cohort studies or randomized controlled trials in the future to address specific questions.

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Is Social Distancing a New Challenge for Heart Health

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As a cardiovascular scientist and actively evaluating the effects of COVID-19, it is inevitable for me to draw a connection between viral infection and heart health. As the viral pandemic evolves, we are learning more about its indirect effects and target audience. From the beginning itself, it was known that old age groups and people with existing medical conditions including heart diseases are at a higher risk. A study suggests that more than 40% of critically affected patients with COVID-19 had pre-existing cardiovascular conditions [1]. This may be because the viral cells attack endothelium (inner layer) of blood vessels and, therefore, results in plaque formation which leads to cardiovascular disorders (CVDs) [2, 3].

There is no denial that COVID infection poses a higher risk to people with existing CVDs. These people are hence advised to practice greater caution. These measures include now-a-norm social distancing. While focusing on the prevention of viral infection, what has missed the eye is the detrimental effect of social distancing measures on heart health. As the social distancing guidelines are here to stay for long, we must address its significant and lasting adverse impact on our heart health.

The mechanism underlying the effects of social distancing on human heart remains undiscovered; however, a study reports an association of social distancing with 29% of incidence of coronary heart diseases and 32% of incidence stroke [4]. Persistent social stress resulting from social

distancing activates a central stress response-- the hypothalamic-pituitary-adrenal axis [4, 5]. The other system which gets affected is the sympathetic nervous system. Its activation leads to multiple cardiovascular effects including heart rhythm disorder such as spontaneous ventricular arrhythmias, ventricular tachycardia, and myocardial electrical instability [6]. In addition to this, stress from social distancing also exerts adverse effects on autonomous homeostasis which in turn results in inflammation and endothelium dysfunction [7]. Eventually, endothelium dysfunction leads to a vasoconstrictive state with increased cell adhesion and oxidative stress resulting in the development of atherosclerosis.

Since CVDs are the leading cause of death globally [8], we should not lose sight of heart health while taking all the measures to prevent COVID. As we are not sure how long we need to follow the distancing guidelines, it is essential to get physically active to mitigate psychological effects of social distancing. It is time to admit that socialising has a pivotal role in keeping hearts healthy in some way.

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Arterial dP/dtmax and NIRS Oximetry: Novel Approaches for Clinical Monitoring of Cardiogenic Shock

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Introduction

Despite rapid developments in the current clinical medicine, cardiogenic shock remains a serious condition with very high mortality usually exceeding 40%. Implementation of direct percutaneous coronary intervention as a preferred reperfusion strategy in acute myocardial infarction, the major cause of cardiogenic shock, decreased the incidence of shock. However, if cardiogenic shock develops the prognosis remains poor although some promising results have recently been reporting for the use of mechanical circulatory support. Close monitoring of the patient status in this situation represents a key tool for the selection of the best treatment strategy and for the immediate therapeutic reaction to the changing conditions. Current possibilities for the hemodynamic monitoring are, however, very limited; the same parameters have been used for many years: blood pressure, heart rate, cardiac output, urine output, and variables of global oxygen metabolism. Recently, new approaches for the clinical monitoring of cardiogenic shock have been proposed: arterial dP/dt max as a surrogate of left ventricular contractility and near-infrared spectroscopy (NIRS) oximetry as a marker of the adequacy of tissue perfusion.

Arterial dP/dtmax

Left ventricular dP/dtmax is a widely accepted parameter describing left ventricular contractility. However, its use for continual monitoring in the clinical practice is limited by unacceptable invasiveness of this approach due to the need of catheter placement in the left ventricle. Non-invasive assessment of left ventricular dP/dtmax from echocardiography enables repeated but not continual monitoring and it is always limited by the quality of Doppler signal. On the other hand, arterial dP/dtmax obtained by pressure waveform analysis from peripheral (usually radial) artery enables continual monitoring and does not require any additional vascular access because invasive blood pressure monitoring is highly recommended in all patients with cardiogenic shock. It has been shown that arterial dP/dtmax closely correlates with the left ventricular dP/dtmax particularly in the conditions typical for cardiogenic shock as low cardiac output and high systemic vascular resistance. Arterial dP/dtmax represents, therefore, a new method for the continual monitoring of left ventricular contractility and a response to the therapeutic intervention in cardiogenic shock (e.g. administration of inotropes).

