NEWSLETTER OF THE FRIENDS OF THE ISRAEL HEART SOCIETY

Editor's Note: Welcome to the Fall 2010 FIHS Newsletter. This is the first one produced entirely in Israel (well, also on the plane ride there!). On behalf of the entire Board of FIHS I would like to wish all of our readers a happy and healthy New Year, one of health, peace, and prosperity.

In this issue we will have 2 research articles, one covering basic science and the other cardiac imaging. We will be highlighting the Cardiology Department of Shaare Zedek Medical Center in Jerusalem. All of our usual feature sections will be covered, including a message from our President and upcoming meetings,

Remember, this Newsletter and Society belong to you, the membership. We look forward to enhancing this Society and the connections that we hope to foster between Israeli and non-Israeli cardiologists and their institutions. Please feel free to email us with questions, answers, comments, criticisms, or just to tell us to keep working harder!

Our immediate goal is to try to grow our membership and participation to include any and all cardiologists and fellows that would be interested in supporting this bridging relationship. If you know of any cardiologists or cardiology fellows who we can contact, please email me (my address is jackstroh@usa.net). May we continue to grow in size as well as in deeds in the future!

NEWSLETTER OF THE FRIENDS OF THE ISRAEL HEART SOCIETY

Message from the President

We are excited to distribute to you our fall newsletter. The Jewish New Year was just celebrated in Israel and across the world. I wish all our readers and members a happy and healthy new year!

With your help, the Friends of the Israel Heart Society continues to grow and reach an ever increasing number of cardiologists. We still need your help in reaching out to the many more individuals in the cardiovascular arena who would be interested in the Friends. With the immense growth of cardiovascular technology and research in Israel, we benefit greatly from this interaction. Please take a few moments to forward this newsletter to a few colleagues. If you have a few more moments, contact them to find out if they have signed up for membership.

In particular, I would like to acknowledge the generosity of those who can provide support at the Silver, Gold, Platinum, and President's Club levels.

Finally, consider attending one of the upcoming meetings in Israel. The meetings are of the highest quality and provide an excellent way to combine a historic trip to Israel with continuing medical education.

Thank you for your continued support!

Jeff Goldberger MD

President, Friends of the Israel Heart Society

Upcoming Meetings in Israel

ICI Meeting 2010-Innovations in Cardiovascular Interventions
Tel Aviv, Israel
December 5-7, 2010

- **Topics- Next Generation DES**
- **Coronary Navigation and Guidance**
- **Innovation in Percutaneous Valvular Therapy**
- **Bifurcation Stenting**
- **Multidetector CT and Next Generation MR**
- **How to Succeed in Entrepreneurship in Medicine**
- **Device Based Heart Failure Interventions**
- **Structural Heart Disease: ASD/PFO/PDA**
- **Endovascular and Carotid Innovations**
- **Interventional Accessory Devices**
- **Acute MI**
- **CTO Club**
- **Innovation in Simulation**
- **Vulnerable Plaque Symposium**
- **Biotechnology and Cellular Engineering**
- **Structural and Functional Imaging of the Vulnerable Plaque**
- **Novel Stent Technologies**

http://www.icimeeting.com

Emergency and Disaster Preparedness Course 2010 in conjunction with the Israel Health Ministry and the IDF Medical Corps

November 6-11, 2010

www.apfmed.org/apf.php?c=emergencydisaster

58th Annual Congress of the Israel Heart Society in Association with the Israel Society of Cardiothoracic Surgery

May 4-5, 2011

David Intercontinental Hotel, Tel Aviv

Preliminary List of Speakers

William T. Abraham, MD, FACC
Ohio State University Medical Center, USA

Christian W. Hamm, MD, FESC
Kerckhoff Heart Center, Bad Nauheim, Germany

Barry J. Maron, MD, FACC
Minneapolis Heart Institute Foundation USA

Harvey White, FACC, FESC, FAHA
Auckland City Hospital, New Zealand

http://www.israelheart.com/eng/

Deadline for abstract submission: November 30th 2010

7th International Meeting Intensive Cardiac Care

October 30-November 1, 2011

Co-Chairmen
Joseph S. Alpert, USA
Alexander Battler, Israel
Yonathan Hasin, Israel
Zaza Iakobishvili, Israel, *Secretary*
Doron Zahger, Israel, *Scientific Secretary*
Ofra Raanan, Israel, *Nursing Coordinator*

http://www.isas.co.il/cardiac-care2011/

Membership

This is also a reminder regarding membership dues for the Friends of the Israel Heart Society. The basic dues are **$50**. You can register through our website http://friendsihs.org/Register.html or send a check directly to:

Friends of the Israel Heart Society
c/o Debbie Burg
8626 Central Park
Skokie, IL 60076

Please include your email address to assure you do not miss an issue!

