Gender effect on evidence-based practice for Australian patients with ACS: A retrospective, multi-site study

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Background: International & national perspective

Globally
- Cardiovascular disease (CVD) accounts for 30% of women’s deaths
- Coronary heart disease (CHD) accounts for >1/2 of these (WHO, 2014)

Locally
- Affects ~2 in 3 families
- Kills ~1 in 4
- Kills ~25 / day (HFA, 2014)
So, how do we treat this leading killer?

Evidence-based guidelines

- 2016 ACS Guidelines; ACSQHC Framework – ACS Clinical Care Standards
- Supported by strong levels of evidence
- Gender neutral
But do we use evidence-based guidelines?

Not often enough
Research background: Women’s heart disease

- Studies suggest women are often disadvantaged in terms of management and outcomes, compared to men
Research findings from the Diagnose and Manage Early: Women’s Ischaemia and Infarction (DaME II) Study

- A number of practice gaps influence the triage and subsequent early care of patients with AMI in Victorian EDs

- Onset of definitive treatment is delayed
  – There is disparity in access to treatment

- Women with STEMI are more likely to die
Why is there a disparity between genders?

- Age
- Symptoms
- Other?
To evaluate if ACS care was different in women and men admitted to hospital through an emergency department against current ACS evidence-based guidelines
Method

- Retrospective descriptive analysis of patient level data, stratified by gender
- All patients admitted via an ED to one of 3 public hospitals in Victoria, discharged with a hospital diagnosis of an ACS from 1.1.2013 to 30.6.2015
- Random selection of 10% of admissions
- $p < 0.05$ significant; all tests two-tailed
Results

- 288 eligible patients (450 screened)

- Reasons for ineligibility
## Results

### Table 1. Patient characteristics

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>WOMEN, n = 144</th>
<th>MEN, n = 144</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age, years</strong></td>
<td>Median [IQR 25-75]</td>
<td>Median [IQR 25-75]</td>
<td>0.009</td>
</tr>
<tr>
<td></td>
<td>79 [69-86]</td>
<td>75.5 [62.3-82]</td>
<td></td>
</tr>
<tr>
<td><strong>PRESENTED WITH</strong></td>
<td>n (%)</td>
<td>n (%)</td>
<td></td>
</tr>
<tr>
<td>Chest pain</td>
<td>106 (73.6)</td>
<td>107 (74.3)</td>
<td>1.000</td>
</tr>
<tr>
<td>SOB</td>
<td>53 (36.8)</td>
<td>73 (50.7)</td>
<td>0.024</td>
</tr>
<tr>
<td><strong>DIAGNOSIS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEMI</td>
<td>16 (11.1)</td>
<td>24 (16.7)</td>
<td>0.233</td>
</tr>
<tr>
<td>NSTEMI</td>
<td>95 (66)</td>
<td>75 (52.1)</td>
<td>0.023</td>
</tr>
<tr>
<td>Unstable angina</td>
<td>33 (22.9)</td>
<td>45 (31.3)</td>
<td>0.144</td>
</tr>
<tr>
<td>DIED</td>
<td>15 (10.4)</td>
<td>9 (6.3)</td>
<td>0.286</td>
</tr>
</tbody>
</table>
## Results

### Table 2. ED management

<table>
<thead>
<tr>
<th>Variable</th>
<th>Women, n = 144</th>
<th>Men, n = 144</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Triage Category</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATS 1</td>
<td>2 (1.4)</td>
<td>4 (2.8)</td>
<td>0.684</td>
</tr>
<tr>
<td>ATS 2</td>
<td>84 (58.3)</td>
<td>103 (71.5)</td>
<td><strong>0.026</strong></td>
</tr>
<tr>
<td>ATS 3</td>
<td>39 (27.1)</td>
<td>30 (20.8)</td>
<td>0.269</td>
</tr>
<tr>
<td><strong>ED Mx</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pain score</td>
<td>114 (79.2)</td>
<td>119 (82.6)</td>
<td>0.549</td>
</tr>
<tr>
<td>Troponin</td>
<td>143 (99.3)</td>
<td>143 (99.3)</td>
<td>1.000</td>
</tr>
</tbody>
</table>
## Results

### Table 2. Inhospital management

<table>
<thead>
<tr>
<th>Variable</th>
<th>Women n = 144</th>
<th>Men, n = 144</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admitting Unit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardiology</td>
<td>75 (52.4)</td>
<td>94 (65.3)</td>
<td>0.023</td>
</tr>
<tr>
<td>Medical</td>
<td>57 (39.6)</td>
<td>33 (22.9)</td>
<td>0.003</td>
</tr>
<tr>
<td>ED</td>
<td>9 (6.3)</td>
<td>13 (9)</td>
<td>0.507</td>
</tr>
</tbody>
</table>
## Results

### Table 3. Time factors

<table>
<thead>
<tr>
<th>Variable</th>
<th>Women(n = 144)</th>
<th>Men(n = 144)</th>
<th>(p)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n)</td>
<td>Mdn [IQR 25-75]</td>
<td>(n)</td>
</tr>
<tr>
<td><strong>TIME FROM... (mins)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Triage to ECG</td>
<td>116</td>
<td>18.5 [12.3-36.3]</td>
<td>135</td>
</tr>
<tr>
<td>Triage to balloon</td>
<td>7</td>
<td>85 [74-139]</td>
<td>9</td>
</tr>
<tr>
<td><strong>LENGTH OF STAY</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ED (mins)</td>
<td>135</td>
<td>432 [265-674]</td>
<td>131</td>
</tr>
<tr>
<td>Hospital (days)</td>
<td>144</td>
<td>4 [3-7]</td>
<td>144</td>
</tr>
</tbody>
</table>
Discussion

Care of a high standard overall

- Triage as per ACS Guidelines, 67%
- Overall median time to ECG, 16 mins
- Overall time to treatment onset, 14 mins
- Overall time to balloon inflation, < 90 mins
Discussion

Care differed according to gender

Compared to men;

- Women less often allocated triage category 2
- Women took longer to receive an ECG
- Women less likely to be admitted to CCU
Discussion question – Why???

Compared to men;

- Women were older
- Women had less STEMI
Limitations

- Retrospective study
- Small sample, stratified
- Documented care may have been incomplete
- Not enough data available re comorbidities
Conclusions

- Although care was of a high standard there are obvious areas to target for service improvement

- We won’t really know what’s causing the disparities without larger, prospective research and better documentation
Where to now?
Alfred Deakin Postdoctoral Fellowship

Improving the safety and quality of emergency management for women with heart attacks

The aim is to increase patient safety by eliminating unnecessary variation from evidence-based management in the emergency care of women with STEMI.
Want to know more?

Australasian Emergency Nursing Journal

journal homepage: www.elsevier.com/locate/aenj

Research paper

Effect of gender on evidence-based practice for Australian patients with acute coronary syndrome: A retrospective multi-site study

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Thank you.