VENOUS THROMBOEMBOLISM PROPHYLAXIS IN PATIENTS SUFFERING FROM ANEURYSMAL SUBARACHNOID HEMORRHAGE

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Introduction: Venous thrombo-embolism (VTE) is common in patients admitted to neurological intensive care units. The incidence of VTE in patients suffering from aneurysmal subarachnoid hemorrhage (aSAH) varies from 1.5 to 18%, depending on the series and the screening strategy. There is limited data addressing the role of chemical prophylaxis in the aSAH population.

Objectives: Evaluate the timing, effectiveness and safety of chemical VTE prophylaxis in aSAH population

Methods: We retrospectively reviewed data from all aSAH patients admitted to a 19-bed high volume aSAH ICU, in a 6 month time period.

Results: Fifty-two patients with aSAH (mean age 58.6, range 28-93) were admitted during the study period. In total, 61 aneurysms were found, 46 ruptured, and additional 10 incidentally discovered aneurysm (table1). 72.1% of aSAH patients received unfractionated heparin (UFH) after aneurysm treatment. In the 26.9% of patients UFH was withheld; these patients had either unsecured aneurysms or orders to withdrawal life-sustaining treatments. Of the patients who received UFH (table 2), 48.7% received the medication at 24h after aneurysm treatment, 33.5% within 72h; and in 15.4% heparin was started beyond 72h after aneurysm treatment. The mean time from aneurysm treatment to initiation of VTE prophylaxis was 2.1 days. Of those patients who received UFH, 22 patients (58%) had an External Ventricular Drain (EVD). Endovascular treatment was the main modality as compared to surgical clipping (61.5 vs 15.4%). Interestingly, patients who underwent surgical clipping had a trend to receive chemical VTE earlier (1.7 vs 2.2 days). 6 patients (11.5%) received prophylactic dose of UFH and dual antiplatelets therapy (aspirin and clopidogrel). Eight patients (21%) required investigation for clinical suspicion of VTE; 1 patient (2%) on UFH had a segmental pulmonary embolism. None hemorrhagic complication related to EVD or craniotomy were found. Finally, 1 patient (2%) who was on UFH had a major cerebral hemorrhagic complication and died, however, this patient was also on aspirin and clopidogrel.

Table 1. Demographic characteristics

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, mean (range)</td>
<td>58.6 (2893)</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>35 (66%)</td>
<td></td>
</tr>
<tr>
<td>Modified Fisher, mean</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>13.7%</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>7.8%</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>41.2%</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>37.3%</td>
<td></td>
</tr>
<tr>
<td>WFNS, mean</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>43.1%</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>15.7%</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3.9%</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>5.9%</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>31.4%</td>
<td></td>
</tr>
<tr>
<td>Number of Aneurysms, total</td>
<td>61</td>
<td></td>
</tr>
<tr>
<td>Culprit rupturedaneurysms</td>
<td>46</td>
<td></td>
</tr>
<tr>
<td>Extra unruptured aneurysms</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Source not found</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Hydrocephalus on admission</td>
<td>29 (55.8%)</td>
<td></td>
</tr>
<tr>
<td>External Ventriculostomy inserted</td>
<td>28 (53.8%)</td>
<td></td>
</tr>
<tr>
<td>Treatment Modality, (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Endovascular</td>
<td>32 (61.5%)</td>
<td></td>
</tr>
<tr>
<td>Surgical clipping</td>
<td>8 (15.4%)</td>
<td></td>
</tr>
<tr>
<td>No source found</td>
<td>5 (9.6%)</td>
<td></td>
</tr>
<tr>
<td>Untreated</td>
<td>7 (13.5%)</td>
<td></td>
</tr>
<tr>
<td>Patients onantiplatelets agents, (%)</td>
<td>11 (21.1%)</td>
<td></td>
</tr>
<tr>
<td>Aspirin</td>
<td>5 (9.6%)</td>
<td></td>
</tr>
<tr>
<td>Aspirin + Clopidogrel</td>
<td>6 (11.5%)</td>
<td></td>
</tr>
</tbody>
</table>

Table 02- Time from culprit aneurysm treatment to initiation of chemical VTE prophylaxis

<table>
<thead>
<tr>
<th>Mean time from aneurysm treatment to chemical VTE prophylaxis initiation in days (range)</th>
<th>2.1 (±6)</th>
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<tbody>
<tr>
<td></td>
<td>24h</td>
</tr>
<tr>
<td>Total cohort of patients</td>
<td>38.5%</td>
</tr>
<tr>
<td>After exclusion of patients who did not receive heparin</td>
<td>48.7%</td>
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</tbody>
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