Peripheral arterial tonometry to measure the effects of vardenafil on sympathetic tone in men with lifelong premature ejaculation.


Elucidated whether adrenergic overtone is involved in the pathophysiology of lifelong premature ejaculation (LL-PE), by determining differences in EndoPAT-RHI responses, and improvement in intravaginal ejaculatory latency time (IELT) by the stopwatch technique, and variations in anxiety scores at Stai-X1 for state-anxiety and Stai-X2 for trait-anxiety in 20 men with LL-PE (18-40-years) and 10 controls without LL-PE, in an 8-week, double-blind, placebo-controlled, crossover study with vardenafil 10 mg on demand.

RESULTS: LL-PE showed higher RHI variation at baseline (P < 0.001), and higher Stai-X1 and Stai X2 scores (P < 0.001), and prolactin levels (P < 0.05) vs. controls. Vardenafil markedly reduced RHI variation in men with LL-PE (P < 0.01) vs. placebo. Mean changes in geometric IELT were higher after vardenafil vs. placebo (P < 0.01). STAI-X1 and STAI-X2 scores fell within normal range after vardenafil (P < 0.01).

CONCLUSION: Vardenafil was an effective treatment in LL-PE; improvements of IELT possibly due to increased NO production which reduces adrenergic overactivity and anxiety levels.


Comparison Of Sevelamer And Calcium Carbonate On Endothelial Function And Inflammation In Patients On Peritoneal Dialysis.


Compared the effects of two phosphate binders, sevelamer carbonate (SC), and calcium carbonate (CC), on endothelial function (EF, using EndoPAT-RHI), and inflammation biomarkers of EF, (pro-inflammatory cytokines, serum albumin, calcium, phosphate and lipids), in 15 patients on peritoneal dialysis (PD) with Type 2 diabetes mellitus (T2DM), and hyperphosphataemia.

Following a two week phosphate binder washout, patients and were assigned to 8 weeks SC or CC, and crossed over following a second washout period.

RESULTS: SC significantly improved lipid profile compared with CC. Amongst the EF and pro-inflammatory biomarkers, SC decreased serum endothelin-1, plasminogen activator inhibitor-1, C-reactive protein and interleukin-6. Both SC and CC were effective in decreasing serum phosphate but SC had a positive effect on EF.

CONCLUSION: Treatment with SC has beneficial effects compared with CC in decreasing inflammation and improving EF in patients with T2DM on PD.


Comparing Effects of Low- and High-Volume Moderate-Intensity Exercise on Sexual Function and Testosterone in Obese Men.


Compared the effects of daily caloric reduction to 400 kcal below calculated requirement, and either low volume (LV) or high volume (HV) moderate-intensity exercise on: weight, waist circumference (WC), body composition, sexual function – (International Index of Erectile Function 5-item - IIEF - 5), testosterone, sex-hormone binding globulin, glucose, insulin and lipids, International Prostate Symptom Scale (IPSS) for lower urinary tract symptoms (LUTS), EndoPAT-RHI, and 36-item Short Form Survey version 2 Instrument (SF-36) for quality of life (QoL), in 75 abdominally obese, sedentary Asian men at baseline and at 24 weeks.

RESULTS: Weekly exercise volume was significantly greater in HV. HV had significantly greater increases in IIEF-5 scores and testosterone, and greater reductions in weight, WC and fat mass than LV. Improvements in IPSS and SF-36 scores, and RHI, were similar.

CONCLUSION: Moderate-intensity HV aerobic exercise > 200 minutes/week produces greater improvements in sexual function, testosterone, weight, WC, and fat mass than smaller exercise volume.


Very rapid effect of pitavastatin on microvascular function in comparison to rosuvastatin: reactive hyperemia peripheral arterial tonometric study.


Investigated whether EndoPAT-RHI improved 2 hours after pitavastatin or rosuvastatin in subjects with coronary artery disease (CAD), in 94 subjects with CAD, assigned to 2 mg pitavastatin (n = 36), 2.5 mg rosuvastatin (n = 38), and a control group (n = 20). RHI was measured before and 2 hours after statin administration.

RESULTS: RHI increased significantly 2 hours after pitavastatin from 1.82 ± 0.45 to 2.16 ± 0.62 (P = 0.02), but not after rosuvastatin, or in the control group. No significant changes were observed at 2 hours in serum cholesterol levels in any group.

CONCLUSION: RHI improved 2 hours after a single clinical dose of pitavastatin, but not after rosuvastatin.

**Obstructive sleep apnea in children is associated with severity-dependent deterioration in overnight endothelial function.**


Examined potential associations between pediatric OSA and overnight changes in EndoPAT-RHI, in 59 habitually snoring children 4-16 years, with various degrees of sleep-disordered breathing who underwent EndoPAT-RHI in the evening before and the morning after overnight polysomnography (PSG). Two brachial occlusion periods (1min and 5 min) were also tested.

