method of Chen et al. (12) therefore has several advantages. These include improved facility of sample preparation and treatment, the use of very small amounts of serum and a prolonged stability of the finally developed color. The color stability suggests that, under the conditions of this method, phosphorus is released from any potentially hydrolysable phosphate esters only very slowly at ambient temperatures.

SLS does not itself interfere with the determination of P. The reproducibility of the modified method is good and correlates well with the results obtained by both the unmodified method and an alternative.

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References

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Table 1. Gentamicin Concentration in Paired Samples of Serum and Heparinized Plasma

<table>
<thead>
<tr>
<th>Gentamicin concn., mg/L</th>
<th>Serum</th>
<th>Plasma</th>
<th>Bias</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1.0</td>
<td></td>
<td>&lt;1.0</td>
<td>—</td>
</tr>
<tr>
<td>3.7</td>
<td></td>
<td>3.8</td>
<td>0.1</td>
</tr>
<tr>
<td>3.6</td>
<td></td>
<td>3.4</td>
<td>−0.2</td>
</tr>
<tr>
<td>3.5</td>
<td></td>
<td>3.5</td>
<td>0.0</td>
</tr>
<tr>
<td>5.6</td>
<td></td>
<td>5.7</td>
<td>0.1</td>
</tr>
<tr>
<td>3.3</td>
<td></td>
<td>3.2</td>
<td>−0.1</td>
</tr>
</tbody>
</table>

Heparin Does Not Affect Enzyme Immunoassay of Gentamicin

To the Editor:

The enzyme multiplied immunosay assay (EMIT®) is widely used to assay various drugs in serum and plasma. The product information for the EMIT gentamicin assay describes an inhibitory effect of heparin, and the manufacturer advises against the use of heparinized blood-collection tubes (1). However, in the studies cited by the reagent manufacturer, bioassay methods were used (2, 3).

Nilsson (4) noted heparin inhibition of a bioluminescence assay to measure gentamicin concentration. Phaneuf et al. (5) reported a relatively small effect of heparin on apparent gentamicin concentration as measured with an EMIT method, but their data are not pre- sented.

Because gentamicin is often admin- istered to dialysis patients who have been heparinized, the question of heparin interference in gentamicin assays is of more than academic interest. We find no effect of heparin on gentamicin concentration by EMIT.

Samples were prepared by adding various amounts of sodium heparin (Lypho-Med, Inc., Chicago, IL 60651) to samples of normal serum to which various amounts of gentamicin sulfate (Schering) had been added. Gentamicin concentrations between 1 and 10 mg/L and heparin concentrations between 1 and 1000 USP units/ml were prepared (n = 48). From six different patients receiving gentamicin therapy, paired serum and plasma samples were collected into evacuated blood-collection tubes (Becton, Dickinson and Co., Rutherford, NJ 07070). The heparin concentration in the plasma samples was about 20 units/ml.

Gentamicin reagents and standards were purchased from Syva, Palo Alto, CA 94304, (cat. no. 6T019) and used according to the manufacturer's in- structions. Gentamicin was assayed in a VP Bichromatic Analyzer (Abbott Laboratories, Dallas, TX 75247).

Figure 1 summarizes our data on gentamicin concentrations in samples containing various amounts of heparin. The mean difference observed at 1000 units of heparin per milliliter was −0.2 mg/L (range 0 to −0.5 mg/L).

Assays of paired serum and plasma samples are shown in Table 1. No signif- icant inhibition was observed (t = 0.34, p(t) > 0.5).

These data indicate that heparin has no significant effect on gentamicin concentration as assayed by the EMIT technique.

References
1. EMIT Gentamicin Assay; package insert 6T314-3 (1980); Syva, Palo Alto, CA 94304.

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