We are particularly grateful to those who can be sponsors at any one of the levels indicated below:

$250 Silver member

$500 Gold member

$1,000 Platinum member

$5,000 President's club

Your support enables us to continue growing our programs, including the ACC meeting, support for Israeli fellows to attend the AHA/ACC meetings, and to grow other programs.

For those who are interested in directed donations, we have the following opportunities:

$500 Sponsor an issue of the FIHS newsletter

$1000 Partial sponsorship of an Israeli fellow to attend the AHA meeting

$1000 Partial sponsorship of an Israeli fellow to attend the ACC meeting

$2500 Sponsorship of an Israeli fellow to attend the AHA meeting

$2500 Sponsorship of an Israeli fellow to attend the ACC meeting.

Cardiology Department Highlight: Shaare Zedek Hospital, Jerusalem

The Department of Cardiology at Shaare Zedek Medical Center in Jerusalem, headed by Prof. Dan Tzivoni, together with the Cardio-Thoracic Surgery Department, headed by Prof. Dani Bitran, comprise the Jesselson Heart Center that spreads over 70,000 square feet on the 10th floor of Shaare Zedek Medical Center.

Dan Tzivoni MD and Jack Stroh MD at Shaare Zedek

The Department of Cardiology has over 45 beds, thus being the largest in Israel. The cardiology services include ambulatory services with a large cardiac clinic, large non-invasive cardiology unit which includes exercise testing, echocardiography, Holter monitoring laboratory, and nuclear cardiology. The in-patient facilities include the intensive coronary care unit and cardiology ward. Most cardiac patients in Shaare Zedek are hospitalized in the cardiology ward. All patients with acute myocardial infarction are admitted directly to the intensive coronary care unit and stay under cardiologists' supervision, rather than being transferred to internal medicine as is common in other facilities in Israel and worldwide.

The cardiac catheterization laboratories, headed by Dr. Yaron Almagor, are very active. Every year more than 2500 catheterizations are performed with over 1100 coronary interventions. During recent years, all patients with acute myocardial infarction undergo primary angioplasty (emergency angiogram to open the blocked coronary arteries), available 24/7. There are 2 cardiac catheterization laboratories and one electrophysiology lab where the most complicated procedures are performed, including coronary arteriography and coronary angioplasty, as well as carotid stenting, peripheral and renal stenting. The catheterization labs at Shaare Zedek Medical Center serve as a referral center for complicated cases from throughout Israel.

During the last few years, special areas of excellence in the field of interventional cardiology were developed:

1. Transcatheter implantation of aortic valve – during the last year over 30 implantations of aortic valves were performed. The implantations are performed via the femoral artery and transapically. The results are very encouraging. This procedure is performed in patients in whom surgical aortic valve replacement carries a very high risk, such as elderly patients (age 80-95), patients with severe pulmonary disease, patients who underwent previous bypass surgery and patients with other co-morbidities.

2. The staff has extensive experience with closure devices in patients with congenital cardiac defects such as ASD (atrial septal defect), patent foramen ovale, and patent ductus arteriosus. In these patients special dedicated umbrellas are implanted, that close the holes between different cardiac chambers. To date over 150 implantations of such devices (by Dr. David Meerkin) have been performed.

3. Implantation of left atrial appendage occluder device is performed in patients with atrial fibrillation (irregular pulse) who are unable to take warfarin (blood thinner), and in whom the risk of cardiac emboli is high. This procedure was performed in 20 patients during the last 6 months. So far, Shaare Zedek Medical Center is the only facility in Israel that performs this procedure (Dr. David Meerkin).

Over the last decade the catheterization laboratories of the Department of Cardiology have transmitted live cases to the TCT (Transcatheter Cardiovascular Therapeutics) meetings in Washington DC, the world's largest meeting on interventional cardiology. This is the only Israeli center that has ever transmitted to the TCT.