**RESULTS:** Evening-to-morning deteriorations in RHI were OSA severity-dependent, and occlusion durations of 1 or 5 min yielded similar RHI findings.

**CONCLUSION:** Similar to adults, in children RHI deterioration in EF during the night significantly correlated with OSA severity. Furthermore, in children, EndoPAT-RHI testing can be reliably performed with only 60 seconds of arterial occlusion. Authors speculate that pediatric OSA may be less commonly associated with cardiovascular complications due to the shorter duration of the syndrome.


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**Effects of continuous positive airway pressure on endothelial function and circulating progenitor cells in obstructive sleep apnoea: A randomised sham-controlled study.**


Assessed the potential to improve endothelial function, (EF, using EndoPAT-RHI), and circulating progenitor cells (CPCs), levels in Continuous Positive Airway Pressure (CPAP) naïve men with moderate-to-severe obstructive sleep apnoea (OSA), without diabetes mellitus, by preventing hypoxic episodes in a randomised 12-week double-blind sham-controlled parallel group study, (active CPAP n=25, or sham CPAP n=21)

**RESULTS:** Compared to sham, CPAP significantly decreased Apnea/Hypopnea Index (AHI, p<0.0001) after 12weeks. Despite this improvement in AHI, CPAP had no effect on change in CPC levels or RHI change in endothelial function compared to sham therapy.

**CONCLUSION:** Despite the improvement in OSA parameters and ablation of apnoeic events by CPAP, in men with moderate-to-severe OSA, CPC counts and RHI were not significantly improved after 12 weeks of therapeutic CPAP when compared to sham control.


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**Endothelial dysfunction in patients with type 2 diabetes post acute coronary syndrome.**


Examined whether endothelial function (EndoPAT-RHI and forearm blood flow responses to ACh), in addition to CV risk factors and plasma endothelial microparticle (EMP) content, was normalised in 15 patients with T2DM + acute coronary syndrome (ACS, vs. 6 weeks post cardiac event) vs. 16 matched healthy controls.

**RESULTS:** LDL and total cholesterol were well controlled in T2DM + ACS patients, however increased BMI, systolic BP, glucose and triglycerides levels and lower HDL levels were still apparent. RHI and forearm blood flow responses to ACh were significantly lower in T2DM + ACS vs. controls. EMP levels were lower in the patient cohort. Simultaneous analysis of platelet microparticle levels were not different.

**CONCLUSION:** Patients with T2DM with recent ACS exhibit residual CV risk factors despite being on standard clinical care, and continue to present with endothelial dysfunction despite having lower levels of EMPs.


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**Relationships between three different tests to evaluate endothelium-dependent vasodilation and cardiovascular risk in a middle-aged sample.**

Lind L. J Hypertens. 2013 Apr 25. [Epub ahead of print]

Investigated the relationships amongst three techniques used to assess endothelium-dependent vasodilation; flow-mediated vasodilation in the brachial artery (FMD), acetylcholine-mediated vasodilation in the forearm (EDV), and Endo-PAT reactive hyperemic index (RHI), in 222 50 year olds in the population-based Prospective investigation of Obesity, Energy and Metabolism (POEM) study. Cardiovascular risk was assessed by the Framingham risk score.

**RESULTS:** No significant relationships were seen between the three different tests to evaluate endothelium-dependent vasodilation. EDV, FMD and but not EndoPAT were significantly inversely related to the Framingham score. Also sodium nitroprusside-mediated vasodilation in the forearm, reflecting endothelium-independent vasodilation (EDV), was also significantly inversely related to the Framingham score.

**CONCLUSION:** No close relationships were seen amongst the tests of endothelium-dependent vasodilation, suggesting that each contributes with unique information on vasoreactivity. EDV, EDV and FMD, but not RHI, were related to the Framingham score, suggesting that vasoreactivity in some vascular beds are related to cardiovascular risk in middle-aged individuals.

A Comparison of Flow-mediated Dilatation and Peripheral Artery Tonometry for Measurement of Endothelial Function in Healthy Individuals and Patients with Peripheral Arterial Disease.

Allan RB, Delaney CL, Miller MD, Spark JI.
Eur J Vasc Endovasc Surg. 2013 Mar;45(3):263-9

Compared and correlated flow-mediated dilatation (FMD) and Endo-PAT RHI in 26 patients with peripheral arterial disease (PAD) and in 25 healthy controls.

RESULTS: Patients with PAD had a significantly lower FMD than healthy subjects (2.43% vs. 5.80%, p < 0.001). No difference was found in RHI between the two groups. No correlation was found between the FMD and RHI in subjects with PAD (r = 0.284, p = 0.160), in healthy subjects (r = 0.153, p = 0.464) or when both groups were combined (r = 0.174, p = 0.22).