NIRS oximetry

The adequacy of tissue perfusion in cardiogenic shock could be monitored using the parameters of global oxygen metabolism (i.e. blood lactate, venous oxygen saturation, pCO2 gap) or indirectly by cardiac output. NIRS oximetry is a non-invasive method providing a continual measurement of hemoglobin oxygen saturation in tissue located at 2 to 4 cm under the skin sensor. For this purpose, two sensors are usually placed on the forehead for the monitoring of brain saturation and another two sensors can be used for the monitoring of peripheral tissue saturation (i.e. in lower extremities). Clinical studies reporting the use of NIRS oximetry in perioperative management revealed that decrease in brain oxygen saturation is associated with poor outcomes including brain damage, cognitive dysfunction or longer intensive care unit stay. Maintenance of NIRS oximetry of brain tissue within the normal range represents, therefore, a clear therapeutic target in cardiogenic shock. Monitoring of oxygen saturation in the lower extremities tissue provides an immediate warning and enables prompt therapeutic intervention when limb ischemia develops, which is a frequent complication with the use of mechanical circulatory support such as Impella device or extracorporeal membrane oxygenation (ECMO). Moreover, oxygen saturation of lower extremities is very sensitive to global hemodynamic changes because limb perfusion is not influenced by physiological reflex mechanisms that maintain brain perfusion in shock condition. Therefore, decrease in limb oxygen saturation usually precedes the drop of brain saturation in the progression of cardiogenic shock.

Conclusion

Cardiogenic shock is a critical condition with very high mortality and close clinical monitoring in this situation is a fundamental requirement. Continual monitoring of the left ventricular contractility by arterial dP/dtmax as well as the measurement of the adequacy of tissue perfusion by NIRS oximetry provide new insights into the pathological processes involved in the development and consequences of shock. These novel methods, therefore, enable earlier and more precisely targeted therapeutic intervention in cardiogenic shock.

Acknowledgement

This work was supported by an Institutional grant MH CZ - DRO (Nemocnice Na Homolce - NNH, 00023884), IG150501.

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Healthful Foods and Lifestyle Modifications Prevent Cardiovascular and Cardiometabolic Diseases

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Incidences of cardiovascular and cardiometabolic diseases and healthcare costs are escalating globally. There is a great surge for finding cost-effective measures for the prevention of cardiovascular and cardiometabolic diseases generally associated with type 2 diabetes, obesity. and sedentary lifestyle. *Hippocrates - Father of Medicine (ca.460-370 B.C.) - advocated the healing effects of foods: He said: "Leave your drugs in the chemist's pot if you can heal the patient with food".* It is now well recognized that regular intake of antioxidant diets rich in polyphenolic flavonoids, carotenoids, and lycopene present in fresh fruits and vegetables as well as lesser consumption of salt and sugar-loaded drinks, less saturated fat, smoking cessation, and moderate exercise (30 min/day), collectively help in the prevention of cardiovascular diseases (CVDs) and cardiometabolic disorders (CMDs). This holistic approach may be the most cost-effective method for health promotion and prevention of chronic diseases like cancer, diabetes, obesity, CVDs, CMDs, and neurodegenerative disorders. Intake of healthful foods such as whole grains, omega-3fatty acid containing foods, poultry, fish, nuts and seeds, olive oil, dairy products (cheese, probiotics/prebiotics), less red meat, and moderate consumption of red wine are linked to the reduction of mortality and morbidity associated with CVDs and CMDs. Ingestion of functional foods, vitamins, minerals, and amino acids assist to improve overall health beyond basic nutritional functions. Emerging evidence suggests that dietary supplements containing flavonoids, carotenoids, and antioxidants modulate gene and protein expression and thereby modify endogenous metabolic pathways and homeostasis, and consequently reduce the risk of chronic diseases multifactorial in origin. The beneficial effects of plant-derived bioactive compounds and/or their metabolites are attributed to their combined anti-oxidant and anti-inflammation actions.

Probiotics/prebiotics/synbiotics confer health benefits on the host through the promotion of healthy microbiota in the gastrointestinal tract, improvement of gut endothelium integrity, and boosting the immune function in the body. Overwhelming evidence indicates that the incidence of non-genetic CVDs can be reduced by 75-80% by making lifestyle changes, eating healthful foods, and physical activity. The preventive strategies for CVDs and CMDs must be targeted at the primary health promotion level before some of the important underlying causes of these diseases seriously afflict an individual or a population at large. Such preventive approaches would not only help in reducing work-related absenteeism due to prolonged hospitalization, but would also decrease the costs of drugs and healthcare providers that impose high economic burdens on the healthcare systems of developed and developing countries. The purpose of this commentary is to briefly addresses the aetiology and risks involved in the occurrence of CVDs and CMDs, and highlight the cost-effective non-pharmacological interventions for the prevention of these diseases.

