

## OF THE ISRAEL HEART SOCIETY



Editor's Note: Welcome to the Winter 2016 FIHS Newsletter. We wish all of our readers and members a Happy and Healthy New Year.

This issue will include its usual features- a message from our President, Jeff Goldberger, announcements of Cardiology Meetings, and recently published research from Israel.

In addition, we are excited to announce our first Israel Cardiology Mission to coincide with the 64th Annual International Conference of the Israel Heart Society 2017 in Tel Aviv (see announcement for

the Mission at the end of this newsletter).



Medical Mission 2017!

The Friends of the Israel Society Heart is organizing a Medical Mission to Israel April coinciding 2017. with the 64th Annual Conference of the Israel Heart Society in association with the Israel Society of Surgery, Cardiothoracic under the auspices of the Israel Cardiology Association.

Join cardiologists and cardiac surgeons from all over the world on a unique mission to Israel where you will meet top Israeli cardiologists, visit the Cardiac facilities we have been featuring in



## of the israel heart society

our Newsletter for years, and hear from members of the Israel Heart Society about the challenges and unique advantages of practicing cardiology in the Holy Land.

**Participants** will be staying at luxury hotels and enjoying the local top-flight cuisine at restaurants. Don't miss this aolden out on opportunity to mingle with your Israeli peers and tour the Holy Land.





For more information, turn to the last page of this Newsletter!

Please note- description of new technology in our Newsletter does not constitute an endorsement. We just want to give our readership a sense of the vast scope of Israeli ingenuity in the fields of Cardiology.

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 from around the world who would be interested in supporting this bridging relationship. If you know of any cardiologists or

FIHS is on the web at http://friendsihs.org/index.html.

2



## of the israel heart society

cardiology fellows who we can contact, please email me (my email is jackstroh@usa.net) and feel free to forward this Newsletter.



## Message from the President

Thank you to all our Friends for your support for the Friends of the Israel Heart Society in 2016 and your upcoming support in 2017. Your help, support, and friendship are truly felt and appreciated by the Israel Heart Society. In our meetings with the Israel Heart Society leadership, we have set two goals for the coming year. We hope to increase participation from our membership and the American cardiology community at the

annual sessions of the Israel Heart Society. We have put together a program for a mission that includes the meeting and visiting some of the great sites in Israel (see page 18). I have had the opportunity to attend several of these meetings and they are of high quality and truly rewarding. Consider combining a visit to Israel with this meeting or any one of the subspecialty meetings that also offer a world class faculty and congenial learning environment. A second goal is to enhance opportunities for Israeli cardiology fellows to obtain advanced training in the US and Canada. There are two major needs - funding for these positions and institutions that can provide training slots. If you can help toward any of these goals, please reach out to me. I am confident that our membership has a broad network that can help us move toward accomplishing these goals.

We are continuing to support our fellow exchange programs with travel grants for Israeli fellows to attend the American College of Cardiology meeting and for American fellows to attend Israeli meetings. This year, due to the change in dates for the American College of



## of the israel heart society

Cardiology meeting, we will not be holding our annual reception.

We are extremely grateful to our to our Silver, Gold, and Platinum sponsors for 2016 who are listed on page 17 (as of the publication date of this newsletter – a final list will appear in our next newsletter).

We still need your help reaching out to the large number of cardiac care specialists who are (or might be) interested in the activities of the Friends of the Israel Heart Society, but who we have NOT YET reached. Please forward this newsletter to ten colleagues who you feel might be interested – new members can get on our mailing list either by signing up via our website <a href="http://www.friendsihs.org/index.html">http://www.friendsihs.org/index.html</a> or by emailing me at j-goldberger@miami.edu.

FIHS Heart Beats! If you have personal and/or academic milestones you would like to share with the FIHS membership, please submit these to Jack Stroh at <a href="mailto:jackstroh@usa.net">jackstroh@usa.net</a>. This is a wonderful opportunity for our members to share news.

