Association of Gender with Decreased Treatment and Increased Mortality for Victorian Women with STEMI

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Funding

- APA with Stipend
- RCNA, National Research & Scholarship Fund: Bequest Fund for Research
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- Centre for Quality and Patient Safety Research, Deakin University
Global & local perspective

- **Globally**
  - CVD accounts for 30% of women’s deaths
  - Coronary heart disease (CHD) accounts for ~half of these (WHO, 2014)

- **Locally**
  - 1 in 3 from heart disease
  - Kills ~ 25 / day (HFA, 2014)
<table>
<thead>
<tr>
<th>Gender</th>
<th>Death Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>11,733</td>
<td>(15.6%)</td>
</tr>
<tr>
<td>Female</td>
<td>9,780</td>
<td>(13.7%)</td>
</tr>
</tbody>
</table>

(AIHW, 2014)
Incidence rates for CHD

(Source: AIHW, 2012 [40 – 90 year olds, age-standardised percentage for 100,000) people])
Dispelling some myths…

- Women don’t often have heart attacks
  - Not true

- Women and men always have chest pain when having heart attacks
  - Not true

- Women’s heart attacks are just like men’s
  - Not true
International studies suggest women are often disadvantaged in terms of management and outcomes, compared to men.
Research question:
One

- Is interventional reperfusion therapy equally provided to younger and older men and women patients admitted to Victorian public hospitals with STEMI?
Research question:

Two

Are patterns of inhospital mortality different between younger and older men and women patients admitted to Victorian public hospitals with STEMI?
Methods

- Retrospective analyses
- Victorian Department of Health VAED data for STEMI
- 18 – 85 year olds, split at 65 years
- Treatment & mortality data
- Data analyses
- Ethics approval
Results:
Patient demographics, 2005 – 2010

- \( n = 13,744 \) patient admissions
- \( n = 136 \) hospitals
- Men were younger than women for all groups
Results: Treatment <65 years

Compared to men, women were significantly disadvantaged:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Length of stay</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>CCU, hours*</td>
<td></td>
</tr>
<tr>
<td>Reperfusion</td>
<td></td>
</tr>
<tr>
<td>Angioplasty + stent*</td>
<td></td>
</tr>
<tr>
<td>No intervention</td>
<td></td>
</tr>
<tr>
<td>No PCI/CABG*</td>
<td></td>
</tr>
</tbody>
</table>

N = 8185: Male n = 6726 (82%); Female n = 1459 (18%)

\[ p < 0.05^* \]
Results: Treatment ≥65 years

Compared to men, women were significantly disadvantaged:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Investigation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Angiogram*</td>
</tr>
<tr>
<td>Reperfusion</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Angioplasty + stent*</td>
</tr>
<tr>
<td></td>
<td>CABG*</td>
</tr>
<tr>
<td>No intervention</td>
<td>No PCI/CABG*</td>
</tr>
</tbody>
</table>

N = 5559: Male n = 3517 (63%); Female n = 2042 (37%)

p < 0.05*
Results: Inhospital mortality

Compared to men, women were significantly more likely to die overall and in the following age groups:

<table>
<thead>
<tr>
<th>Age group (years)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>40 – 44*</td>
<td></td>
</tr>
<tr>
<td>80 – 84*</td>
<td></td>
</tr>
</tbody>
</table>

N = 13 744: Male n = 10243 (75%); Female n = 3501 (25%)

p < 0.001*
Limitations

- Database research
  - Generally
  - Within Australia
Differences by age

- Compared to younger men, younger women were;
  - More likely to die
  - Less likely to undergo PCI + stent
  - More likely to spend more time in CCU

- Compared to older men, older women were;
  - Older on admission
  - More likely to die
  - Less likely to receive a stent or any PCI or CABG
  - Have a longer inhospital LOS
Conclusions

- A number of differences are evident between men and women patients with STEMI in Victoria
  - There is evidence of inequity in access to treatment
  - There is evidence of inequity of outcome

- The reasons for this need more investigation
  - Whether the two are linked is not known
  - Whether outcomes are affected is not known
Future research

So, what to do now?

Examine access to reperfusion therapy and rationale for non-access for all patients to evaluate access to guideline-based treatment.
Contact details & further information

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Heart Foundation | Go Red for women
References

☐ References will be forwarded upon request

Thank you.
## Common chronic disease rankings in Australia

<table>
<thead>
<tr>
<th>Rank</th>
<th>Most common chronic conditions managed by GPs, 2012–13</th>
<th>% of chronic conditions</th>
<th>% of all GP visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>Hypertension (non-gestational)</td>
<td>15.4</td>
<td>8.6</td>
</tr>
</tbody>
</table>

Greatest burden of disease, 2010*

<table>
<thead>
<tr>
<th>Rank</th>
<th>Most common chronic conditions managed by GPs, 2012–13</th>
<th>DALYs</th>
<th>% of all DALYs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>Coronary heart disease</td>
<td>471,550</td>
<td>7.8</td>
</tr>
</tbody>
</table>

Most costly disease group, 2008–09

<table>
<thead>
<tr>
<th>Rank</th>
<th>Most common chronic conditions managed by GPs, 2012–13</th>
<th>Amount ($ billion)</th>
<th>% of total allocated health expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>Cardiovascular diseases</td>
<td>7.74</td>
<td>10.4</td>
</tr>
</tbody>
</table>

*Data for Aust & NZ

(Adapted: AIHW 2014)