Predictors of Good Outcome in Patients Undergoing Endovascular Treatment of Acute Ischemic Stroke under General Anesthesia

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Background

1. Several studies report an association of general anesthesia (GA) with poor outcomes in patients undergoing endovascular treatment of acute ischemic stroke (AIS). (1, 2, 3)

2. Factors associated with good outcomes in patients receiving general anesthesia for endovascular treatment are unknown.

Methods

1. Retrospective chart review study

2. Patients > 18 years undergoing endovascular treatment of AIS were included.

3. Patients who received local anesthesia or monitored anesthesia care were excluded.

4. Data sources were institutional anesthesia data base, stroke registry, electronic medical records.

5. Primary outcome measure was Modified Rankin Score (mRS): a) mRS 0-2 = good outcome, b) mRS 3-6 = poor outcome.

6. Association between the clinical characteristics and the outcomes were assessed by Independent t test, Chi square test, and Fishers exact test.

7. P<.05 considered statistically significant

Table 1: Univariate analysis showing comparison of characteristics between patients with good outcome (mRS 0-2) and poor outcome (mRS 3-6) after endovascular treatment of Acute Ischemic Stroke under General Anesthesia.

<table>
<thead>
<tr>
<th></th>
<th>Good Outcome mRS 0-2 (n=20)</th>
<th>Poor Outcome mRS 3-6 (n=70)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Procedure NIHSS</td>
<td>15±7</td>
<td>18±8</td>
<td>.013</td>
</tr>
<tr>
<td>Intubation prior to start of anesthesia</td>
<td>0 (0%)</td>
<td>25 (36%)</td>
<td>.001</td>
</tr>
<tr>
<td>Extubation at the end of procedure</td>
<td>18 (90%)</td>
<td>19 (27%)</td>
<td>.000</td>
</tr>
<tr>
<td>Highest End-tidal CO$_2$ under anesthesia (mmHg)</td>
<td>50±8</td>
<td>45±7</td>
<td>.019</td>
</tr>
<tr>
<td>Average End-tidal CO$_2$ under anesthesia (mmHg)</td>
<td>37±5</td>
<td>35±3</td>
<td>.028</td>
</tr>
<tr>
<td>Pre stroke Beta-blocker use</td>
<td>13 (65%)</td>
<td>24 (34%)</td>
<td>.023</td>
</tr>
</tbody>
</table>

Data are presented as mean ± SD, n (%).

NIHSS= National Institute of Health Stroke Scale

Only the characteristics with statistical significance (p<0.05) are shown

Results

1. 90 patients (58/32 M/F), aged 63±15 years were included.

2. Anterior cerebral circulation was affected in 74(82%).

3. Median pre-procedural National Institute of Health Stroke Scale (NIHSS) score was 16 (1-38).

4. Thirty-six (40%) and 21(24%) patients were on beta-blockers and ACE inhibitors, respectively.

5. Overall, 20(22%) patients had good outcome (mRS 0-2).

Conclusion

In patients receiving GA, ventilation management including management of CO$_2$ and extubation at the end of procedure may impact patient outcomes.

References