The clinical research unit, part of the cardiology department, is involved in many leading clinical research projects introducing new drugs for stable and unstable angina, acute myocardial infarction, congestive heart failure and cardiac arrhythmias. Together with the cardiac catheterization labs they lead international clinical trials of new stents, drugs and techniques in interventional cardiology.

The Cardiac Rehabilitation and Prevention Center, headed by Dr. Jacob Klein, is an integral component of the Department of Cardiology. The program, one of the largest in Israel, is

intended for patients who have had a recent heart attack, coronary artery bypass surgery or coronary angioplasty and for patients with other forms of cardiovascular disease. The comprehensive multi-disciplinary rehabilitation program includes patient education, supervised exercise training, intensive risk factor modification incorporating healthy lifestyle changes (dietary counseling, physical activity, smoking cessation, stress reduction), as well as counseling for optimal medical therapy according to the professional guidelines. The multidisciplinary team includes: cardiologists, nurses, exercise physiologists, nutritionists, and psychologists.

In 2008 the "Heart Wellness Center" was inaugurated, which is a pioneering prevention program intended for people with multiple cardiac risk factors and increased risk for developing heart disease.

The head of the Department of Cardiology is Prof. Dan Tzivoni. Under his leadership, this department has developed from a small unit to one of the largest cardiology departments in Israel. He has contributed in many fields of cardiology including silent myocardial ischemia, treatment of Torsade de Pointes, cardiac preconditioning and other subjects. He is the author of over 250 cardiac research publications in leading cardiology journals worldwide.

Senior Staff:

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Featured Research:

Constitutive Expression of HIF-1α and HIF-2α in Bone Marrow Stromal Cells Differentially Promotes Their Proangiogenic Properties

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ABSTRACT

Bone marrow stromal cells (BMSCs) contain progenitors capable of participating in postnatal angiogenesis. Hypoxia- inducible factors (HIFs) mediate endothelial activation by driving the expression of multiple angiogenic factors. We explored the potential of

HIF-1 α and HIF-2α modification in BMSCs, as a tool to improve cell-based angiogenic therapy. BMSCs were retrovirally transduced to express stable forms of HIF-1α and HIF-2α. HIF-1 α and, to a greater extent, HIF-2$^{\alpha}$ overexpression promoted differentiation of BMSCs to the endothelial lineage, evident by CD31 and Tie-2 expression and improved adhesive properties. Whereas chemotaxis toward stromal-derived factor 1 was higher in both HIF-αexpressing BMSCs, enhanced migration toward vascular endothelial growth factor was found only following overexpression of HIF- 2α, supported by a robust expression of its receptor, Flk-1. HIF-α expression was associated with upregulation of angiogenic proteins and improved tube formation. Cytokine arrays of endothelial cells stimulated by medium collected from HIF-α-expressing BMSCs revealed further angiogenic activation and improved adhesive capacity. Eventually, delivery of HIF-2α-transduced BMSCs induced a more robust angiogenic response, compared with sham- transduced or HIF-1α-transduced BMSCs in the corneal micropocket angiogenesis model. Our results support the use of HIF-α genes, particularly HIF-2α, to augment the efficacy of future cell-based therapy. STEM CELLS *2008;26: 2634 – 2643*.

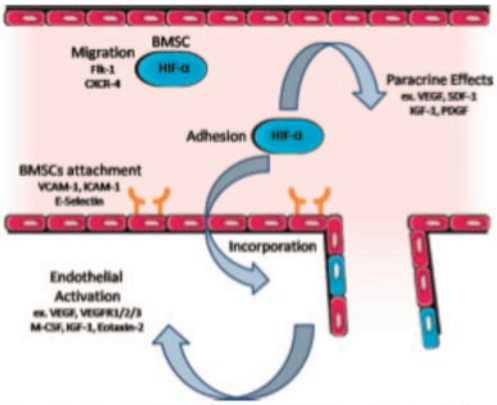

Figure 7. Hypoxia-inducible factor α (HIF-α) contribution to bone marrow stromal cell (BMSC)-mediated angiogenesis. Described are the different stages in BMSC function improved by HIF-α constitutive expression: (a) Migration to site of neovascularization; (b) adhesion to endothelial cells (ECs) and extracellular matrix; (c) paracrine activity, resulting in increased angiogenic activation of resident ECs; (d) EC activation results in increased expression of adhesion molecule and improved attachment and homing of BMSCs. Abbreviations: ICAM-1, intercellular adhesion molecule-1; IGF-1, insulin-like growth factor11; M-CSF, macrophage colony-stimulating factor; PDGF, platelet-derived growth factor; SDF-1, stromal-derived factor 1; VCAM-1, vascular cell adhesion molecule-1; VEGF, vascular endothelial growth factor.