While the pharmacological interventions have demonstrated strong therapeutic efficacy against CVDs, psychogenic disorders, diabetes mellitus, obesity, metabolic syndrome related pathologies, osteoarthritis, and cancer; but the long-term usages of prescription and over-the-counter drugs also cause unwanted iatrogenic effects. Therefore, lately the scientific community and public at large have directed their attention to dietary therapies, functional foods, and lifestyle modifications for the prevention of non-communicable diseases (NCDs). Holistic approaches targeted for health education and health promotion for the prevention of chronic diseases like CVDs, type 2 diabetes, and obesity-related CMDs would not only improve quality of life, bur also reduce the burden of healthcare costs. Public health education is needed to promote greater consumption of fresh fruits and vegetables, whole grains, probiotics, nuts and fish, and lesser amount of red meat for the prevention of CVDs and CNS disorders.

Epidemiological and meta-analysis studies have shown that consumption of functional foods, nutraceuticals, antioxidant and anti-inflammation diets such as Mediterranean-diet (MED-diet), Dietary Approaches to Stop Hypertension (DASH), and the Mediterranean-DASH Intervention for Neurodegenerative Delay (MIND) diet have proven useful for the primary prevention of CVDs, and to delay the onset of neurodegenerative disorders (dementia, cognition decline. depression, insomnia, Alzheimer's disease etc.). Antioxidant and anti-inflammatory compounds present in fresh fruits and vegetables (e.g. polyphenolic flavonoids, anthocyanins, carotenoids, lycopene) scavenge overly generated free radicals produced by mitochondrial damage and oxidative stress, prevent lipid peroxidation in the endothelial lining of arterial

vessels, decelerate atherosclerosis, decrease hypertension, reduce blood platelet aggregation and formation of endothelial plaques, and consequently protect against coronary heart disease and stroke.

Adequate intake of omega-3 fatty acids (PUFA), cod liver oil, olive oil, micronutrients (vitamins, trace elements), and amino acid like tryptophan have been reported to attenuate age-related decline and cognitive function as well as sleep disorders by improving neuronal function and neurotransmitters in the brain. However, further research is needed to enhance our understanding about the precise underlying mechanisms involved in the neurotrophic effects of functional foods and dietary supplements as memory enhancing remedies.

Innumerable studies have shown remarkable health benefits of physical activity such as prevention of obesity and diabetes, heart disease and stroke, slowing the progression of cognitive impairment, depression, psychiatric disorders, and some cancer types (e.g. prostate, breast, colon). Age-related sarcopenia is commonly observed in elderly subjects, particularly in malnourished elderly persons. The prevalence of cognitive decline and memory loss is also significantly higher in elderly with sarcopenia and neurological disorders. One modulating strategy of sarcopenia and dementia is increased physical activity and wholesome diet. Therefore, regular physical exercise (30 min/day) and balanced diet may be an effective way to prevent sarcopenia and cognitive decline. The duration, quality and quantity of exercise may vary among different men and women. It is well known that regular physical activity causes vasodilation, reduces blood pressure, improves triglycerides, and attenuates oxidative stress in men and women by improving the endogenous capacity of antioxidant enzymes, and increasing anti-inflammation molecules in body organs. Physical exercise also reduces nitric oxide (NO) degradation through decreased oxidative stress. Regular physical activity prevents atherosclerosis, improves kidney function, and consequently lowers the incidence of coronary heart disease, diabetes, dementia, and depression. Physical activity also improves cardiovascular health, strengthens bones, and reduces osteoporosis in postmenopausal women. Our body has over 100,000 miles long blood vessels. Those vessels are more supple and healthier when we walk or do any aerobic activity. The overall message of physical activity is: "Movement is Medicine".

Nicotine from cigarettes, including e-cigarettes, causes vasocontraction and hypertension as well as promotes atherosclerosis and arterial thrombogenesis. Carbon monoxide (CO) from cigarettes decreases the O_2 carrying capacity of the blood and O_2 transport to the brain and other organs/tissues. In addition, carcinogens produced by cigarette pyrolysis causes lung cancer. Hookah or cigarette smoking, vaping or e-cigarettes also enhance oxidative stress in the body. While physiological amounts of free radicals are needed for signal transduction and cell-to-cell communication, the unabated excessive production of free radicals is harmful and trigger the production of inflammatory cytokines in the body. The oxidative stress related production of free radicals is considered one of the potential causes of neurodegenerative abnormalities, pancreatic malfunction, and renal disease. It has been observed that tobacco smoking accelerates the aging process. Free radicals scavenging polyphenolic antioxidant compounds present in fresh fruits, vegetables, phytomedicines, and antioxidant nutraceuticals lower the risk of CVDs and other chronic maladies.

