



American Heart Association®

Scientific Sessions

Session AT.APS.24 - Endothelial Function and Vascular Disease

[Add to Itinerary](#)

Mo1060 / 1060 - Discordance Between Blood Pressure and Endothelial Function Measurements; is it Time to Look Beyond Blood Pressure for Early Detection of CVD Risk?

 November 18, 2019, 1:30 PM - 2:00 PM

 Zone 1, Science and Technology Hall

Keywords

Endothelial function, Atherosclerosis, Risk factors, Blood pressure, Cardiovascular disease prevention

Authors

Yasamin Naghavi, Univ of Houston, Houston, TX; Albert Yen, Endothelix, Houston, TX; Stanley Kleis, Univ of Houston, Houston, TX; Hirofumi Tanaka, Univ of Texas Austin, Austin, TX; **Morteza Naghavi**, SHAPE, Palo Alto, CA; Ahmed Gul 77056, Ralph Metcalfe, Univ of Houston, HOUSTON, TX

Disclosures

Y.Naghavi: Ownership Interest; Significant; Endothelix. **A.Yen:** Other - Consultant/Advisory Board; Modest; Endothelix, Inc.. **S.Kleis:** None. **H.Tanaka:** None. **M.Naghavi:** Ownership Interest; Significant; Endothelix. **A.Gul:** None. **R.Metcalfe:** n/a.

Abstract

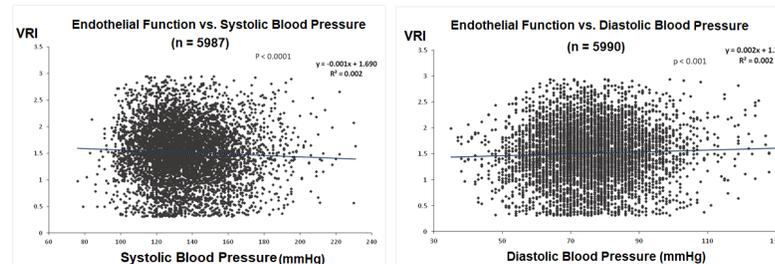
Background: Both endothelial dysfunction and hypertension are viewed as pathological conditions of the vascular system. Despite sharing some underlying risk factors, little is known about their co-existence in patients. A PubMed search revealed that no or weak correlation was found between blood pressure and endothelial function measured by FMD (flow mediation dilation) in MESA, FHS, PIVUS and a number of other large epidemiological studies. They concluded that the observed associations between endothelial

dysfunction and risk of cardiovascular events are likely mediated through other pathways than hypertension. Digital Thermal Flowmetry (DTF) of microvascular endothelial function is a new and automated technique based on monitoring fingertip temperature fall and rebound during a 5-minute arm-cuff occlusion induced reactive hyperemia. Here we report correlations between endothelial function measured by DTF and blood pressure.

Methods: A total of 6266 endothelial function test results were collected from 42 outpatient clinics in the US that participated in VENDYS Registry. Blood pressure was measured before each test. The tests were conducted using FDA-approved automated VENDYS devices (Endothelix Inc., Palo Alto, CA). Adjusted maximum temperature rebound was reported as Vascular Reactivity Index (VRI).

Results: Systolic and diastolic blood pressure were 136.6 ± 20.2 and 76 ± 12.4 mmHg respectively. VRI was 1.55 ± 0.53 . Neither systolic or diastolic blood pressure showed a strong correlation with VRI. See graphs below. Both VRI and blood pressure (systolic and diastolic) showed a stronger correlation with age $r = -0.18$, $r = 0.17$, $r = -0.16$ respectively, $p < 0.0001$.

Conclusions: In this 6266 patient registry, endothelial function measured by VRI showed a very weak correlation with blood pressure. Our finding supports previous reports by others, and warrants studies to evaluate the additive value of endothelial function monitoring beyond blood pressure.



(http://files.abstractsonline.com/CTRL/d8/d/0e4/072/161/414/fb0/00e/80d/11d/a7d/32/g13040_1.png)