Not Just a Man’s Disease: Cardiovascular Disease in Women

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No disclosures
The scope of the problem
More women than men die from heart disease
What do women think?

Figure. Overall trends in awareness that coronary heart disease is the leading cause of death in women.
Many women do not experience heart attacks like men do.
A patient story
A patient story

- 38 year old woman with three children
  - She survived leukemia after a bone marrow transplant
  - She has a seizure disorder that gets worse when she is stressed
  - She has not been able to work because of her illnesses and relies on her family to help her make ends meet
Her symptoms

• She wakes up New Years day feeling nauseated, lightheaded, and has some vague chest discomfort.

• She had plans to go the movies with her boyfriend

• She gets much worse at the movies and collapses
  – 911 is called
In the emergency room

- She is emergently placed on a breathing machine and cannot describe her symptoms
- She never told her boyfriend about her symptoms
- Her oncologist is the first call from the ED team
- Then, everyone sees her ECG
Severe coronary disease

Before

After
It is hard for women and doctors to recognize heart disease in women

- Women are more likely to present with atypical symptoms
  - Indigestion
  - Shortness of breath
  - Fatigue
  - Jaw pain

- Women don’t think of heart disease

- Doctors take longer to figure out that a woman is having a heart attack
Women experience more atypical mechanisms of heart attacks
Microvascular disease

- Hard to diagnose
- Hard to treat
Spontaneous coronary artery dissection

- Hard to diagnose
- Treatment is very different from a traditional heart attack

Paolo et al JACC
Stress Cardiomyopathy

- AKA Takotsubo Cardiomyopathy or Broken Heart Syndrome
- More common in women
- Presents similarly to a heart attack
Risk factors for cardiovascular disease differ between men and women
Sex differences in risk factors for heart disease

Traditional ASCVD Risk Factors
- Diabetes
- Smoking
- Obesity and overweight
- Physical inactivity
- Hypertension
- Dyslipidemia

Emerging, Nontraditional ASCVD Risk Factors
- Preterm delivery
- Hypertensive disorders of pregnancy
- Gestational diabetes
- Autoimmune disease
- Breast cancer treatment
- Depression

Garcia et al. Cardiovascular Disease in Women
Hypertension

Higher prevalence of HTN in women over age 60 than in men.

Less well controlled in women than men.
What is hypertension?

<table>
<thead>
<tr>
<th>BP Category</th>
<th>SBP</th>
<th>DBP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>&lt;120 mm Hg</td>
<td>&lt;80 mm Hg</td>
</tr>
<tr>
<td>Elevated</td>
<td>120–129 mm Hg</td>
<td>&lt;80 mm Hg</td>
</tr>
</tbody>
</table>

**Hypertension**

| Stage 1         | 130–139 mm Hg| 80–89 mm Hg  |
| Stage 2         | ≥140 mm Hg   | ≥90 mm Hg    |

*Individuals with SBP and DBP in 2 categories should be designated to the higher BP category.

BP indicates blood pressure (based on an average of ≥2 careful readings obtained on ≥2 occasions, as detailed in Section 4); DBP, diastolic blood pressure; and SBP systolic blood pressure.
Treatment reduces the chance of:

- Stroke: 35-40 %
- Heart Attack: 20-25 %
- Heart Failure: 50 %
<table>
<thead>
<tr>
<th>Dyslipidemia</th>
<th>Among women, dyslipidemia has the highest PAR at 47.1%, compared with all other known risk factors for CVD.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Atheroma regression and LDL lowering may be even greater among women on statins than in men.</td>
</tr>
</tbody>
</table>
Treating cholesterol: NEW guidelines

No sex differences in treatment recommendations

Premenopausal women on statins need effective contraception
<table>
<thead>
<tr>
<th>Obesity</th>
<th>The impact of obesity on the development of CAD appears to be greater in women than in men. In the Framingham Heart Study, obesity increased the risk of CAD by 64% in women compared with 46% in men.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical inactivity</td>
<td>The prevalence of inactivity and sedentary behaviors is higher among women than men.</td>
</tr>
</tbody>
</table>
More women are obese than men

Figure 2. Percentage of US adults classified as obese (BMI $\geq 30$ kg/m$^2$) in health surveys from 1963 to 2012.\textsuperscript{41–44}
Lifestyle can overcome genetics!

Why is it so hard?
Real-world barriers that women face

<table>
<thead>
<tr>
<th>Barriers (Aided)</th>
<th>Overall (n=1158)</th>
<th>White (n=634)</th>
<th>Nonwhite (n=524)</th>
<th>P*</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have family obligations and other people to take care of</td>
<td>51</td>
<td>53</td>
<td>45</td>
<td>0.05</td>
</tr>
<tr>
<td>There is too much confusion in the media about what to do</td>
<td>42</td>
<td>44</td>
<td>36</td>
<td>0.048</td>
</tr>
<tr>
<td>God or some higher power ultimately determines my health</td>
<td>37</td>
<td>35</td>
<td>44</td>
<td>0.02</td>
</tr>
<tr>
<td>I am not confident that I can successfully change my behavior</td>
<td>33</td>
<td>33</td>
<td>34</td>
<td>0.80</td>
</tr>
<tr>
<td>I do not have the money or insurance coverage to do what needs to be done</td>
<td>32</td>
<td>31</td>
<td>35</td>
<td>0.30</td>
</tr>
<tr>
<td>I do not perceive myself to be at risk for heart disease</td>
<td>32</td>
<td>33</td>
<td>30</td>
<td>0.43</td>
</tr>
<tr>
<td>I am too stressed to do the things that need to be done</td>
<td>28</td>
<td>28</td>
<td>27</td>
<td>0.79</td>
</tr>
<tr>
<td>I do not want to change my lifestyle</td>
<td>28</td>
<td>30</td>
<td>25</td>
<td>0.18</td>
</tr>
<tr>
<td>My health care professional does not think I need to worry about heart disease</td>
<td>27</td>
<td>26</td>
<td>28</td>
<td>0.58</td>
</tr>
<tr>
<td>I do not have time to take care of myself</td>
<td>25</td>
<td>24</td>
<td>27</td>
<td>0.40</td>
</tr>
</tbody>
</table>
Pregnancy is both a time of risk and provides insight into future risk
Cardiovascular maternal mortality is rising in the United States

Yucel E, DeFaria Yeh D. Curr Treat Options CV Med. 2017;19(9):73
Cardiovascular disease is the leading cause of death in pregnancy.
Pregnancy is a cardiovascular stress test
Pregnancy is a window into the future

- Women with a history of:
  - gestational hypertension or pre-eclampsia
  - preterm delivery
  - gestational diabetes
  - small for gestational age infant

are at higher risk of later-life cardiovascular disease!!

An opportunity for early intervention?
Conclusions

• Heart disease differs between men and women
  – Differences in:
    • Presentation
    • Risk factors
    • Mechanism of disease
    • Experience of pregnancy

• We are still learning about how to optimally detect and treat heart disease in women
Thank you!