Finally, a few notes of gratitude. I want to thank Josh Hartman for all his efforts on the FIHS website, Jack Stroh for his efforts at maintaining the high quality and informativeness of the FIHS newsletter, and Janice and Larry Brown for their organizational support.

With best wishes for a great 2017,

Jeff Goldberger, M.D., M.B.A. President, Friends of the Israel Heart Society



\*\*\*\*\*\*\*

The 64th Annual
Conference of the Israel
Heart Society in
association with the Israel
Society of Cardiothoracic
Surgery under the
auspices of the Israel
Cardiology Association

FIHS is on the web at <a href="http://friendsihs.org/index.html">http://friendsihs.org/index.html</a>.



## of the israel heart society

April 25-26, 2017

In conjunction with our first Medical Mission (see the end of this newsletter for details on how to attend)

David Intercontinental Convention Center, Tel Aviv

http://2017.en.israelheart.com/



The Association of
Secondhand Tobacco
Smoke and CT
Angiography-Verified
Coronary Atherosclerosis

David F. Yankelevitz, MD, <sup>a</sup> Matthew D. Cham, MD, <sup>a</sup> Harvey Hecht, MD, <sup>b</sup> Rowena Yip, MPH, <sup>a</sup> Joseph Shemesh, MD, <sup>c</sup> Jagat Narula, MD, <sup>b</sup> Claudia I. Henschke, PнD, MD<sup>a</sup>

From the <sup>a</sup>Department of Radiology, Icahn School of Medicine at Mount Sinai, New York, New York; <sup>b</sup>Division of Cardiology, Icahn School of Medicine at Mount Sinai, New York, New York; and the <sup>c</sup>Department of Cardiology, The Grace Ballas Cardiac Research Unit, Sheba Medical Center, Tel Hashomer, Tel-Aviv University Sackler Faculty of Medicine, Tel-Aviv, Israel.

https://www.ncbi.nlm.nih.gov/pubmed/27852512

#### **Abstract**

#### **OBJECTIVES:**

The aim of this study was to assess the relationship of the extent of atherosclerosis on coronary computed tomographic angiography to the extent of secondhand tobacco smoke (SHTS) exposure in asymptomatic never smokers.

#### **BACKGROUND:**

A dose-related association between SHTS and coronary artery calcium has been reported, but the total extent of atherosclerosis has not been investigated.



## OF THE ISRAEL HEART SOCIETY

#### **METHODS:**

Two hundred sixty-eight never smokers, ages 40 to 80 years, completed a questionnaire assessing risk factors and extent of lifetime SHTS exposure, providing a total SHTS exposure score. Ordinal coronary artery calcium scores were derived from low-dose nongated computed tomographic scans, followed by computed tomographic angiography. Analyses of the prevalence, extent, and plaque characteristics of atherosclerosis were performed, and the independent contribution of SHTS, adjusted for other documented risk factors, was determined.

#### **RESULTS:**

Coronary atherosclerosis was noted in 48% and was more frequent with low to moderate and high versus minimal SHTS exposure (48% and 69% vs. 25%; p < 0.0001). Adjusted odds ratios for any atherosclerosis were 2.1 (95% confidence interval: 1.0 to 4.4; p = 0.05) for low to moderate and 3.5 (95% confidence interval: 1.4 to 8.5; p = 0.01) for high exposure versus minimal SHTS exposure and were not

significant for standard risk factors of diabetes (p = 0.56), hyperlipidemia (p = 0.11), hypertension (p = 0.65), and renal disease (p = 0.24). With increasing SHTS exposure, the percentage of major vessel (14%, 41%, and 45%; p = 0.0013) with any plague or stenosis increased, as did the number with 5 or more involved segments (0%, 39%, and 61%; p = 0.0001). Also the average number of involved segments increased (0.82, 1.98, and 3.49; p < 0.0001), with calcified plagues alone (0.25, 0.77, and 1.52; p < 0.0001), with calcified and partially calcified plaques (0.28, 0.82, and 1.58; p < 0.001), but not with noncalcified plagues alone (p = 0.11).