CONCLUSION: The lack of change in RHI in PAD patients suggests that PAT is not a sensitive measure of endothelial function. The lack of correlation suggests that FMD and PAT are not interchangeable. PAT should not be used as a substitute for FMD as a measure of endothelial function.


Editor's Note: A). Average RHI for PAD = 1.67 vs. 1.86 for controls. PAD had an extreme outlier of RHI ~5, without which, PAD mean ~1.53, (consistent with pathology). Unclear if conditions like Raynaud’s, which involve exaggerated autonomic responsiveness and inconclusive endothelial etiology, were included in PAD group. If so, this might shed light on the findings and interpretations. B). Irrespective of any intrinsic physiological differences between EndoPAT-RHI and FMD, RHI but not FMD includes an unoccluded side systolic effects correction, and baseline amplitude compensation, which would inherently diminish their degree of correlation.

Renal nerve ablation reduces augmentation index in patients with resistant hypertension.


Measured BP and arterial stiffness (EndoPAT-AI and EndoPAT-AI@75), at baseline and at 3-month follow-up in 50 consecutive patients with resistant hypertension, 40 with Renal nerve ablation (RDN), and 10 non-RDN controls. Muscle sympathetic nerve activity (MSNA) was obtained in 20 RDN and 10 non-RDN patients.

RESULTS: Baseline BP averaged 170/92±19/15mmHg (RDN) and 171/93±14/8mmHg (non-RDN) despite the use of antihypertensive drugs. RDN significantly reduced SBP and DBP (p<0.001 respectively), as well as EndoPAT-AI and EndoPAT-AI@75 (P=0.002 respectively), and MSNA (P<0.01). Changes in AI@75 with RDN were unrelated to SBP, DBP or MSNA changes. No changes in BP, AI, AI@75 or MSNA occurred in the non-RDN group.

CONCLUSION: RDN results in a substantial and rapid reduction in AI, which appears to be independent of BP and MSNA changes. These findings are indicative of a beneficial effect of RDN on arterial stiffness in patients with resistant hypertension and may contribute to the sustained BP-lowering effect of RDN.


Endothelial function progressively deteriorates during normal pregnancy.


Elucidated changes in endothelial function throughout the gestational period in normal pregnancy and its relationship with plasma soluble fms-like tyrosine kinase-1 (sFlt-1) levels, using EndoPAT-RHI, and plasma sFlt-1 levels measured simultaneously.

RESULTS: RHI gradually deteriorated with increasing gestational age. Plasma sFlt-1 levels exhibited a gradual increase at late pregnancy and were inversely correlated with RHI.

CONCLUSION: Maternal endothelial function gradually deteriorates with increasing gestational age and there is an inverse correlation between RHI and plasma sFlt-1 levels in normal pregnancy.


Assessment of a portable monitoring device WatchPAT 200 in the diagnosis of obstructive sleep apnea.

Weimin L, Rongguang W, Dongyan H, Xiaoli L, Wei J, Shiming Y.
Eur Arch Otorhinolaryngol. 2013 May 25. [Epub ahead of print]

Assessed the accuracy of automatically analyzed WatchPAT 200 for the diagnosis of obstructive sleep apnea (OSA) based on the apnea hypopnea index (AHI), and sleep and wakefulness indicators, compared to standard in-hospital polysomnography (PSG), using American Academy of Sleep Medicine (AASM) criteria, in 28 (21 males) adults with suspected OSA, aged 47.45±13.46 y, mean BMI 29.99±5.74.

RESULTS: Mean PSG derived AHI was 23.00±21.55 compared to 25.99±19.09 for WatchPAT (r = 0.92, P < 0.001). The agreement of the sleep-wake assessment based on 30-s bins between the PSG and the WatchPAT was 89±6%.

CONCLUSION: AHI based detection of OSA based on WatchPAT 200 is comparable in accuracy to PSG, and provided a reasonably accurate estimation of sleep and wakefulness in patients with OSA on an epoch-by-epoch basis.
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Professor Aversa is a Member of the Scientific Update Committee of the Italian Society of Endocrinology, and vice-President of Regional Sections of the Italian Society of Andrology and Sexual Medicine, a member of various editorial boards including the Journal of Andrological Sciences and World Journal of Diabetology. He is a prolific author, with over 100 original papers and 16 books, and is the recipient of numerous scientific awards and prizes.

His major professional interests include the diagnosis and treatment of male sexual dysfunctions and the endocrinology of male aging, the role of endothelial dysfunction in male and female sexual dysfunctions and reproductive endocrinology, and is an internationally recognized expert in endothelial penile physiology and an authority in the field of testosterone actions on male sexuality.

Together with his associates, Professor Aversa has made many important contributions in clinical research including the development of diagnostic tests for erectile dysfunction, endocrine flow-charts for male ageing, and notably, in the clinical approach to endothelial dysfunction in andrology and in sexual dysfunction in males and females. These significant contributions to the scientific base and clinical acceptance of the EndoPAT, are evidenced by the following publications: