CORRESPONDENCE

Comparative Sensitivity of the Duke Criteria and the Modified Beth Israel Criteria for Diagnosing Infective Endocarditis

Sir — We read with interest the report by Hoen et al. [1], in which the sensitivity of the Duke criteria was compared with that of the Beth Israel criteria for the diagnosis of infective endocarditis (IE); the authors retrospectively analyzed the data for 115 consecutive patients with suspected IE. They found that the percentage of patients classified as having “clinically definite” IE by the Duke criteria was higher than the percentage of those classified as having “probable” IE by the Beth Israel criteria; these results correspond with those obtained by Bayer et al. [2].

Our group recently compared both sets of diagnostic criteria for a series of 113 consecutive patients seen over a period of 9 years (1986–1994) at Malaga Regional Hospital (Malaga, Spain) and obtained similar results (unpublished observation). In a second analysis, we compared the sensitivity of the Duke criteria to that of a modification (the addition of echocardiographic findings) of the Beth Israel criteria. By simply giving the same qualitative weight for the diagnosis of IE to a positive echocardiogram (i.e., evidence of a vegetation, abscess, or new partial dehiscence of a prosthetic valve) as that given to the detection of a new regurgitant murmur, the sensitivity of the Beth Israel criteria was significantly improved and almost equaled that of the Duke criteria (table 1).

Table 1. Cross-tabulation of diagnostic categories, by modified Beth Israel criteria vs. Duke criteria, for 113 patients with infective endocarditis.

<table>
<thead>
<tr>
<th>Modified Beth Israel criteria*</th>
<th>Clinically definite</th>
<th>Possible</th>
<th>Rejected</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probable</td>
<td>69</td>
<td>2</td>
<td>1</td>
<td>72 (64)†</td>
</tr>
<tr>
<td>Possible</td>
<td>21</td>
<td>2</td>
<td>0</td>
<td>23 (20)</td>
</tr>
<tr>
<td>Rejected</td>
<td>6</td>
<td>9</td>
<td>3</td>
<td>18 (16)</td>
</tr>
<tr>
<td>Total (%)</td>
<td>96 (84.9)</td>
<td>13 (11.5)</td>
<td>4 (3.5)</td>
<td>113 (100)</td>
</tr>
</tbody>
</table>

* Modification based on the addition of echocardiographic findings.
† This percentage would be 75.2% if intravenous drug use is considered a predisposing factor for infective endocarditis, since 55 patients (49% of the total number) were intravenous drug users.

That the Duke criteria were more sensitive than were the original Beth Israel criteria is to be expected, since the original Beth Israel criteria do not take into account echocardiographic findings. In the last 10 years, most of the reported series of IE have been based on the modified Beth Israel criteria. These modified criteria, as shown above, are almost as sensitive as the recently proposed Duke criteria, and they lack only standardization. The Beth Israel diagnostic categories have a rational basis and take into account the four Oslerian pathophysiological features of IE, which are still valid; therefore, they should not be discarded before the possibility of complementing them by adding standardized echocardiographic criteria is evaluated. Furthermore, it is possible that the specificity of these criteria is higher than that of the Duke criteria.

The substitution of the Duke criteria for the Beth Israel criteria should not be based solely on sensitivity. A rejection rate of just 1% raises questions about the specificity of the diagnostic categories of the Duke criteria, considering that the patients described by Hoen et al. were identified retrospectively. The specificity of both the Duke criteria and the Beth Israel criteria should be evaluated prospectively in a trial that includes bacteremic patients with suspected IE.

F. Martos-Perez, J. M. Reguera, and J. D. Colmenero
Malaga Regional Hospital, Malaga, Spain

References

Reply

Sir — Martos-Perez et al. claim that the sensitivity of the Beth Israel criteria, modified by adding echocardiographic findings, is almost equal to that of the Duke criteria. Until recently, we also used diagnostic criteria that were modified from the Beth Israel criteria by the addition of echocardiographic findings and observations made macroscopically at the time of surgery for our clinical studies on infective endocarditis (IE) [1]. When we applied the three sets of criteria (the original Beth Israel criteria, modified Beth Israel criteria, and the Duke criteria) to the 115 cases of IE evaluated in our validation study [2], we confirmed that the sensitivity (73.9%) of the modified Beth Israel criteria was greater than that (45.2%) of the original Beth Israel criteria and almost as high as that (84.3%) of the Duke criteria. However, the sensitivity of the Duke criteria was significantly greater than the sensitivity of the modified Beth Israel criteria (P < .01 unpublished data). In other