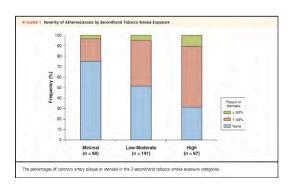
#### **CONCLUSIONS:**

The presence and extent of atherosclerosis were associated with the extent of SHTS exposure even when adjusted for other risk factors, further demonstrating the causal relationship of SHTS exposure and coronary disease.



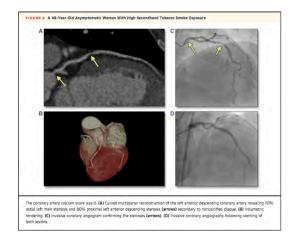


## OF THE ISRAEL HEART SOCIETY



	Minimal (n = 60)	Low to Moderate (n = 141)	High (n = 67)	Total (n = 268)	p Value
Atherosclerosis					
Any plaque	15 (25)	68 (48)	46 (69)	129 (48)	< 0.000
No plaque	45 (75)	73 (52)	21 (31)	139 (52)	< 0.000
Plaque with stenosis 1%-49%	13 (22)	61 (43)	39 (58)	113 (42)	
Plaque with stenosis >50%	2 (3)	7 (5)	7 (10)	16 (6)	
Calcified	9 (15)	46 (33)	36 (54)	91 (34)	< 0.000
Partially calcified	2 (3)	6 (4)	3 (4)	11 (4)	1.00
Noncalcified	10 (17)	28 (20)	20 (30)	58 (22)	0.15

	Secondhand Tobacco Smoke Exposure				
	Minimal	Low to Moderate	High	Total	p Value
Number of involved arteries					0.0013
0	45 (29)	83 (54)	25 (16)	153 (100)	
1	9 (15)	33 (55)	18 (30)	60 (100)	
2	3 (9)	16 (48)	14 (42)	33 (100)	
3	3 (14)	9 (41)	10 (45)	22 (100)	
Number of involved segments					< 0.0001
0	45 (30)	79 (53)	25 (17)	149 (100)	
1-4	15 (16)	53 (55)	28 (29)	96 (100)	
≥5	0 (0)	9 (39)	14 (61)	23 (100)	
Total	60 (22)	141 (53)	67 (25)	268 (100)	



Tomographic Angiography by Secondhand Tobacco Smoke Exposure Score Categories						
	OR	95% CI	p Value			
SHTS score						
Minimal	Reference					
Low to moderate	2.1	(1.0, 4.4)	0.05			
High	3.5	(1.4, 8.5)	0.01			
Age (in decade)	2.8	(1.8, 4.2)	< 0.000			
Male	3.7	(2.0, 6.8)	<:0.000			
Diabetes	1.5	(0.4, 6.3)	0.56			
Hyperlipidemia	1.7	(0.9, 3.1)	0.11			
Hypertension	1.2	(0.6, 2.3)	0.65			
Renal disease	6.1	(0.3, 124.8)	0.24			





#### of the Israel Heart Society

TABLE 7 Distribution of Individual Artery CAC Score by Severity of Coronary Artery Stenosis on Coronary Artery Computed Tomographic Angiography for 1,072 Coronary Arteries in 268 Asymptomatic Never Smokers **Extent of Coronary Artery** Stenosis Individual Artery CAC Score 1%-49% 16 (13) 91 (75) 14 (12) 121 (100) 951 (100) 841 (88) 103 (11) 7 (1) 77 (77) 9 (9) 100 (100) 2 (12) 12 (71) 3 (18) 17 (100) 2 (50) 0 (0) 2 (50) 4 (100) Total 857 (80) 194 (18) 21 (2) 1,072 (100) Values are ri (%). The frequency and severity of stenosis increased with increasing CAC score (p < 0.0001). CAC - coronary artery calcification.

#### \*\*\*\*

#### **Israel Cardiology News**

(Editor's Note: This isn't exactly just cardiac, but we thought it was something to be proud of nonetheless!)

