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Needles In A Needlestack: “Prodromal”
Symptoms of Unusual Fatigue and Insomnia Are Too Prevalent Among Adult Women Visiting the ED to be Useful in Diagnosing ACS Acutely

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Needles In A Needlestack: "Prodromal" Symptoms of Unusual Fatigue and Insomnia Are Too Prevalent Among Adult Women Visiting the ED to be Useful in Diagnosing ACS Acutely

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No Disclosures
Our ED
Background

• Diagnosing ACS and MI in women is important and can be difficult
• Widespread awareness of unusual fatigue and insomnia as risk factors for MI in women
• How useful are these?
McSweeney 2003

• Surveyed women with confirmed MI
• Asked about symptoms over 6 months preceding MI
• **Unusual fatigue 70.7%** (severe, ADL-limiting 29.7%)
• **Insomnia 47.8%** (severe insomnia 21%)
• Described these as prodromal symptoms of MI

EM Risk Management CME 2011

• Women experience more atypical presentations of CAD and ACS than men.
• Women’s atypical symptoms are as subtle as fatigue and sleep disturbance.
• Healthcare providers must remain vigilant for CAD in women presenting with atypical complaints.
If risk is telling me this . . . .

• **Do I need to work up** women with insomnia or unusual fatigue for ACS/MI?
• And how many women would we be working up?
  — i.e. **how frequent** are these prodromal symptoms?
Objectives

• **How frequent** are complaints of unusual fatigue and insomnia among adult women visiting the ED?

• What would be the impact upon how many women we would work up and/or observe/admit?
  
  — *Sensitivity / Specificity of workup*
Methods

• Survey
• Convenience sampling
• Inclusions: all adult women coming to the ED during study periods
• Exclusions: resuscitations, AMS, prisoners
• Questions on four McSweeney prodromal symptoms:
  – Insomnia
  – Severe insomnia (grade insomnia)
  – Unusual fatigue
  – Severe unusual fatigue (grade unusual fatigue; severe = ADL limiting)
Results

- 548 Women approached
- 377 enrolled and completed survey
Comparison of symptom prevalences between the 2003 McSweeney study, and general adult female ED patients. Note that after abstract submission we excluded 4 patients who had enrolled by not completed the survey, with no significant differences in the data; the proportion for severe unusual fatigue was corrected, it was originally submitted at 27.7%.

<table>
<thead>
<tr>
<th></th>
<th>McSweeney 2003</th>
<th>All Adult Female ED Pts</th>
<th>Difference in Proportions between McSweeney and All Adult Female ED Pts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n 515</td>
<td>377</td>
<td></td>
</tr>
<tr>
<td>Unusual Fatigue</td>
<td>70.7% (66.7%, 74.6%)</td>
<td>55.9% (51.0%, 61.0%)</td>
<td>-14.7% (-21.1%, -8.3%)</td>
</tr>
<tr>
<td>Severe Unusual Fatigue</td>
<td>29.7% (25.8%, 33.7%)</td>
<td>18.3% (14.4%, 22.2%)</td>
<td>-11.4% (-17.0%, -5.9%)</td>
</tr>
<tr>
<td>Insomnia</td>
<td>47.8% (42.5%, 52.1%)</td>
<td>55.2% (50.2%, 60.2%)</td>
<td>7.4% (0.8%, 14.0%)</td>
</tr>
<tr>
<td>Severe Insomnia</td>
<td>21.0% (17.5%, 24.5%)</td>
<td>18.8% (14.9%, 22.8%)</td>
<td>-2.1% (-7.4%, 3.1%)</td>
</tr>
<tr>
<td>Any Prodromal Symptom*</td>
<td>78.1% (74.5%, 81.6%)</td>
<td>72.7% (68.2%, 77.2%)</td>
<td>-5.4% (-11.1%, 0.4%)</td>
</tr>
</tbody>
</table>
Could we stop there?

• Among ALL ADULT WOMEN visiting an ED
• These prodromal symptoms are very common
• Almost as common as among McSweeney MI patient recall
• Even if symptoms are real: needles in a needlestack
Sensitivity analysis output

<table>
<thead>
<tr>
<th>Diagnostic Approach</th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>NPV</th>
<th>PPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Diagnostic Process for MI (StdDx)</td>
<td>97.9% [96.6%, 99.0%]</td>
<td>86.5% [75.2%, 94.4%]</td>
<td>100.0% [99.9%, 100.0%]</td>
<td>6.0% [1.8%, 12.0%]</td>
</tr>
<tr>
<td>StdDx + Unusual fatigue</td>
<td>99.4% [99.0%, 99.7%]</td>
<td>40.1% [33.9%, 45.9%]</td>
<td>100.0% [100.0%, 100.0%]</td>
<td>1.3% [0.4%, 2.9%]</td>
</tr>
<tr>
<td>StdDx + Severe unusual fatigue</td>
<td>98.5% [97.6%, 99.3%]</td>
<td>64.3% [56.5%, 70.7%]</td>
<td>100.0% [99.9%, 100.0%]</td>
<td>2.2% [0.7%, 4.5%]</td>
</tr>
<tr>
<td>StdDx + Insomnia</td>
<td>98.9% [98.2%, 99.5%]</td>
<td>38.9% [32.2%, 44.7%]</td>
<td>100.0% [99.9%, 100.0%]</td>
<td>1.3% [0.4%, 2.7%]</td>
</tr>
<tr>
<td>StdDx + Severe insomnia</td>
<td>98.4% [97.3%, 99.2%]</td>
<td>70.9% [61.0%, 78.6%]</td>
<td>100.0% [99.9%, 100.0%]</td>
<td>2.7% [0.8%, 5.4%]</td>
</tr>
</tbody>
</table>

Sensitivity analysis of diagnostic impact of initiating ACS workup for women with prodromal symptoms showing output means with 90% output ranges in braces {}.

- Compared to standard approach, working up **severe insomnia**
  - Increases sensitivity from 97.9% to 98.4%
  - Decreases specificity from 86.5% to 70.9%
- Working up 29.1% of all adult women without ACS is prohibitive
Conclusion

• Insomnia and unusual fatigue may have limited utility in detecting ACS/MI among adult female patients in the ED