Endothelial Function and Vascular Response to Mental Stress Are Impaired in Patients With Apical Ballooning Syndrome.

E A. Martin, A Prasad, C S. Rihal, L O. Lerman, A Lerman.
JACC 2010;56:1840-1846

Examined whether cardiovascular (CV) risk factors are correlated with endothelial dysfunction (ED) even in patients without CAD, in 341 patients referred for coronary angiography.

Results: The EndoPAT index, was significantly higher in patients without CAD (2.02 ± 0.52) vs. chronic CAD (1.81 ±/− 0.44, P = 0.001) or acute CAD (1.74 ± 0.49, P < 0.001). In multivariate analysis, CAD, diabetes, smoking, and number of risk factors, were strong predictors of ED. ED was also present in 67% of patients without CAD but with ≥3 CV risk factors.

Conclusions: Prevalence of ED in patients with chest pain depends on the presence of CAD and CV risk factors. Non-CAD patients with ≥3 risk factors frequently have ED, increased risk for future CV events, and may profit from intensified therapy to control CV risk factors.

Latest PAT Publications

The Application of Digital Pulse Amplitude Tonometry to the Diagnostic Investigation of Endothelial Dysfunction in Men with Erectile Dysfunction.

A. Aversa, D. Francomano, R. Bruzziches, M. Pili, M. Natali & G. Spera
Andrologia. 2011 Feb;43(1):9-15

Examined the diagnostic value of RHI and augmentation index (AI) determined using EndoPAT, in 70 men, 40 with Erectile Dysfunction (ED) of any origin, and 30 controls without ED. ED patients underwent diagnostic investigation including digital penile duplex ultrasound (PDU) to assess ED etiology.

Results: Average RHI was not different between groups. AI was higher in ED vs. controls (P < 0.0001), and likewise when controlled for vascular risk factors (P < 0.0001). AI and duplex measurement were inversely correlated (r2 = -0.72, P < 0.0001).

Conclusions: Increased AI may represent an early detection of vascular impairment, preceding endothelial dysfunction in populations at low risk for developing vascular ED.


Dose-Response Effects of Omega-3 Fatty Acids on Triglycerides, Inflammation, and Endothelial Function in Healthy Persons with Moderate Hypertriglyceridemia.

Skulas-Ray AC, Kris-Etherton PM, Harris WS, Vanden Heuvel JP, Wagner PR, West SG.

Compared the effects of a nutritional dose of EPA+DHA (0.85 g/d) to a pharmaceutical dose (3.4 g/d) on serum triglycerides, inflammatory markers, and endothelial function in 26 healthy subjects with moderately elevated triglycerides.

Results: The higher dose of EPA+DHA lowered triglycerides by 27% vs. placebo whereas no effect of the lower dose was observed. No effects on total LDL, and HDL, endothelial function, inflammatory markers, or expression of inflammatory cytokine genes were observed.

Conclusions: The higher dose of EPA+DHA significantly lowered triglycerides, but neither dose improved endothelial function or inflammatory status over 8 wk in this population.


Peripheral Arterial Tone as an Index of ANS Trade-Off.

Krupenia, S., Yechiam, E., Arad, M.
Proceedings of Measuring Behavior 2010: 48-51

Assessed the possibility of a tradeoff between generalized and sympathetic autonomic arousal by examining Heart Rate (HR - generalized arousal and Peripheral Arterial Tone (PAT - pure sympathetic arousal), during mental stress testing.

Results: The two measures tended to be consistent within each participant. However, as predicted by the notion of Individual Response Specificity, across individuals there was a negative correlation between the two measures.

Conclusions: The results of this study challenge the view that measures of the autonomic system are indicators of the same psychological construct.

http://measuringbehavior.org/files/ProceedingsPDF(website)/Krupenia_Symposium2.9.pdf

Endothelial Function is Impaired After a High-Salt Meal in Healthy Subjects.

K M Dickinson, P M Clifton, J B Keogh.
Am J Clin Nutr 2011 Epub

Investigated the postprandial effect of dietary salt on endothelial function, as measured by BAUS and EndoPAT2000, in 16 healthy, normotensive subjects.

Subjects received a meal with added salt, - High Salt Meal, (HSM), and a Low Salt Meal, (LSM), on 2 separate occasions in randomized order. Endothelial function was measured while fasting and at 30, 60, 90, and 120 min postprandium.

Results: BAUS was significantly more impaired after the HSM than after the LSM at 30 min and at 60 min. No significant differences in BP or RHI were observed between meals.

Conclusions: High salt intake significantly suppressed brachial artery FMD, thus having an acute adverse effect on vascular dilatation in the postprandial state.

Endothelial Function as a functional Expression of Cardiovascular Risk Factors.

Reriani M, Lerman L O, Lerman A. Biomarkers in Medicine 2010;4(3):351-360(10)

Review of the role of endothelial function, (EF), in aiding in future the prediction of future CV events with special attention on the EndoPAT2000 assessment of EF. Traditional CV risk factors fail in predicting the development of Ischemic Heart Disease in 25-50% of cases, underscoring a complex interplay between traditional risk factors, (Framingham Risk Scores) risk factors, genetic disposition and newer athero-protective risk factors.

