16:00 - 17:30 S27 - Miscellaneous and Pharmacotherapy Hall H

Chairs: **J. Benhorin**
I. Kitzis

16:00 **The Effect of Severe Aortic Stenosis on Outcome in Elderly Patients Undergoing Repair of Hip Fracture**

D. Leibowitz, G. Rivkin, J. Schiffman, D. Rott, T. Weiss, Y. Mattan, L. Kandel
Jerusalem

16:15 **The Impact of Intermittent Sequential Pneumatic Compression (ISPC) Leg Sleeves on Cardiac Performance**

A. Shturman, A. Bickel, Y. Grevtzev, S. Atar, A. Eitan, N. Roguin
Nahariya

16:30 **An Innovative Non-Invasive Respiratory Stress Test Indicates Significant Coronary Artery Disease – From Feasibility to Validation**

A. Shiyovich, A. Katz, Y. Blair, R. Herve, Y. Orlov, C. Yosefy, A. Grosbard, J. Jafari
Ashkelon

16:45 **Air Medical Transport of Patients Following Acute Myocardial Infarction**

E. Deviri, O. Deviri, A. Henig- Hadar, E. Ish- Tov
Hod Hasharon

17:00 **Treatment of Patients with Low Response to Aspirin with Omega-3 Fatty Acids vs. High-Dose Aspirin.**

E. Lev [1], A. Solodky [1], M. Harel [1], A. Mager [1], A. Assali [1], D. Brosh [1], K. Yemima [1], R. Paz [1], A. Battler [1], N. Kleiman [2], R. Kornowski [1]
[1] Petach Tikva, [2] Houston, TX

17:15 **Functional Evaluation of Beta-Blocking Treatment in Hypertensive Patients with and without Left Ventricular Dysfunction**

E. Klainman [1,2], A. Caspi [2], R. Vishnizer [2], I. Moshe [2], A. Yarmulovsky [2], G. Fink [2]
[1] Givatayim, [2] Rehovot

The Effect of Severe Aortic Stenosis on Outcome in Elderly Patients Undergoing Repair of Hip Fracture

David Leibowitz [1], Gurion Rivkin [2], Jochanan Schiffman [3], David Rott [1], Teddy Weiss [1], Yoav Mattan [2], Leonid Kandel [2]

[1] Cardiology, [2] Orthopedic Surgery, [3] Anesthesiology, Hadassah-Hebrew University Medical Center, Jerusalem, Israel

Background: The perioperative assessment and management of elderly patients with hip fracture and significant aortic stenosis is an increasingly common clinical problem with little data available to guide perioperative management. The objective of this study was to examine the incidence of perioperative events in an elderly population of patients with severe AS undergoing repair of hip fracture as compared to controls without severe AS.

Methods: Patients over the age of 70 with an echocardiographic diagnosis of severe AS defined as aortic valve area was less than or equal to 1.0 cm^2 who underwent surgery for hip fracture repair were retrospectively identified. An age matched group of patients without a history of AS who underwent surgical repair of hip fracture was the control group. The primary outcome of the incidence of postoperative cardiac events defined as death, acute coronary syndrome or pulmonary edema within 30 days was compared.

Results: 32 patients with AS (median age 84.5 yrs, range 72-94; 27F/5M) and 88 controls (median age 86 yrs; range 80-95; 67F/21M) were entered into the study. There were no significant differences between the AS group and controls in 30-day mortality (6.2% vs. 6.8%) or in total cardiac event rate (18.7% vs. 11.8%).

Conclusions: Our results demonstrate that elderly patients with severe AS can safely undergo repair of hip fractures with mortality and morbidity comparable to a control population. These patients should not be denied surgery on the basis of their aortic valve disease.

The Impact of Intermittent Sequential Pneumatic Compression (ISPC) Leg Sleeves on Cardiac Performance

Alexander Shturman [1], Amitai Bickel [2], Ylia Grevtzev [2], Shaul Atar [1], Arie Eitan [2], Nathan Roguin [1]

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Background: The use of an ISPC device on patients during laparoscopic operations is known (as was demonstrated by means of esophageal Doppler) to overcome cardiovascular pathophysiologic changes that might occur during positive pressure pneumoperitoneum.

Our goal was to study the underlying mechanism behind the physiologic changes that might follow the activation of ISPC on healthy volunteers, and its significance concerning related pathophysiologic phenomena.

Materials and methods: Twenty healthy volunteers underwent trans-thoracic echo-cardiographic evaluation before and during activation of ISPC device. The pneumatic sleeves (Mego-Afek, Lympha-press) were each composed of 10 consecutive air cells, sequentially inflated to a pressure of 50 mmHg, twice per minute. Every patient served as its own control.