Circumferential and Longitudinal Strain in 3 Myocardial Layers in Normal Subjects and in Patients with Regional Left Ventricular Dysfunction

Marina Leitman, MD, Michael Lysiansky, Peter Lysyansky, PhD, Zvi Friedman, PhD, Vladimir Tyomkin, Therese Fuchs, MD, FACC, Dan Adam, PhD, Ricardo Krakover, MD, and Zvi Vered, MD, FESC, FACC,
Tel Aviv and Haifa, Israel

Background: The left ventricle is not homogenous and is composed of 3 myocardial layers. Until recently, magnetic resonance imaging has been the only noninvasive technique

for detailed evaluation of the left ventricular (LV) wall. The aim of this study was to analyze strain in 3 myocardial layers using speckle-tracking echocardiography.
Methods: Twenty normal subjects and 21 patients with LV dysfunction underwent echocardiography. Short-axis (for circumferential) and apical (for longitudinal strain) views were analyzed using modified speckle-tracking software enabling the analysis of strain in 3 myocardial layers.
Results: In normal subjects, longitudinal and circumferential strain was highest in the endocardium and lowest in the epicardium. Longitudinal endocardial and mid layer strain was highest in the apex and lowest in the base. Epicardial longitudinal strain was homogenous over the left ventricle. Circumferential 3-layer strain was highest in the apex and lowest in the base. In patients with LV dysfunction, strain was lower, with late diastolic or double peak.
Conclusions: Three-layer analysis of circumferential and longitudinal strain using speckle-tracking imaging can be performed on a clinical basis and may become an important method for the assessment of real-time, quantitative global and regional LV function. (J Am Soc Echocardiogr 2010;23:64-70.)

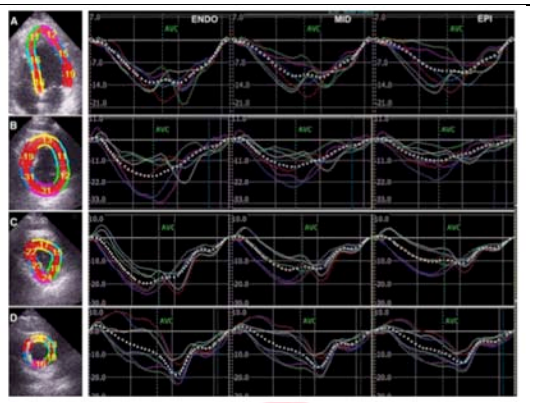

Figure 4 Three-layer longitudinal and circumferential strain in a patient with an old septoapical myocardial infarction (ejection fraction, 35%). (A) Apical 4-chamber view, longitudinal strain. Double peak with late diastolic second peak in apical segments. (B) Short-axis view at the level of the mitral valve, circumferential strain. Late peak (diastolic) in the anteroseptal and anterior segments. (C) Short-axis view at the level of the papillary muscles, circumferential strain. Double peak with late (diastolic) second peak in midseptal and midanteroseptal segments and late peaking strain in the midanterior segment. (D) Apical short-axis view, circumferential strain. Septoapical and inferoapical curves show a first positive wave (dyskinetic motion) and a late (diastolic) peak of reduced amplitude in all apical segments. ENDO, Endocardial strain; EPI, epicardial strain; MID, mid layer.

That's it for this issue of the newsletter of the Friends of Israel Heart Society. Tell your friends that we want them to join our mission to be a bridge between Israeli Cardiology and the world. If you have any questions, comment, criticisms (I love those!) please email me at jackstroh@usa.net. Thank you for reading, and looking forward to hearing from you! We at FIHS wish you all a Happy and Healthy New Year!