Conclusions: EF represents the sum of all athero-protective mechanisms, and the integrated overall CV risk factor burden. It may be regarded as the missing link between CV risk factors and atherosclerotic disease.


No Evidence of Impaired Endothelial Function or Altered Inflammatory State in Patients with Familial Hypercholesterolemia Treated with Statins.


Evaluated endothelial function (using EndoPAT2000) and inflammatory cytokines in patients with Familial Hypercholesterolemia (FH) treated with statins (n=14) vs. matched healthy controls (n=11).

Results: No differences between the groups in any of the inflammatory markers tested, nor in HDL-cholesterol, LDL-cholesterol, triglycerides, APO A, APO B, Lp, homocysteine, HbA1c, platelets and fibrinogen.

EndoPAT index was 1.58 in FH and 1.93 in controls (p=n.s.).

Conclusions: Neither Endothelial function, nor inflammatory states were different in FH patients on statins compared with healthy controls.


Postprandial Endothelial Function, Inflammation, and Oxidative Stress in Obese Children and Adolescents.


Examined whether acute glucose ingestion reduces endothelial function as measured by EndoPAT2000, and increases inflammation and oxidative stress; and if transient elevations in plasma glucose correlate with endothelial function, inflammation, and oxidative stress, in 34 obese children and adolescents (BMI = 37.9 ± 6.7), in a fasting state and at 1-h - and 2-h following glucose ingestion.

Results: Compared to baseline, there were no statistically significant differences in 1-h - and 2-h RHI, CRP, IL-6, and oxLDL. However at 1hr, glucose level was significantly inversely correlated with RHI (r = -0.40, P < 0.05).

Conclusions: An acute oral glucose load did not reduce endothelial function or increased levels of inflammation or oxidative stress in obese youths. However, associations of postprandial hyperglycemia with endothelial function and oxidative stress may have implications in impaired glucose tolerance or frank type 2 diabetes.


High Levels of Soluble Intercellular Adhesion Molecule-1, Insulin Resistance and Saturated Fatty Acids are Associated with Endothelial Dysfunction in Healthy Adolescents.


Examined the influence of cardiovascular risk factors on endothelial function in 257 healthy adolescents. Endothelial function was measured using the EndoPAT2000. Blood samples were collected for analysis of lipids, insulin, glucose, fatty acid composition of plasma phospholipids, and markers of inflammation and endothelial function.

Results: RHI was inversely associated with plasma ICAM-1, HOMA index for insulin resistance and saturated fatty acids of plasma phospholipids. The associations remained significant after adjusting for age, height, BMI-z-score, sex, blood pressure, HDL and smoking.

Conclusions: In healthy adolescents, impaired endothelial function is significantly associated with high level of soluble ICAM-1, HOMA-IR and SFA.

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February 20 – 21. La Jolla, CA

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March 13th – 14th, 2011. Atlanta, GA, USA

**JCS**
Japanese circulation society
March 18 – 20. Japan
Booth #: A-21

**Southern Sleep Society 33rd Annual meeting**
March 24th – 27th, 2011. New Orleans, LA, USA

**ACC**
American College of Cardiology
April 2 - 5. New Orleans
Booth # 1553

**4th international congress on prediabetes & metabolic syndrome**
April 6th – 9th, 2011. Madrid, Spain

**American Academy of Anti Aging**
Orlando, FL. April 7 – 9

**EuroPrevent**
April 14 -16, 2011. Geneva, Switzerland
Booth # 19

**77th Annual meeting of the German Cardiac Society**
April 27th – 30th, 11. Mannheim, Germany
Booth # 029

**Israel Heart Society**
May 4th – 5th, 2011. Tel Aviv, Israel
Booth # 18

**Sleep apnea & trucking conference**
May 11 -12

**AUA**
American Urological Association
May 14th – 19th, 2011. Washington, DC, USA
Booth # 4331

**SVM 22nd annual meeting Vascular medicine**
June 2nd – 4th, 2011. Boston, MA, USA

**13th World Congress on Menopause**
June 8th – 11, 2011. Roma, Italy

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**Spotlight on**
**Prof. Piero Bonetti**

Piero Bonetti, M.D. is currently Professor of Cardiology, University of Basel Medical School, and Co-Chair, Division of Cardiology, Kantonsspital Graubuenden, Chur.

Dr Bonetti has been engaged in PAT research since 1999, when as a Research Fellow, Mayo Clinic, USA, in association with Dr. A. Lerman, he was instrumental in laying some of the EndoPAT milestones, including the validation of the EndoPAT vs. intra-coronary assessment of endothelial function (2004), as well as in his subsequent work at University Hospital Basel, Switzerland, and in his current position.

The following publications from Dr. Bonetti, have made significant contributions to the scientific base and clinical acceptance of the EndoPAT:


[http://www.nature.com/nrcardio/journal/v2/n2/full/nrcardio0108.html](http://www.nature.com/nrcardio/journal/v2/n2/full/nrcardio0108.html)