Results: Cardiac output (mean 5.145 to 5.465 l/min , p-0.0495) and stroke volume (mean 72.35 to 77.95 ml, p-0.002), as well as ejection fraction (mean 59.86 to 68.89%, p-0.041), velocity time integral of aortic flow and shortening fraction of left ventricle, were significantly increased following ISPC activation, without reciprocal increase in heart rate. Increased venous return and improved contractility were manifested by positive changes in the parameters that express increased flow to the ventricles during diastole, as well as changes in diastolic and systolic left ventricular dimensions. Tissue Doppler imaging were compatible with normal cardiac responses.

Conclusions: Activation of ISPC device caused increased cardiac output due to increased preload. Such data may explain the mechanism related to the beneficial use of ISPC during laparoscopic operations,and may serve as an experimental model of increased cardiac activity, and should be further studied in the context of patients suffering from cardiac diseases (such as failure).

An Innovative Non-Invasive Respiratory Stress Test Indicates Significant Coronary Artery Disease – From Feasibility to Validation

Arthur Shiyovich, Amos Katz, Yosi Blair, Rehby Herve, Yan Orlov, Chaim Yosefy, Aviva Grosbard, Jamal Jafari

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Background: Respiratory maneuvers can uncover manifestations of myocardial ischemia. Some Pulse Wave characteristics are associated with significant coronary artery disease (S-CAD). An innovative test, using the Respiratory Stress Response (RSR), has been developed for the detection of S-CAD. It is based on spectral analysis of finger pulse wave oscillations measured by photoplethysmography (PPG) during deep, paced breathing at a rate of 6 breaths per minute (0.1Hz) over 70 seconds.We evaluated this noninvasive simple test (RSR) as an indicator of S- CAD

Methods: The study consisted of two phases; I – feasibility, II – validation, assessing RSR in patients referred for coronary angiography (CA). RSR was calculated by proprietary software analyzing the relative spectral power of the respiratory peak area at 0.1 Hz (not identically in both phases). The CAs were analyzed visually (Phase-I) and by Quantitative Corona angiography (phase-II) by a single cardiologist who was blinded to the RSR results .S-CAD was defined as luminal stenosis>70% of at least one coronary artery or LM stenosis>50%.

Results: Patient characteristics and the test results are presented in the table. S-CAD pts had significantly lower RSR compared to pts without S-CAD, $p<0.001$. Multivariate logistic regression analysis, adjusted risk factors, showed that RSR is a strong independent indicator of S-CAD (OR=18.9 [7.2-49.5], $p<0.001$)

Conclusion: The novel RSR test is a simple accurate non-invasive bedside tool for detection of S-CAD.

	Age (Y) Mean±Sd	Male N (%)	S-CAD N (%)	AUC (95%CI)	Sens % (95%CI)	Spec % (95%CI)	PPV % (95%CI)	NPV % (95%CI)
Phase I N=98	64.6+11.3	69 (73)	65 (66)	82 (73–91)	80 (68-89)	82 (65-93)	90 (79-96)	68 (51-81)
Phase II N=95	61.7+12.4	67 (68)	47 (49)	76 (66-85)	87 (74-95)	63 (47-76)	70 (56-81)	83 (67-94)
Total N=193	63.2+11.9	136 (70)	112 (58)	N/A	83 (75-90)	70 (59-80)	80 (71-86)	75 (64-84)

Air Medical Transport of Patients Following Acute Myocardial Infarction

Ehud Deviri, Orit Deviri, Avinoam Henig- Hadar, Eytan Ish- Tov
AIRMED, Hod Hasharon, Israel

BACKGROUND: This study describes our experience regarding air medical transport of patients following acute myocardial infarction (AMI). METHODS: Retrospective study of 117 patients undergoing air medical transport after AMI between Jan. 1 2000 to Sept. 30 2008 by AIRMED. Average age was 60.8 y (range 33-90). RESULTS: Average flight duration was 6.68 hours (range 0.58-27.50). 33 patients (28.2%) were transported to another hospital for further treatment (T) 21 of them by air ambulance (AA) and 84 patients (72.8%) were transported home (H) by commercial (C) flight. 40 (34.1%) patients underwent PCI or CABG before transport. During the years 2007, 2008 more patients (48% and 74% respectively) underwent PCI or CABG before transport and fewer (4%) were transported by AA. Ten patients (Gr.1) were transported within 1-4 days after AMI- all of them for T and 9 of them by AA. None of those patients underwent PCI or CABG prior transportation. The condition of none of those patients deteriorated during the flight. 86 patients (Gr.2) were transported between 5-14 days after AMI- 23 (26%) for T 12 (14%) by AA. Of those patients one patient died unexpectedly one hour after landing. 20 patients (Gr. 3) were transported between 15-30 days after AMI all of them H on an uneventful C flight. CONCLUSIONS: these data suggest that the rate of patients requiring urgent transportation for further treatment after AMI in AA decreases in the last two years. Urgent transportation for treatment after AMI by AA is feasible. Transportation by C flight should be considered after hospital discharge even 5 days after AMI with in flight medical care.

Treatment of Patients with Low Response to Aspirin with Omega-3 Fatty Acids vs. High-Dose Aspirin.

