The Prognostic Value of Plasma Heart-Type Fatty Acid-Binding Protein in Acute Pulmonary Embolism

To the Editor:

I am writing in reference to the article by Ruan et al in this issue of CHEST (see page 1462). The authors conducted an interesting meta-analysis assessing the prognostic value of heart-type fatty acid-binding protein (H-FABP) in acute pulmonary embolism (PE).

Acute PE is a common and fatal disease. Goldhaber et al reported a 90-day mortality rate of about 52% in hemodynamically unstable patients and 14.7% in patients who are hemodynamically stable. Patients who are hemodynamically stable at the time of admission but manifest right ventricular dysfunction (RVD) have poor prognosis compared to patients without RVD. Although thrombolytics are recommended in the treatment of hemodynamically unstable patients, there are, at present, no guidelines for the management of patients who are hemodynamically stable but have RVD. Risk stratification of patients with acute PE is critical for optimal management and enhanced outcomes. H-FABP may support clinicians in the stratification of high-risk patients as well as in the development of recommendations to manage these patients.

Ruan et al included five prospective studies in the meta-analysis. They compared 30-day mortality and 30-day complicated clinical events (CCEs) in patients with acute PE demonstrating elevated H-FABP levels (above cutoff) with patients with normal H-FABP levels (below cutoff). Of the five studies used, however, two, by Dellas et al and Puls et al, had an overlap of 73 patients, which alters the OR for final end points.

The authors reported a higher OR of 40.78 (95% CI, 11.87-140.01; F = 4%) for the 30-day mortality rate and an OR of 32.71 (95% CI, 11.98-82.97; F = 21%) for the 30-day CCE. If we exclude the study by Puls et al and include only the study by Dellas et al (due to higher patient volume), then the OR becomes 31.38 (95% CI, 8.32-118.39; F = 23%) for the 30-day mortality and 25.93 (95% CI, 10.72-62.70; F = 28%) for the 30-day CCE.

Similarly, Ruan et al reported prognostic sensitivity of 98% and specificity of 77% for the 30-day mortality. In predicting serious events at 30 days, the prognostic sensitivity and specificity was found to be at 86% and 82%, respectively. Again, excluding the Puls et al study results in change of sensitivity and specificity for both 30-day mortality and CCE (Table 1).

<table>
<thead>
<tr>
<th>End Points</th>
<th>OR (95% CI)</th>
<th>Sensitivity (95% CI)</th>
<th>Specificity (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-d mortality</td>
<td>31.38 (8.32-118.39)</td>
<td>0.97 (0.85-1)</td>
<td>0.76 (0.71-0.81)</td>
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<tr>
<td>30-d CCE</td>
<td>25.93 (10.72-62.70)</td>
<td>0.83 (0.72-0.91)</td>
<td>0.85 (0.81-0.89)</td>
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</tbody>
</table>

CCE = complicated clinical event.
