and spleen systems cannot be attributed to lack of precision of the assays (p = 0.01).

We analyzed purified liver ferritin at several concentrations by immunoradiometric assay, using the spleen system, and similarly analyzed purified spleen ferritin, using the liver system. When the results for the purified ferritins were plotted along with the standards used in the analyses, the two ferritins appeared to be immunologically identical (Figures 2 and 3). The method we used for purifying these ferritin preparations involved multiple crystallizations in CdSO₄, which probably minimizes differences in isoferritin composition (12).

Although some tumor ferritins have demonstrably different isoferritin compositions and different immunoreactivities from that of liver and spleen ferritins (12), the usefulness of serum ferritin as a tumor marker is not now clear, whereas the usefulness of measuring serum ferritin for evaluating body iron stores has been shown repeatedly. Even though the differences between our two sets of values are statistically significant when the concentrations are very high, these concentrations are so extreme that the differences have no practical clinical significance. The choice of spleen or liver tissue for isolating ferritin might therefore be based on practical considerations.

References

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Polyethylene Glycol Method for High-Density Lipoprotein Cholesterol Defended

To the Editor:

While we consider the paper of Warnick, Cheung, and Albers [Clin. Chem. 25, 596–604 (1979)] to be an extremely valuable attempt to bring order to the field of high-density-lipoprotein cholesterol measurement, we regret that their summary implies that the polyethylene glycol-6000 (PEG-6000) precipitation method is inherently inaccurate.

As recommended by Viikari (1), they use a final concentration of PEG-6000 of 120 g/L. As they note, Figure 2 in their paper suggests that this concentration is too high, because the supernatant cholesterol becomes nearly constant at 60–80 g of PEG-6000 per liter, decreases by about 2.5% at 100 g of PEG-6000 per liter and further still at 120 g/L, and continues to decline with increasing concentrations of PEG-6000. Our results (2) are similar to theirs, except that we do not find such a large decrease in supernatant cholesterol concentrations at a final PEG-6000 concentration of 120 g/L, a discrepancy that might be caused by variations in PEG-6000. Our supplier was British Drug House Chemicals, Ltd., and their supplier was Sigma Chemical Co. However, the similarity of the portions of the curves between 60 and 100 g/L final concentration of PEG-6000 should be noted. We found that at 60 and 80 g of PEG-6000 per liter there was some material remaining that reacted with β-lipoprotein antiserum. Possibly this is a portion of the ApoB-associated cholesterol with a > 1.063, as the necessarily high protein content of these molecules might stabilize the lipoprotein structure in comparison with the lower density lipoproteins, low-density lipoprotein and very-low-density lipoprotein, which also contain ApoB. Therefore, it seems to us that the final concentration of 100 g of PEG-6000 per liter is suitable. From inspection of Warnick et al.’s Figure 2, it appears that had they used the value for supernatant cholesterol at 100 g of PEG-6000 per liter the results obtained would have been equal to the values obtained by ultracentrifugation, which they use as a reference method.

Under Warnick et al.’s conditions, as will be seen from their Figure 2, minor variations in final PEG-6000 concentrations will lead to much greater variations in the supernatant cholesterol concentration at 120 g/L than at 80 or 100 g/L final concentration of PEG-6000. In practice, the viscosity of PEG-6000 solutions tends to limit the reproducibility of additions to samples. Indeed, Warnick et al. found a coefficient of variation with 120 g of PEG-6000 per liter that was about twice our coefficient of variation for 100 g of PEG-6000 per liter, although, of course, some of this difference may be due to inter-laboratory variations in methods.

PEG-6000 precipitation is extremely convenient and we would not like to see it discredited if minor changes to the method give acceptable results.

References

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Use of Immobilized Enzymes for Glucose Analysis in a Small Laboratory

To the Editor:

We recently evaluated an enzymatic glucose procedure in which the hexokinase (EC 2.7.1.1) and glucose-6-phosphate dehydrogenase (EC 1.1.1.49) enzymes are immobilized inside a nylon coil (Technicon Instruments Corp., Tarrytown, NY 10591). An excellent examination of this technical approach has appeared (1). We were interested in examining the usefulness and economic feasibility of this technique for a small laboratory. In support of a consultation