Clinical Outcomes of Transferred vs. Onsite Primary Percutaneous Coronary Intervention for Patients with ST – Elevation Myocardial Infarction

The need to look beyond door to balloon time

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Introduction

- Despite the development of regional STEMI centers, there are several practical aspects that delay mechanical reperfusion in patients transferred from a non-Percutaneous Coronary Intervention (PCI) facility.
- It is unknown if these delays in the real world translate into adverse outcomes

Aim

To compare the major cardiovascular outcomes in relation to door to balloon time between transferred and onsite (presenting to the ED of the primary PCI center) STEMI patients

Methods

Study design:
Retrospective cohort study.

Study population:
- >18 years
- All STEMI patients undergoing primary PCI
- 2 large centers – Baystate Medical Center and University of Massachusetts
- January 2005 – December 2010

Data:
Electronic data base system - routinely used to collect data on all STEMI patients to report to Massachusetts Data Analysis Center

Outcomes:
In hospital major cardiovascular outcomes (death, myocardial infarction, stroke, bleeding)

Statistical Analysis:
All proportions were compared using the Chi square test.

Results

- Total of 1398 patients
  • 520 (37%) transferred from non PCI center
  • 898 (63%) presented onsite for primary PCI
- No statistically significant difference in baseline characteristics
- Median door to balloon time: 124 min for transferred Vs. 70 min for onsite patients
- The rate of all bleeding events was noted to be significantly higher in the onsite compared to transferred (9.9% Vs. 5.8%, p =0.007)
- No statistical difference in the composite end point (4.1% (onsite) vs. 4.4% (transfer), p =0.78), or mortality (3.3 (onsite) % vs. 3.5% (transfer), p=0.88).

Conclusion

- This study confirms that regional STEMI programs can provide exceptional care to transfer as well as onsite patients, with comparable outcomes.
- Parameters other than Door to Balloon time should be investigated for their contributions to improved patient outcomes

Disclosures

All authors report no conflict of interest in this study.

Table 1: In Hospital Patient Outcomes

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>On Site (N = 878)</th>
<th>Transfer (N = 520)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post Procedure MI</td>
<td>5 / 878 (0.6)</td>
<td>4 / 520 (0.8)</td>
<td>0.73</td>
</tr>
<tr>
<td>Post Procedure CVA</td>
<td>5/ 878 (0.6)</td>
<td>1 / 520 (0.2)</td>
<td>0.42</td>
</tr>
<tr>
<td>Cardiogenic Shock</td>
<td>14 / 878 (1.6)</td>
<td>8 / 520 (1.5)</td>
<td>0.99</td>
</tr>
<tr>
<td>Heart Failure</td>
<td>40 / 621 (6.4)</td>
<td>11 / 226 (4.9)</td>
<td>0.51</td>
</tr>
<tr>
<td>Bleeding at entry site</td>
<td>22 / 878 (2.5)</td>
<td>8 / 520 (1.5)</td>
<td>0.46</td>
</tr>
<tr>
<td>Retroperitoneal bleeding</td>
<td>15 / 878 (1.7)</td>
<td>2 / 520 (0.4)</td>
<td>0.04</td>
</tr>
<tr>
<td>GI bleeding</td>
<td>15 / 878 (1.7)</td>
<td>6 / 520 (0.8)</td>
<td>0.16</td>
</tr>
<tr>
<td>GU bleeding</td>
<td>7 / 878 (0.8)</td>
<td>3 / 520 (0.6)</td>
<td>0.75</td>
</tr>
<tr>
<td>Other bleeding</td>
<td>36 / 878 (4.1)</td>
<td>13 / 226 (5.8)</td>
<td>0.13</td>
</tr>
<tr>
<td>All bleeding events</td>
<td>87 / 878 (9.9)</td>
<td>30 / 520 (5.8)</td>
<td>0.007</td>
</tr>
<tr>
<td>Death</td>
<td>29 / 878 (3.3)</td>
<td>18 / 520 (3.5)</td>
<td>0.88</td>
</tr>
<tr>
<td>Composite end point (death, MI, stroke)</td>
<td>30 / 878 (4.1)</td>
<td>23 / 520 (4.4)</td>
<td>0.78</td>
</tr>
</tbody>
</table>

Figure 1: In Hospital mortality by Transfer Status

Figure 2: In Hospital Composite End Point (Death, MI, Stroke) by Transfer Status