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GLOBAL EXPERTS, LOCAL LEARNING
Women’s Heart Health: Risk, Diagnosis and Management Differences

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Presenter Disclosure Information

Women’s Heart Health: Management (Bairey Merz)

DISCLOSURE INFORMATION:
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Honorarium*: Gilead, Pri-Med
Stocks: None
40-year-old female new patient referred for second opinion re: risk factor management by OB-GYN.
HX: Five years ago, she was diagnosed with systemic lupus with a positive ANA. She is a para 2 gravida 2, and had hypertension postpartum with both of her sons.
EXAM: BP 145/93 otherwise WNL
LABS: TC 185 TG 125 HDL 50 LDL 110
CURRENT MEDICATIONS: Brimonidine 0.5% eyedrops, BuSpar orally 10 mg p.o. b.i.d, enteric coated aspirin 81 mg p.o. daily, Nexium 40 mg taken once daily, Ativan as needed, Zofran as needed, Plaquenil 100 mg p.o. b.i.d., Pravachol 40 mg p.o. at bedtime, verapamil 120 mg p.o. daily.

How should she be treated?

1. Current treatment is fine
2. Intensify hypertension therapy
3. Stop the statin and aspirin
Women’s Heart Health: Management

1. Traditional CVD Risk Factors in Women

2. Non-traditional CVD Risk Factors: APOs

3. Preventive CVD Interventions in Women
## Traditional Risk Factors in Women - Population Attributable Risk of AMI in INTERHEART LA vs INTERHEART

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Latin America</th>
<th>IH-Rest of World</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdominal obesity*</td>
<td>48.5</td>
<td>30.2</td>
</tr>
<tr>
<td>ApoB/ApoA-1†</td>
<td>40.8</td>
<td>44.2</td>
</tr>
<tr>
<td>Smoking‡</td>
<td>38.4</td>
<td>35.3</td>
</tr>
<tr>
<td>Hypertension</td>
<td>32.9</td>
<td>22.0</td>
</tr>
<tr>
<td>Permanent stress§</td>
<td>28.1</td>
<td>7.8</td>
</tr>
<tr>
<td>Regular exercise</td>
<td>28.0</td>
<td>24.8</td>
</tr>
<tr>
<td>Diabetes Mellitus</td>
<td>12.9</td>
<td>12.2</td>
</tr>
<tr>
<td>Daily fruits and/or vegetables</td>
<td>6.9</td>
<td>4.1</td>
</tr>
<tr>
<td>Depression</td>
<td>4.7</td>
<td>8.4</td>
</tr>
<tr>
<td>Alcohol</td>
<td>-3.2</td>
<td>16.3</td>
</tr>
</tbody>
</table>

IH-Rest of World indicates subjects in INTERHEART overall sample from the rest of the world, excluding LA; *As measured by waist to hip ratio; † First vs third tertile; ‡ Never vs current and former; § Never vs permanent.

Non-Traditional Risk Factors – Adverse Pregnancy Outcomes (APOs) – All CVD

Pre-Eclampsia

Gestational HTN

Heterogeneity: $\tau^2 = 0.05; \chi^2 = 31.59, df = 7 (P < 0.0001); I^2 = 78%$
Test for overall effect: $Z = 7.60 (P < 0.00001)$

Heterogeneity: $\tau^2 = 0.11; \chi^2 = 24.41, df = 3 (P < 0.0001); I^2 = 88%$
Test for overall effect: $Z = 3.43 (P = 0.0006)$
Guideline Management Therapy for CVD Prevention and Management in Women

- Therapeutic Lifestyle Change (TLC) of nutrition, exercise and smoking cessation/avoidance
- Optimal Medical Therapy (OMT) management of hypertension, dyslipidemia and diabetes
- Low dose aspirin (81 mg) daily
- Hypertension, statin and low dose aspirin medications are effective and safe for CVD prevention
- One-third of women are eligible for this preventive treatment, yet less than half are advised to take it
Long-Term Antihypertensive Therapy Significantly Reduces CV Events in Women and Men

<table>
<thead>
<tr>
<th>Average reduction in events (%)</th>
<th>Stroke</th>
<th>Myocardial infarction</th>
<th>Heart failure</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>35%-40%</td>
<td>20%-25%</td>
<td>&gt;50%</td>
</tr>
<tr>
<td>-10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-30</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>-40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-60</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

JUPITER: Statin Therapy Reduces CVD in Women and Men

<table>
<thead>
<tr>
<th>Subgroup Analysis I</th>
<th>N</th>
<th>P for Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>11,001</td>
<td>0.80</td>
</tr>
<tr>
<td>Age ≤ 65</td>
<td>8,541</td>
<td>0.32</td>
</tr>
<tr>
<td>Age &gt; 65</td>
<td>9,261</td>
<td></td>
</tr>
<tr>
<td>Smoker</td>
<td>2,820</td>
<td>0.63</td>
</tr>
<tr>
<td>Non-Smoker</td>
<td>14,975</td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>12,683</td>
<td>0.57</td>
</tr>
<tr>
<td>Non-Caucasian</td>
<td>5,117</td>
<td></td>
</tr>
<tr>
<td>USA/Canada</td>
<td>6,041</td>
<td>0.51</td>
</tr>
<tr>
<td>Rest of World</td>
<td>11,761</td>
<td></td>
</tr>
<tr>
<td>Hypertension</td>
<td>10,208</td>
<td>0.53</td>
</tr>
<tr>
<td>No Hypertension</td>
<td>7,586</td>
<td></td>
</tr>
<tr>
<td>All Participants</td>
<td>17,802</td>
<td></td>
</tr>
</tbody>
</table>

