Correspondence

Scoring systems for diagnosing acute appendicitis

To the Editor

I have enjoyed reading the recent article of Al-Hashemy and Seleem on the role of the scoring systems in acute appendicitis. This study raises a number of important points worthy of critical evaluation. The authors have used sensitivity and specificity to describe how good the scoring system was, but did not consider the patient population in which the test was performed. Results will differ depending on the prior probability of the disease. This varied between the different studies as shown in Table 1. The prior probability of appendicitis was high in the discussed study (64%, 80/125) and the majority of the patients were operated upon (88%, 110/125 patients). The predictive value of a positive test (PPV), which is the probability that a person with a positive result actually has the disease, should increase with increased prior probability. Table 1 shows that Al-Hashemy and Seleem’s study had a high prior probability (64%) which had resulted in a high PPV (Figure 1), but the negative predictive value was one of the lowest (Table 1). The likelihood ratio is the likelihood that a person with the disease would have a particular test result divided by the likelihood that a person without the disease would have that result. The likelihood ratio of Al-Hashemy and Seleem study was also one of the lowest (Table 1).

Furthermore, there were multiple mistakes in the tables of Al-Hashemy and Seleem’s study. The numbers of true positives do not total 80 in Table 3. The titles were also mistakenly written as "True +ve" in 3 columns of the table. Sensitivity should be specificity in the "other diagnosis column" in Table 4. Furthermore, 37 and not 48 are the number of patients who had appendicitis and a score of <7 (last paragraph of the result section). Appendicitis was also mistakenly written in the title. The efforts of the authors have to be acknowledged. Nevertheless, correcting the galley proofs is the main responsibility of the authors. With more in depth critical evaluation and care of the presentation of this work could have been better.

Fikri M. Abu-Zidan
Department of Surgery
Faculty of Medicine and Health Sciences
United Arab Emirates University
Al-Ain, United Arab Emirates

Table 1 - Summary of the calculated diagnostic variables from those papers cited by Al-Hashemy and Seleem.

<table>
<thead>
<tr>
<th>Author</th>
<th>Year</th>
<th>Scoring system</th>
<th>Number</th>
<th>Sensitivity %</th>
<th>Specificity %</th>
<th>Prior probability %</th>
<th>PPV %</th>
<th>NPV %</th>
<th>LR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fenyo</td>
<td>1987</td>
<td>Bayesian</td>
<td>830</td>
<td>92.2</td>
<td>91.4</td>
<td>30.8</td>
<td>82.5</td>
<td>95.4</td>
<td>10.72</td>
</tr>
<tr>
<td>Owen et al</td>
<td>1992</td>
<td>Alvarado</td>
<td>215</td>
<td>95.2</td>
<td>81.3</td>
<td>57.6</td>
<td>87.4</td>
<td>92.5</td>
<td>5.09</td>
</tr>
<tr>
<td>Kalan et al</td>
<td>1994</td>
<td>Modified A.</td>
<td>49</td>
<td>87.5</td>
<td>33.3</td>
<td>81.6</td>
<td>85.4</td>
<td>37.5</td>
<td>1.31</td>
</tr>
<tr>
<td>Fenyo et al</td>
<td>1997</td>
<td>Simplified</td>
<td>1167</td>
<td>73</td>
<td>87</td>
<td>33.6</td>
<td>75</td>
<td>85</td>
<td>5.61</td>
</tr>
<tr>
<td>Macklin et al</td>
<td>1997</td>
<td>Modified A.</td>
<td>118</td>
<td>76.3</td>
<td>78.8</td>
<td>32.2</td>
<td>63</td>
<td>87.5</td>
<td>6.81</td>
</tr>
<tr>
<td>Chan et al</td>
<td>2001</td>
<td>Alvarado</td>
<td>148</td>
<td>96</td>
<td>85.7</td>
<td>41.9</td>
<td>77.4</td>
<td>97.6</td>
<td>6.71</td>
</tr>
<tr>
<td>Al-Hashemy and Seleem</td>
<td>2004</td>
<td>Modified A.</td>
<td>125</td>
<td>53.8</td>
<td>80</td>
<td>64</td>
<td>82.6</td>
<td>49.3</td>
<td>2.69</td>
</tr>
</tbody>
</table>

Modified A. - Modified Alvarado, PPV - positive predictive value, NPV - negative predictive value, LR - likelihood ratio
Reply from the Author

I would like to thank Dr. Abu-Zidan for his valuable comments. Also, we feel sorry for all the mistakes detected in Tables 3 and 4; the corrected tables are indicated in the erratum below. Although, the table presented by my colleague Dr. Abu-Zidan is very informative, on the other hand it shows that in the study by Kalan et al., whom used the same score, that the likelihood ratio (LR), is less than our LR and the prior probability percentage is higher than our study. Also, we totally agree regarding the last paragraph, that correcting the galley proof is the main responsibility of the authors.

Ahmed Al-Hashemy
Armed Forces Hospital
Khamis Mushayt
Kingdom of Saudi Arabia

Erratum

In manuscript “Seroprevalence of syphilis, hepatitis B and C, and human immunodeficiency virus infections among women.” Saudi Med J 2004; Vol. 25 (12): 2037-2038, the received and accepted dates should have appeared as follows: Received 14th April 2004. Accepted for publication in final form 20th July 2004.

References


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