Eli Lev [1], Alejandro Solodky [1], Maama Harel [1], Aviv Mager [1], Abid Assali [1], David Brosh [1], Kidron Yemima [1], Rami Paz [1], Alexander Battler [1], Neal Kleiman [2], Ran Kornowski [1]

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Background: Low response to the anti-platelet effects of aspirin has been associated with increased risk of adverse cardiovascular events. However, there is no established therapeutic approach to overcome low response to aspirin. We aimed to evaluate the anti-platelet efficacy of two potential approaches: increasing the aspirin dose vs. adding omega-3 fatty acids. The latter have been shown to decrease availability of platelet membrane arachidonic acid and indirectly thromboxane A_2 formation.

Methods: Patients (n=485) with stable coronary artery disease, taking low-dose aspirin (75-162 mg) for at least a week were screened for response to aspirin using the VerifyNow Aspirin assay (Accumetrics®). Patients with a VerifyNow score (ARU) >500 underwent further testing by platelet aggregation. Low response to aspirin was defined by at least 2 of 3 criteria: ARU ≥550, 0.5 mg/ml arachidonic acid-induced aggregation ≥20%, and 10 µmol/l ADP-induced aggregation ≥70%. Thirty patients (6.2%) were found to have low response to aspirin, and were randomized to receive either 325 mg of aspirin daily or low-dose aspirin + omega-3 fatty acids (4 capsules a day, each containing 360 mg EPA and 240 mg DHA, Solgar®). Following one month of treatment patients were re-tested.

Results: Both groups (n=15 each) had similar clinical characteristics (overall 33.3% women, mean age 66.2±9 years, 36.7% diabetes). Following one month of treatment significant reduction in platelet reactivity was observed in both groups (Table). Twelve (80%) patients who received omega-3 fatty acids and 11 (73.3%) patients who received aspirin 325 mg became aspirin responsive following treatment.

Conclusions: Treatment of patients who exhibit low response to low-dose aspirin by adding omega-3 fatty acids or by increasing the aspirin dose appears to improve response to aspirin and effectively reduces platelet reactivity.

Table: Platelet reactivity at baseline and following one month of treatment

	Omega-3 Group Baseline	Omega-3 Group Post	P value		Aspirin 325 Group Baseline	Aspirin 325Group Post	P value
VeifyNow Aspirin (ARU)	565.7±35	460.9±47	<0.0001		553.8±19	475.9±57	0.0003
Aggregation 0.5 mg/ml AA	19.1±7	13.4±5	0.003		18.9±7	12.9±6	0.01
Aggregation 5 µM ADP (%)	68±10	54.7±11	0.0005		66.3±6	56.1±6	0.0002
Aggregation 10 µM ADP (%)	77.1±7	65.9±11	0.003		74.6±6	69.3±6	0.007

Functional Evaluation of Beta-Blocking Treatment in Hypertensive Patients with and without Left Ventricular Dysfunction

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Objective: To evaluate the physiological effect of beta-blockers in hypertensive patients(pts) with and without LV dysfunction compared to lone hypertensive pts treated with vasodilators by cardiopulmonary exercise test(CPET).

Design and Methods: 63 pts, 42 males and 21 females, were studied. They were divided into three groups:

A)16 lone hypertensive pts treated only with vasodilator agents.

B)26 lone hypertensive pts treated only with beta-blocking agents.

C)21 hypertensive pts with LV dysfunction treated with beta-blockers along with other medications.

A CPET was performed in all the pts while taking their medications, including beta-blockers. The following indices were monitored and measured breath by breath during exercise: HR, BP, O2-consumption(VO2), O2-pulse(O2P), Ventilatory anaerobic threshold(VAT), and Respiratory exchange ratio(RER).

Maximal exercise capacity was considered when RER reached value of 1.15 or more.

Peak values of the cardiopulmonary indices were compared among the three groups, for each index separately, and P values less than 0.05 were considered statistically significant.

Results: The following table summarized the results:

Group	N	age	peak-HR*	peak-VO_2*	peak-O_2P*	VAT(%VO2-max)	peak-RER
A	16	58+/-13	90+/-8#	96+/-9#	108+/-13#	55+/-8#	1.17+/-0.12
B	26	59+/-10	69+/-12&	69+/-11&	102+/-33#	43+/-9&	1.17+/-0.1
C	21	53+/-8	72+/-8&	57+/-10$	79+/-14&	34+/-5$	1.18+/-0.09

*Expressed by % related to normal predicted values.

Statistically significant (referred to each column separately): # vs & or $; & vs $.

The indices “age” and “peak-RER” show no differences among the three groups.

Conclusions: Beta-blocking treatment demonstrates a significant physiological disadvantage compared to vasodilators in pts with lone hypertension. The physiological function in hypertensive pts with LV dysfunction is worse, and it is still to determine the balance between the benefit and the disadvantage of beta-blockers in these patients.