JUPITER

Ridker et al NEJM 2008

N = 17,802

Rosuvastatin Superior vs. Rosuvastatin Inferior
Aspirin in Primary Prevention in Women

**RR of MI Among Men**
- BDT, 1988
- PHS, 1989
- TPT, 1998
- HOT, 1998
- PPP, 2001
- Combined

RR = 0.68 (0.54–0.86)  
\( P = .001 \)

**RR of Stroke Among Men**
- BDT, 1988
- PHS, 1989
- TPT, 1998
- HOT, 1998
- PPP, 2001
- Combined

RR = 1.13 (0.96–1.33)  
\( P = .15 \)

**RR of MI Among Women**
- HOT, 1998
- PPP, 2001
- WHS, 2005
- Combined

RR = 0.99 (0.83–1.19)  
\( P = .95 \)

**RR of Stroke Among Women**
- HOT, 1998
- PPP, 2001
- WHS, 2005
- Combined

RR = 0.81 (0.69–0.96)  
\( P = .01 \)

Aspirin Better  Placebo Better

Women’s Risk is Under-recognized
Predictors of Physician’s Assignment of Increased Risk Level
Among True Intermediate-Risk Cases

<table>
<thead>
<tr>
<th>Intermediate-Risk Cases</th>
<th>PCP, OR (95% CI)</th>
<th>OB-Gyn, OR (95% CI)</th>
<th>CARD, OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>1.40 (1.10-1.77)</td>
<td>1.77 (1.13-2.75)</td>
<td>1.60 (1.05-2.43)</td>
</tr>
<tr>
<td>Sex</td>
<td>0.62 (0.49-0.78)</td>
<td>0.88 (0.57-1.37)*</td>
<td>0.71 (0.47-1.08)*</td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td>1.48 (1.17-1.87)</td>
<td>1.20 (0.77-1.86)*</td>
<td>0.84 (0.55-1.28)*</td>
</tr>
<tr>
<td>LDL</td>
<td>5.98 (4.66-7.69)</td>
<td>8.97 (5.49-14.66)</td>
<td>8.65 (5.45-13.71)</td>
</tr>
<tr>
<td>Blood pressure</td>
<td>12.92 (9.79-17.06)</td>
<td>50.81 (27.71-93.16)</td>
<td>14.05 (8.53-23.14)</td>
</tr>
</tbody>
</table>

Figure 1. Mean serum total cholesterol levels of adults aged 20 years and older by age and sex, United States, 1999–2006

MISSED OPPORTUNITIES IN CVD PREVENTION? LOW RATES OF HTN RECOGNITION FOR WOMEN UNDER 50 YRS AT MEDICINE AND OBGYN CLINICS


![Bar chart showing the percentage of patients with different levels of blood pressure.](chart.png)

- Both SBP ≥ 150: n=19,279
- 1st SBP ≥ 150, 2nd SBP ≥ 160: n=2,597
- Both SBP ≥ 160: n=686
- African-Americans: n=3,972

- Second elevated blood pressure in Medicine
- Second elevated blood pressure in OBGYN

p<.001 for all comparisons
A true story

- 48 year old internist at her family’s Thanksgiving
- 46 year old brother states he has hypertension
- She says “You can’t have hypertension!” and takes his blood pressure – he has hypertension
- She checks her own blood pressure – she has hypertension
- She looks in her OB-GYN medical records – she had gestational hypertension with both pregnancies (37 and 39 yrs) and has been hypertensive (140/90) in her OB-GYN annual checkups for years without notice or action
Postpartum Heart Health Program
Barbra Streisand Women’s Heart Center

The primary purpose of the Postpartum Heart Health Program is to address high blood pressure, diabetes and other risk factors related to heart health. The Barbara Streisand Women’s Heart Center team, along with cardiovascular risk screening, will provide support throughout the postpartum period.

Who directs the program?
Margo Minissian, PhDc, ACNP, will be the primary provider for this practice. As an experienced cardiology nurse practitioner, she has the skill set to administer the risk factor screening and evaluation and to help women reduce their long-term risk of heart disease. Ms. Minissian is a doctor of philosophy candidate in biological and biobehavioral research at UCLA. She will work in collaboration with cardiology Janet Wei, MD, and maternal fetal medicine specialist Sarah J. Kilpatrick, MD, PhD.

Who’s eligible?
Postpartum women who had one or more of the following:

- Gestational hypertension
- Preeclampsia
- Postpartum hypertension
- Gestational diabetes
- Spontaneous preterm delivery < 36 weeks

How to Schedule an Appointment
310-423-9680 (press option 2)
Request Postpartum Heart Health Program
www.cedars-sinai.edu/womensheart
Women’s Heart Health: Management

- CVD is the leading lifetime health threat to younger and older women – *it is time to take action.*
- Both traditional and non-traditional risk factors are modifiable with existing preventive and intervention therapies – *the evidence is robust.*
- Traditional medical care, either General Medicine or Ob-Gyn does not address CVD screening, diagnosis and treatment for the majority of younger women – *is this acceptable?*
- Non-traditional APO followup clinics provide postpartum risk factor screening, lifestyle counseling and treatment affordably using allied healthcare providers – *it is time to nationally implement guideline strategies to reduce CVD morbidity and mortality in young and older women.*
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