1152-78
Phytoestrogens Have a Potentially Adverse Effect on Coronary Vasodilator (Endothelial Independent) Function in Women With Suspected Ischemia: A Report From the NHLBI-Sponsored Women’s Ischemia Syndrome Evaluation (WISE) Study

Background: Prior studies suggest that dietary soy supplementation has beneficial effects on blood pressure and lipids, but the relationship of blood phytoestrogen levels with endothelial function has not been investigated in humans. Methods: We studied 106 women with complete blood phytoestrogen, estradiol, and provocative coronary endothelial function assessments, enrolled in the WISE study for suspected myocardial ischemia. Mean age was 56 (31-76) years, 79% were postmenopausal, 34% had chest pain, and 24% had CAD (using Deep's index in >1 coronary artery). Blood phytoestrogen, estradiol, and provocative coronary endothelial function assays were measured. Coronary artery endothelial function was measured as ratios of average Peak Velocity (APV) and Volumetric Flow Reserve (VFR) to adenosine (ADO), acetylcholine (ACH), or nitroglycerine (NTG) over baseline. Results: Genistein was significantly negatively correlated with ACH and VFR response to ADO (Spearman r = -0.44, p = 0.0001 and r = -0.40, p = 0.0006 respectively) but not to ACH or NTG. There were no significant correlations for daidzein. Analysis by tertiles (table) shows that high blood genistein levels are consistently related to reduced endothelial function as compared to women in the lower tertiles. Conclusion: Among women with suspected myocardial ischemia, higher blood levels of the phytoestrogen genistein appear to be associated with reduced coronary flow reserve as well as NTG vasodilator function but not endothelial function assessed by ACH.

Mean (± SD) Av. Peak Velocity (APV) and Volumic Flow Reserve (VFR) by Genistein Terciles

<table>
<thead>
<tr>
<th>Genistein Tercile</th>
<th>Genistein Low (n = 37)</th>
<th>Genistein Med (n = 35)</th>
<th>Genistein High (n = 34)</th>
</tr>
</thead>
<tbody>
<tr>
<td>APV_ACH</td>
<td>1.7 ± 0.9</td>
<td>2.0 ± 0.9</td>
<td>2.4 ± 0.6</td>
</tr>
<tr>
<td>VFR_ACH</td>
<td>2.8 ± 1.1</td>
<td>2.7 ± 1.1</td>
<td>2.9 ± 1.1</td>
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<tr>
<td>APV_ADO</td>
<td>1.9 ± 1.2</td>
<td>2.2 ± 1.2</td>
<td>2.6 ± 1.1</td>
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<tr>
<td>VFR_ADO</td>
<td>2.9 ± 1.1</td>
<td>2.7 ± 1.1</td>
<td>2.9 ± 1.1</td>
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<tr>
<td>APV_NTG</td>
<td>2.6 ± 0.9</td>
<td>2.7 ± 1.2</td>
<td>2.9 ± 1.1</td>
</tr>
<tr>
<td>VFR_NTG</td>
<td>3.1 ± 1.1</td>
<td>3.0 ± 1.1</td>
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</tbody>
</table>

1152-79
Brachial Artery Endothelial Function Predicts Coronary Endothelial Function and Severity of Coronary Lesion in Patients With Suspected Coronary Artery Disease
Bonpei Takase, Takashi Imaizumi, Yoshihiro Matsuoka, Hiroshi Okusa, Akira Hamabe, Kimio Sato, Toshihiko Ohtsu, Atsuo Kunita, National Defense Medical College, Tokorozawa, Japan.

Background: Endothelial function (ECF) in brachial artery (BA) could be a good marker for coronary artery (CA) ECF and/or the severity of coronary artery disease (CAD). Flow-mediated vasodilation (FMD) in BA using ultrasound is widely used for ECF while BA blood flow response to optimal Ach doses can be used as a surrogate for CA endothelial function but not endothelial function assessed by ACH.

Methods: We investigated the role of ECF in BA in suspected CAD, we studied (1) the relationship between BA and CA in FMD in 15 patients (pts, 57±8 y/o) with suspected CAD, and (2) the comparative predictive value of FMD in BA and carotid artery intimal media thickness (IMT) for detecting severity of CAD in 81 pts (62±9 y/o) with suspected CAD in different three doses of Ach (7.5, 15, and 30 µg/min for BA; 10 nM, 10 µM, and 100 µM for CA) using Doppler Flowire and angiography and (3) the comparative predictive ratio of Average Peak Velocity (APV) and Volumetric Flow Reserve (VFR) to adenosine (ADO), acetylcholine (ACH), or nitroglycerine (NTG) over baseline, respectively. Conclusions: FMD in BA using ultrasound and BA blood flow response to optimal Ach doses can be used as a surrogate for CA endothelial function but not endothelial function assessed by ACH.

VFR_ACH 1.6 ± .6 1.8 ± .9 1.4 ± .5 0.36
VFR_ADO 2.8 ± 1.1 2.7 ± .7 2.1 ± .5 0.0001
APV_ACH 1.7 ± 0.9 2.0 ± 0.9 2.4 ± 0.6 0.04
APV_ADO 1.9 ± 1.2 2.2 ± 1.2 2.6 ± 1.1 0.03

1152-91
Low Dose Hormone Replacement Therapy Improves Endothelium-Dependent Vasodilator Responsiveness Comparable to Conventional Dose in Postmenopausal Women
Kwosa K. Kuby, Hyeung S. Kim, B. Choi, Eak K. Shin, Gachon Medical School, Incheon, South Korea.

