CK-M. Method A measures CK-BB as well as CK-MB (possible interference from adenylate kinase and myokinase is compensated for in a separate blanking step), whereas method B measures only CK-MB, by blanking (tube 2) for CK-BB as well as for adenylate kinase and myokinase. Method C is a "sandwich"-type radioassay specific for CK-MB, in which CK-MB is sandwiched between anti-CK-M and anti-CK-B. In method D, for precipitating antibody directed towards CK-B is used and both CK-BB and CK-MB are measured.

We correlated results from these procedures with those from our in-house (1) DEAE-Sephadex A-50 ion-exchange (method E) and electrophoretic (Corning ACl, Palo Alto, CA 94306) CK isoenzyme fractionation procedures. For 100 patients with suspected myocardial infarcts or who had had open-heart surgery, whose sera were positive for CK-MB by electrophoresis (24 U of CK-MB per liter, the smallest activity detectable with this electrophoresis system), results by methods A and B correlated well with those by method E (r = 0.98 and 0.95, respectively). For approximately 150 patients in this same category whose sera were negative for both CK-MB and CK-BB by electrophoresis, method A had approximately 10% positives (defined as ≥ 6 U of "CK-MB" per liter for both methods A and B), as compared with no positives for method B.

Upon further investigation, of 14 of these patients who were positive for CK-MB by method A but negative by method B, all were found to be negative (< 4 U/L) by method C and to have unusually high blanks (> 8 U/L) by method B. After the sera from these 14 patients were heated at 40 °C for 1.5 h, all three methods gave negative results for CK-MB and the blank values for method B were < 1 U/L. This suggests the presence of a very heat-labile variant of CK-BB that is destroyed by the heat generated during electrophoresis (contrary to CK-BB from brain and bone as well as that from control materials, which is not destroyed by our electrophoresis system) but is detected by method A and the blank of method B.

In support of this theory, sera from three of these 14 patients were assayed by method D and found to have 7–10 U of CK-BB per liter (Table 1).

We conclude that the CK-BB found in these patients came from the heart and not brain or bone, because (a) none of these patients had had a cardiac arrest, cerebrovascular accident, or prostatic cancer; (b) all had had either a myocardial infarct or open-heart surgery (in each case these results were from their first specimens after the infarction or cardiac surgery; subsequent specimens were positive for CK-MB by all methods); and (c) this combination of results (methods A and D positive, method B negative with a high blank, and electrophoresis and method C negative for CK-MB) was not found in the sera from more than 130 patients who had no heart damage.

Apparently, CK-BB is being released transiently before CK-MB during necrosis of the heart muscle. A more extensive study is now underway to document these initial findings and establish their clinical significance.

References

M. Sheehan
Good Samaritan Hosp. & Med. Center
Portland, OR 97210

Serum Taurine Assay: A Caution

To the Editor:

An excellent technique for the rapid determination of taurine in biological fluids was presented by Stabler and Siegel (1), similar to an earlier technique developed by Larsen et al. (2), but even simpler. Both involve passage of specimens through cation–anion exchange resin beds, taurine being the only amine removable from both resins with water alone, followed by quantitation via "high-pressure" liquid chromatography, with fluorescamine (1) or o-phthalaldehyde (2) adducts for detection. However, both mention serum among biological fluids analyzable with these methods. Analysis of serum yields spuriously higher (three- to fourfold) taurine values than plasma, presumably due to release of taurine from taurine-rich platelets and (or) leukocytes during clotting (3).

Table 1. Results for CK isoenzymes

<table>
<thead>
<tr>
<th>Source of specimen</th>
<th>Total CK, U/L</th>
<th>CK-MB or CK-BB, U/L, by method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient 1</td>
<td>284</td>
<td>15</td>
</tr>
<tr>
<td>Patient 2</td>
<td>45</td>
<td>9</td>
</tr>
<tr>
<td>Patient 3</td>
<td>72</td>
<td>9</td>
</tr>
<tr>
<td>Control</td>
<td>135</td>
<td>50</td>
</tr>
</tbody>
</table>

* Beckman I.D.-Zone CK isoenzyme control, lot no. CO11269. Positive for CK-MB and CK-BB by electrophoresis; all three patients' specimens negative for both by electrophoresis.