Israel's medical response team receives highest ranking by United Nations

http://www.jpost.com/lsrael-News/lsraels-medical-response-teamreceives-highest-ranking-by-UnitedNations-472500

By ANNA AHRONHEIM |

11/13/2016



Israeli field hospital.. (photo credit: IDF SPOKESMAN'S UNIT)

Israel's emergency medical response team has been recognized by the United Nations as the "No. 1 in the world" and classified as its first Type 3 field hospital, the IDF announced on Sunday.

According to Lt.-Col. (res.) Dr. Ofer Merin, Israel is the first foreign emergency medical team to receive such a classification,

8



## of the israel heart society

which has a strict set of criteria created by the World Health Organization to classify foreign medical teams responding to sudden disasters.

Receiving the Type 3 classification means Israeli teams will be the first on the scene of any disaster.



WHO's classification system describes a Type 3 medical team as having "at least two operating tables in two separate rooms within the theater area, at least 40 inpatient beds (20 per

table) and have the capability to treat 15 major or 30 minor surgical cases a day."

Israel's field hospitals, which can be set up in under 12 hours, have 86 inpatient bed and four operating rooms.



The description also says that
Type 3 medicals teams "should
be offered immediately, and
upon agreement, deploy without
delay, but are unlikely to be
operational in the field for at
least five to seven days."
Nevertheless, these teams
"should be considered a service
that is only appropriate to
deploy for at least two months."



## of the israel heart society

Israel has often aided countries struck by natural disasters, including sending teams from the IDF Medical Corps and Home Front Command, providing search and rescue and setting up field hospitals in Haiti, the Philippines, Japan, Turkey and Nepal.

The process to receive the classification began last year, and delegations from WHO visited Israel on various occasions to assess IDF Medical Corps' field hospitals.

Israel officially received the designation last week, but it was only made public this week.

#### \*\*\*\*

(Editor's Note: The following research on "Disease in a Dish" was presented at last year's Israel Heart Society Conference by Dr. Lior Gepstein to jaw-dropping applause.)

'Disease in a dish' among Israeli wonders in heart research

Generating patient-specific heart cells in a dish enables doctors to identify most promising drugs for heart disease.

http://www.israel21c.org/disease-in-a-dish-among-israeli-wonders-in-heart-research/

By <u>Abigail Klein Leichman</u> JUNE 13, 2016



Israeli scientists can culture cardiac cells from a patient's own stem cells. Image via Shutterstock.com



## of the israel heart society

Human cells from skin or blood can be reprogrammed to resemble the person's embryonic stem cells and then cultured to generate cells specific to any part of that person's body.

In the future, these patient-specific human induced pluripotent stem cells (iPSCs) could eliminate the need for donor transplants.

For now, they present an exciting new paradigm for modeling human disease and for individualizing drug testing, according to Dr. Lior Gepstein, director of cardiology at Rambam Health Care Campus in Haifa and holder of the Sohnis Family Chair in Tissue Engineering and Regenerative Medicine.

By adapting a Nobel Prize-winning technique from Japan, Gepstein's lab pioneered a method to grow a patient's own heart cells from that patient's iPSCs in just a few weeks.

"We can use these cells for several things," says Gepstein, who was among the featured presenters at Rambam's 2016 annual international "State of the Heart" and digital-health summit at the end of May.



Dr. Lior Gepstein

"The most ambitious project is to take a cardiac patient's cells, reprogram them and transplant them back to a patient's diseased heart to regenerate its function," he tells ISRAEL21c.



## of the israel heart society

"The heart cannot regenerate itself.

Any dead areas [following a heart attack] are replaced by scar tissue and cannot contract, which leads to heart failure, the biggest problem we are facing as cardiologists."

Gepstein's lab has been working for several years to overcome many hurdles from theory to practice. Now, he reports, human clinical trials are only four or five years away thanks to strides made in a strategic partnership among Rambam, the University Health Network of Toronto (Canada) and the Technion-Israel Institute of Technology, where Gepstein is a member of the Rappaport Faculty of Medicine and Research Institute.