Marijuana (*Cannabis sativa*) has been legalized for therapeutic use in Canada and many states in America. Recreational use of marijuana or cannabis has skyrocketed, particularly among the younger population. It is mostly smoked, but it can also be brewed in tea or eaten mixed with foods. Because of its adverse effects on the developing fetus, pregnant women should discontinue the use of marihuana for medicinal or psychoactive purposes. Although the primary effects of marijuana are on the CNS, it can also affect the cardiovascular system. It has reported that marihuana can cause serious cardiovascular events such as arrhythmias, cardiomyopathy, adverse cerebral events, and sudden cardiac death in relatively younger men. The adverse effects of marijuana may be enhanced by the concomitant use of other substances of abuse or cardiovascular medications.

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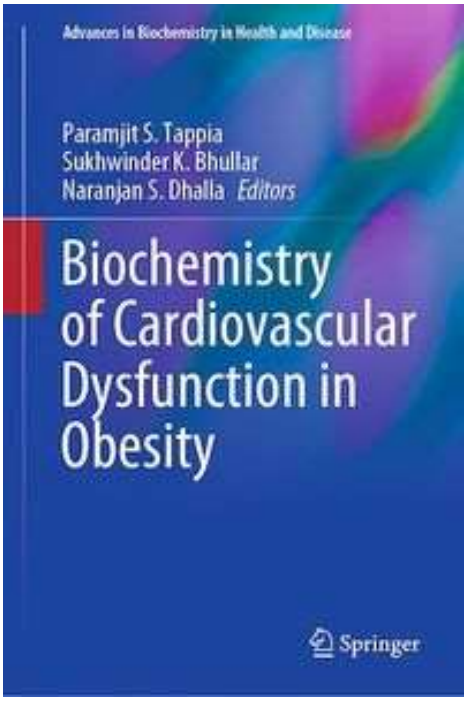
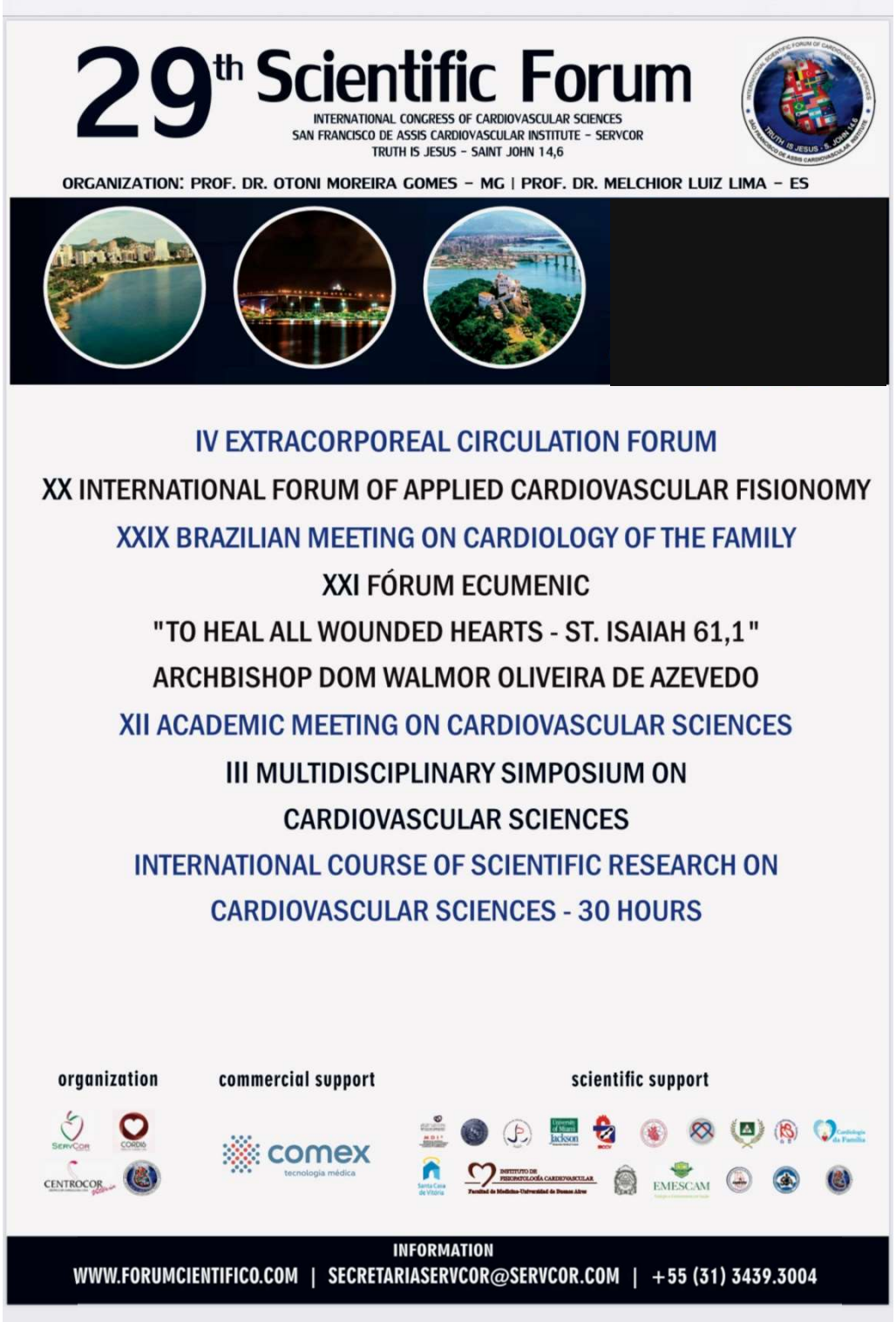
Tappia, Bhullar and Dhalla Edit Book on Obesity and Cardiovascular Dysfunction



