The Therapeutic Time Window Related to the Presenting Symptom Pattern, That Is, Stable Versus Unstable Patients, Can Affect the Adverse Event Rate of Intracranial Stenting

To the Editor:

A recent systemic review of the outcome after stenting for intracranial stenosis revealed a wide variation of adverse event rate and concluded that widespread application of intracranial stenting outside the setting of randomized trials does not seem to be justified. It described that Suh et al’s event rate, that is, minor and major stroke and death from all causes, within 6 months was 10%, which actually represents an overall event rate in the stable (4.1% event rate) and unstable (25.1% event rate) patient groups. Suh et al’s concept conveyed an important message that the outcome of intracranial stenting depends on the patient’s presenting condition. In this study, the stable patient group included those patients who had resolved, improving, or stationary symptoms before the stent placement procedure. The unstable patient group included patients who had progressive or fluctuating neurological symptoms (National Institutes of Health Stroke Scale score ≥4) corresponding to intracranial stenosis presenting within 2 days before the stent placement procedure. Therefore, the application of intracranial stenting would be used for patients with acute (≤6 hours) stroke associated with mechanical thrombolysis, unstable (≤48 hours), stable (>48 hours), and asymptomatic patients (>6 months).

Although the increased event rate in the unstable patient group may be related to many undetermined factors, Suh et al partially attributed the high rate of major adverse events in the unstable patient group compared with the stable patient group to subacute thrombosis or hyperperfusion, which might be regarded as 2 major complications leading to major adverse events within the 30-day postprocedural period.

Such a trend in the event rate difference was also clearly demonstrated when the patients indicated were divided according to the presenting symptom pattern, because we listed the event rate based on the references, which included more than 50 patients (Table). For the stable patients, the event rate ranged from 4.1% to 9.3% regardless of stent type. Therefore, we assumed that a 5% event rate would be expected after intracranial stenting with a bare metal stent in stable patients and that a higher event rate might be related to the physician’s inexperience because there was a higher event rate in the first 50% patients even in stable patients.

Furthermore, most other studies with a smaller number of patients revealed a >15% adverse event rate, thus indicating the possible association of the patient’s condition and the physician’s inexperience. Therefore, the therapeutic time window (stable versus unstable patients) should be considered before deciding on performing intracranial stenting as well as when evaluation of the outcome as one of the most important factors affecting the adverse event rate after intracranial stenting is the presenting symptom pattern. Furthermore, it is also emphasized that stabilizing unstable patients by controlling the risk factors with medication, including antiplatelet agents, can improve the outcome of intracranial stenting.

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Table. Outcome Comparison After Intracranial Stenting in Stable Versus Unstable Patients

<table>
<thead>
<tr>
<th>Year</th>
<th>First Author</th>
<th>Arteries Treated, n</th>
<th>MMD (%)</th>
<th>Anterior, n</th>
<th>MMD Anterior</th>
<th>Posterior, n</th>
<th>MMD Posterior</th>
<th>No. of Patients</th>
<th>Description Regarding Stability of Patient’s Clinical Condition</th>
<th>Stent Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>Lylyk²</td>
<td>106</td>
<td>5.66</td>
<td>39</td>
<td>NA</td>
<td>65</td>
<td>NA</td>
<td>106</td>
<td>Dual antiplatelet agent 72 hours before the procedure</td>
<td>BES</td>
</tr>
<tr>
<td>2007</td>
<td>Fiorella⁵</td>
<td>82</td>
<td>7.32</td>
<td>54</td>
<td>5.6</td>
<td>28</td>
<td>10.7</td>
<td>82</td>
<td>A history of stroke, TIA, or asymptomatic</td>
<td>Wingspan</td>
</tr>
<tr>
<td>2007</td>
<td>Jiang⁷</td>
<td>220</td>
<td>4.55</td>
<td>140</td>
<td>3.6</td>
<td>80</td>
<td>6.3</td>
<td>220</td>
<td>Dual antiplatelets at least 7 days before the surgery</td>
<td>BES</td>
</tr>
<tr>
<td>2008</td>
<td>Suh²</td>
<td>100</td>
<td>25.9</td>
<td>66</td>
<td>4.5</td>
<td>34</td>
<td>8.8</td>
<td>27</td>
<td>Stable versus unstable patients²</td>
<td>BES</td>
</tr>
<tr>
<td>2008</td>
<td>Zaidat⁸</td>
<td>129</td>
<td>9.30</td>
<td>76</td>
<td>NA</td>
<td>53</td>
<td>NA</td>
<td>129</td>
<td>Dual antiplatelets at least 3 days before the procedure or loaded within 24 hours of the procedure</td>
<td>Wingspan</td>
</tr>
</tbody>
</table>

*Stable patient who had resolved, improving, or stationary symptoms versus unstable patient who had progressive or fluctuating neurologic symptoms (National Institutes of Health Stroke Scale score ≥4) within 2 days before the stent placement procedure.
MMD indicates minor, major stroke, and death; NA, not available; TIA, transient ischemic attack; BES, balloon-expandable bare metal stent.

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