"A lot of labs have followed our lead, and this is a good sign that it is of great interest," he says. "We were the leaders in the emerging field of cardiac regenerative medicine, and in many aspects we are still the world leaders in this area."

#### Generating pacemaker cells

At the summit, Gepstein reported on his lab's other sci-fi-like advances with iPSCs: growing heart pacemaker cells; studying a living patient's heart disease and finding the most effective drugs to treat it before ever touching the patient; and as a platform for pharmaceutical development.

Gepstein explains that as we age, our heart's pacemaker cells can start malfunctioning. Instead of implanting an electronic pacemaker as cardiac surgeons do today, they could implant the patient's own brand-new pacemaker cells generated from iPSCs.

Gepstein's lab also is dabbling in optogenetics, attempting to build a

FIHS is on the web at <a href="http://friendsihs.org/index.html">http://friendsihs.org/index.html</a>.



## of the israel heart society

light-induced pacemaker and/or defibrillator. This would regulate the heart's electrical activity by introducing a light-sensitive protein derived from algae.

"People have been using this in neuroscience but we are the first to use it in the heart," says Gepstein, who published a paper about this research in *Nature Biotechnology*.

#### Disease in a dish

Obviously, doctors can't take out a patient's heart to study genetic mutations that cause life-threatening conditions such as cardiomyopathy (heart muscle disease) or inherited arrhythmogenic syndrome.

However, by taking the patient's skin cells and reprogramming them as heart cells — whose DNA is identical to the diseased cells — the genetics can be studied and drugs can be

tested in the culture dish to find out which will work best for the specific patient.

Gepstein and his colleagues used this method to save the life of a young woman in 2011, and have since demonstrated the ability to study and test treatments for dozens of cardiac genetic diseases using "disease in a dish."

Now a major internationally funded study at Rambam is furthering the goal of generating patient-specific models of heart disease and individualizing treatment for that disease.

"This also provides the pharmaceutical industry, for the first time, with disease models of heart cells that they can use to develop new drugs," says Gepstein. "If you have a promising drug with possible adverse side effects on the heart,



#### of the israel heart society

you can test it in a lab dish instead of in humans before spending billions on development. Right now we are trying to find collaborations with the pharma industry."

#### Your heart in a hologram

The conference also included a presentation by Dr. Elchanan Bruckheimer, medical director of RealView Medical Holography in Yokneam.

"This completely new technology developed in Israel provides an online holographic 3D image of the heart," says Rambam Health Care Campus Director General Dr. Rafi Beyar, who is a cardiologist and professor of biomedical engineering at the Technion.

"Using RealView imaging, you can see the heart in front of you and manipulate and measure it while you are doing surgery on the actual heart. This new technology will change the way heart surgery is performed."

Established in 2008, RealView has completed its first human clinical trials in interventional cardiology, and now is finalizing the design in anticipation of producing its first commercial products for 3D medical imaging.

#### https://youtu.be/Alj2xEd\_z78

#### Digital health startup incubator

Beyar told ISRAEL21c that the medical center recently launched a new digital health startup incubator in partnership with IBM, multinational medical-device company Medtronic and Pitango Venture Capital.

"In the next 10 years, the incubator will fund and support 40 companies in digital health, and I'm sure

14

FIHS is on the web at <a href="http://friendsihs.org/index.html">http://friendsihs.org/index.html</a>.



## of the israel heart society

cardiovascular health will be the focus of at least 50 percent of their activities," Beyar tells ISRAEL21c.

"Worldwide, cardiovascular disease is really taking a major role because it is still the No. 1 cause of death in the Western world despite huge advancements in cardiac medicine."

Gepstein adds that cardiovascular disease is a growing problem because of the sheer numbers of older adults and also, ironically, "because we've become really good at saving people after heart attacks. They are alive but they have chronic heart failure. So this will be a huge clinical burden in the coming years."

