We recently surveyed the literature on the effectiveness of three classes of implantable devices: (1) stents for carotid artery stenosis, (2) endovascular clips or coils for unruptured intracranial aneurysms and (3) prostheses for endovascular treatment of ruptured abdominal aneurysms. These three device-based interventions were selected because, at our Regional Health System, we were requested to undertake a series of competitive tenders for the procurement of these devices.

To synthesise the clinical literature on these topics, we adopted the empirical criterion of identifying—by expert consensus—the ‘best’ single meta-analysis or systematic review published over the past 36 months in the three areas. Hence, after a standard PubMed search, we selected the following articles: area (1): meta-analysis by Diao et al., area (2): meta-analysis by Falk Delgado et al. and area (3) meta-analysis by Badger et al. The expert opinion for this choice was that of the three authors of this letter.

Using the text of these meta-analyses as our source of information, we noticed that no information was reported about the device brands used for these three different interventions (table 1). Likewise, no comments were provided on whether specific devices could influence effectiveness. Mentioning the name of the intervention was therefore thought to be a sufficient description of the intervention itself, whereas specifying the device brands was not considered a critical information.

We repeated this assessment on reporting device brands by examining the 33 clinical studies individually. As shown in table 1, the study-level information was extremely variable across the three interventions (from 0% to 100%); the overall rate was 11/33 (33%).

In scientific research, reproducibility is one undisputed criterion. The three clinical topics described herein were selected casually, and so our findings might simply represent an unfortunate combination of events. However, the overall rate of only 33% of clinical studies indicating the device brand is disappointing. In this way, establishing which devices can be assigned the effectiveness found in the clinical studies becomes a matter of controversy (or, even worse, this effectiveness could be attributed indistinctly to any device belonging to the device class, irrespective of its quality).

Two issues deserve particular attention: first, the scientific requirements for conducting meta-analyses on implantable devices should be strengthened and more emphasis should be placed on indicating the device brands; second, more caution is needed in establishing recommendations when the clinical evidence is based on data that do not report the device brands.

Competing interests None declared.

Provenance and peer review Not commissioned; internally peer reviewed.

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Table 1 Reporting of device brands in meta-analyses and primary studies focused on three device-based interventions.

<table>
<thead>
<tr>
<th>Clinical area</th>
<th>(1) Stents for carotid artery stenosis (meta-analysis by Diao et al.)</th>
<th>(2) Endovascular clips or coils for unruptured intracranial aneurysms (meta-analysis by Falk Delgado et al.)</th>
<th>(3) Prostheses for endovascular treatment of ruptured abdominal aneurysms (meta-analysis by Badger et al.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information on device brands reported in the meta-analysis*</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Number of primary studies</td>
<td>9</td>
<td>20</td>
<td>4</td>
</tr>
<tr>
<td>Number of primary studies reporting the device brands</td>
<td>9/9 (100%)</td>
<td>2/20 (10%)</td>
<td>0/4 (0%)</td>
</tr>
</tbody>
</table>

*This information was extracted from table 1 of Diao et al. and Falk Delgado et al. and pages 23–29 of Badger et al.
Effectiveness of interventions based on implantable devices: meta-analyses or systematic reviews that fail to indicate which device brands were used
Andrea Messori, Sabrina Trippoli and Claudio Marinai

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