Background: We have previously shown that conventional dose hormone replacement therapy (C-HRT) improved endothelium-dependent vasodilator responsiveness in post-menopausal women (PMW). The effects of low-dose hormone replacement therapy (L-HRT) has not yet been observed. Methods: We administered micronized progesterone (MP) 100 mg with conjugated equine estrogen (CEE) 0.625 (C-HRT) or 0.3 (L-HRT) mg daily for 2 months to 20 PMW with a washout period of 2 months in a randomized, double-blind, crossover study. Data: mean±SD. *=P<0.05, **=P<0.01, ***=P<0.001 vs. Baseline. Lipoproteins (mg/dl)

Results: L-HRT and C-HRT significantly changed lipoprotein levels and improved brachial artery flow-mediated dilation (VFR) compared with respective baseline values. However, there were no significant differences between L-HRT and C-HRT regarding these effects. Conclusion: L-HRT has comparable effects to C-HRT in PMW regarding lipoproteins and FMD.

Baseline1 C-HRT Baseline2 L-HRT
17β-Estradiol 35±624 109±644 ** 38±16 74±674*
LDL-Cholesterol 138±423 110±432 ** 137±42 118±425*
HDL-Cholesterol 55±112 60±112 57±12 59±145
FMD (%) 4.8±1.215 7.2±1.17±0.0001 4.9±1.23 6.4±1.45

1152-92
Diabetes Is the Most Prevalent Risk Factor for Premature Vascular Disease in Migrant Asian Indians
Prasath C. Deedwania, D, P. Naidoo, VA Central California Health Care System, Fresno, California. University of Natal Medical School, Natal, South Africa.

During the past decade, an increasing number of Asian Indian migrants have been noted to suffer from premature vascular disease (VAD) and coronary artery disease (CAD). The precise reason for this increase in the incidence of VAD is not known. Some small-scale studies have evaluated the role of various traditional risk factors in these pts and the data suggests that most Asian Indian patients with CAD do not have traditional risk factors such as smoking, hypertension, or hypercholesterolemia. However, little information is available from systematic evaluation and comparison of risk factors in patients with premature CAD and their siblings without CAD living in the same environment. Accordingly, we prospectively compared the prevalence of traditional risk factors in 72 patients with confirmed diagnosis of premature MI (<50 years of age) with 50 siblings of the probands who were free of CAD in the Natal Province of South Africa. The table below shows the parameters with significant difference and the lipid profile. Overall, the results showed significantly higher prevalence of diabetes in patients with premature CAD compared to their siblings without CAD (98% vs. 14%, p<0.01).

CONCLUSION: The results of this case control study show that, although Asian Indian patients with premature VAD/CAD do not have typical lipid abnormalities, they have an extremely high prevalence of diabetes, which predisposes them to high risk of vascular disease.

Women

<table>
<thead>
<tr>
<th>Diabetes</th>
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<th>No</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height (cm)</td>
<td>168±10</td>
<td>163±10</td>
<td>.002</td>
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<tr>
<td>Waist/hip ratio</td>
<td>0.95</td>
<td>0.91</td>
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<tr>
<td>Systolic BP</td>
<td>131±123</td>
<td>123±127</td>
<td>0.03</td>
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<tr>
<td>Diastolic BP</td>
<td>72±115</td>
<td>71±111</td>
<td>0.03</td>
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<tr>
<td>Fasting glucose</td>
<td>&lt;130±65</td>
<td>104±28 &lt;.0001</td>
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</tr>
<tr>
<td>Serum cholesterol</td>
<td>197±169</td>
<td>198±37</td>
<td>NS</td>
</tr>
<tr>
<td>LDL cholesterol</td>
<td>729±962</td>
<td>115±99</td>
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</tr>
<tr>
<td>HDL cholesterol</td>
<td>472±149</td>
<td>472±12</td>
<td>NS</td>
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</table>

1152-93
Differences in Endothelial Function Between Patients With Ischemic and Dilated Heart Failure
Dimitris Tousoulis, Christos Antoniades, Costas Toutouzas, Efstathia Brilis, Kyriakos Maritsa, Marisa Charalakia, Christos Piasoul, Christodoulos Stefanadis, Pavlos Toutouzas, Cardiology Unit, Athens University Medical School, Hipokration Hospital, Athens.

Background: Recently, a degree of endothelial dysfunction has been demonstrated in patients with heart failure. In this study we investigated the differences in endothelial function in patients with coronary artery disease (CAD) without heart failure, in patients with ischemic heart failure and in patients with dilated heart failure without underlying coronary artery disease.

Methods: In this study we included 14 male patients with CAD (57±8±3.5 years old) (group A), 23 male patients (68±11±1 years old) with ischemic heart failure (group B) and 10 male patients (57±6±3.0 years old) with dilated cardiomyopathy without underlying coronary artery disease (group C). Forearm blood flow was measured using venous occlusion plethysmography. Endothelium dependent flow mediated vasodilation (VFR) was expressed as the % change from baseline to post reactive hyperemia blood flow. Endothelium independent flow (VFR) was assessed as the % change from baseline to post sublingual nitroglycerin administration flow. Equation fraction (EF) of the left ventricle was estimated with Simpson method. All patients in group B and C were NYHA II to IV having an ejection fraction ≤40%. All values are expressed as mean±SEM.