In addition to better devices and better drugs to fight this phenomenon, many digital health initiatives are aimed at prevention and lifestyle changes, says Beyar. Among the successful worldwide companies spun off by Rambam MedTech, the medical center's technology-transfer company, are two cofounded by Beyar himself: Instent, sold to Medtronic in 1996; and Corindus Vascular Robotics, now based in Massachusetts.

"We have this entrepreneurial spirit in Haifa that takes ideas and turns them into companies," he says.
"Rambam works side by side with the Technion and therefore the connection between bioengineering and innovation is very strong."

\*\*\*\*



## OF THE ISRAEL HEART SOCIETY



#### \*\*\*\*

I would also encourage Israeli programs to let our membership know about happenings and offers for training in Israel: Please email these to me at jackstroh@usa.net.

#### \*\*\*\*

#### FIHS Heart Beats



Are you a member of FIHS and have major news you would like to share with our readers? Have you published a book or been honored by your Society? Share it with us all! Please email these to me at jackstroh@usa.net.

#### \*\*\*\*

That's it for this issue of the newsletter of the Friends of Israel Heart Society. Special thanks as always to **Batia Ziv** for being our "eyes and ears on the ground" in Israel. Special thanks in America to our Society Administrators-Janice and Larry Brown!

Have any ideas to make this better tool for Society? Share them with us! Tell your friends that we want them to join our mission to be a bridge Cardiology between Israeli and the world. If you have questions, any comment, criticisms favorites!) (my email please me iackstroh@usa.net.

dádádádádádádádádá

# Friends of the Israel Heart Society

## Thank You to our 2016 Sponsors



Platinum

Dr. Jeffrey Borer Dr. Eugene Braunwald Dr. Peng-Sheng Chen Dr. Edo Kaluski

Dr. Michael Wolk Dr. Douglas Zipes

Gold

Dr. Paul Friedman Dr. Jeffrey Goldberger Dr. Philip Greenland

Dr. Charles Love Dr. Bruce Wilkoff

Dr. Joseph Alpert Dr. Elliott Antman Dr. Benico Barzilai Dr. Peter Fitzgerald

Dr. Nancy Flowers

Dr. Samuel Goldstein Dr. Gil Gross Dr. Andrew Krumerman

Dr. Alexander Mazur

Dr. Richard L. Popp

Dr. Robert Rosenson

Dr. Melvin Scheinman

Dr. Gregory Schwartz

Dr. Jack Stroh



#### FIHS 2017 Medical Mission to Israel



Intercontinental David Hotel, Tel Aviv Israel

The 2017 Friends of the Israel Heart Society Medical Mission to Israel is official. Join colleagues from Israel and around the world for the 64th Annual Conference of the Israel Heart Society, April 25 - 27, 2017.

We have arranged three options, all of which include the Conference. Some include extra time to tour together. This is a unique opportunity to meet with colleagues from Israel and elsewhere with extra time to collaborate, socialize and see Israel.

There are three options. Click on the links below for more information about each. Click here to Register for any of the options.

#### **Option One**

Five Nights - Tel Aviv and Cramim Sunday April 23 to Friday April 28, 2017

Three nights at the stunning Intercontinental David Hotel in Tel Aviv including the IHS Conference and two nights at the Cramim Spa Hotel in the heart of the Judean wine country.

#### **Option Two**

Five Nights - Tel Aviv Sunday April 23 to Friday April 28, 2017

Five nights at the stunning Intercontinental David Hotel in Tel Aviv including the IHS Conference with time to enjoy the beach and night life of Tel Aviv and to meet with medical professionals and researchers in Tel Aviv.

#### **Option Three**

Seven Nights - Tel Aviv, Cramim and Jerusalem Sunday April 23 to Sunday April 30, 2017

Three nights at the stunning Intercontinental David Hotel in Tel Aviv including the IHS Conference, two nights at the Cramim Spa Hotel in the heart of the Judean wine country plus two nights at the luxurious Mamilla hotel in Jerusalem.

All include optional private tours of Tel Aviv to see Neve Tzedek, American Colony, old Jaffa and the Jaffa port plus a special tasting tour in the Carmel market.