"Biochemistry of Cardiovascular Dysfunction in Obesity" covers a broad range of biochemical mechanisms of obesity-induced cardiovascular complications. We hope that the reader will understand that obesity is linked to an increase in the risk and occurrence of fatal CVD. Furthermore, the underlying message presented in the book is that the cause of obesity related disorders is complex and that understanding the biochemistry of cardiovascular dysfunction may contribute to the development of novel interventions for the prevention and treatment of obesity associated comorbidities.

This book will provide a description of the impact of obesity on the cardiovascular system and increased predisposition to CVD. It will identify the major biochemical mechanisms that lead to the occurrence of myocardial abnormalities and vascular alterations in obesity. We will also have some discussion on the biochemistry of the so-called obesity paradox in relation to CVD. The contributors to this book are international experts on obesity and associated cardiovascular complications. This book is also uniquely positioned as it focuses on the biochemistry of obesity-induced cardiovascular dysfunction. There are 20 chapters in 2 different parts in this book, comprising of Part A: Pathophysiology of Cardiovascular Complications in Obesity (11 chapters) and Part B: Modification of Cardiovascular Dysfunction in obesity (9 chapters). https://link.springer.com/book/10.1007/978-3-030-35358-2



Re-scheduled for November 2021, exact dates to be announced

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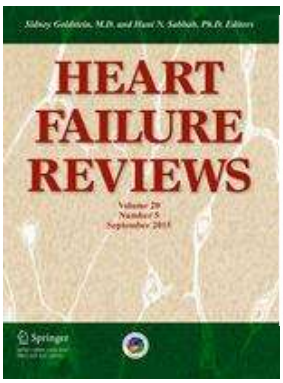

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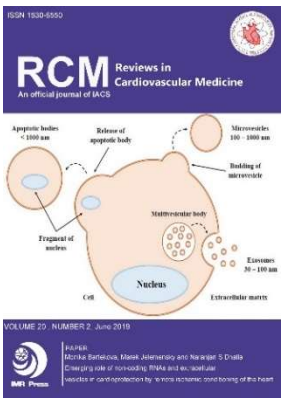

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First Announcement

International Academy of Cardiovascular Sciences- India Section

Presents

MMCD-2021

International Conference on

Molecular Medicines for Cardiovascular Disorders

Rescheduled Early April, 2021

CSIR-Central Drug Research Institute, Lucknow

Symposia

- The CR Soman symposium on Prevention of Cardiovascular Diseases.
- The N Radhakrishnan Foundation symposium in Vascular Diseases.
- Riya and Paul Ganguly symposium on Diabetes.

Orations

SK Gupta Oration
Harpal Buttar Oration
Rakesh Kukreja Oration
RK Goyal Oration

Awards

NS Dhalla Poster Awards
SC Tyagi Young Faculty Awards
DK Agrawal Young Investigator Awards
CC Kartha Travel Awards

Conference Secretariat

Organizing Secretary : Dr Manoj Barthwal
Joint Organizing Secretary: Dr. Anil N. Gaikwad, Dr Kumaravelu Jagavelu

International Academy of Cardiovascular Sciences

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