evaluated. We cited this work by Galen et al., not in support of the exclusion of all enzyme tests, but rather to illustrate the exclusion of all of those tests being evaluated. Since Galen et al. chose to examine the efficacy of six enzyme assays commonly used in classifying patients with chest pain, they rightfully excluded all six from the diagnostic criteria. Our concern is specifically that studies should exclude the test(s) under evaluation and closely related tests from the diagnostic criteria. We recognize that this may result in difficulties in establishing the true diagnosis because, after elimination of these tests, the remaining parameters in a routine workup may be insufficient to make accurate diagnoses. In this event, the use of nonroutine or extraordinary means, tests, or procedures may be required for establishing the definitive diagnosis. To the extent that this diagnosis is not accurately and independently determined, the accuracy and objectivity of the evaluation is compromised and the conclusions may be biased.

Also, Ljungdahl et al. mention that, in a more recent study (3), they "reclassified the patient material for each single test to be evaluated by excluding the test under evaluation from the diagnostic criteria." While this approach seems appealing and has been used by others (4), it actually introduces bias. If each test is in turn excluded from the criteria and the patients reclassified for each test, then each test will be evaluated against differing criteria, with the "best" test being evaluated against the poorest criteria. Furthermore, because the criteria are varying, patients may be classified as AMI for one or more tests and as non-AMI for others. Thus, the various tests will not be examined under truly comparable conditions or circumstances.

References

Mark H. Zweig
Clinical Center, NIH
Bethesda, MD 20205

E. Arthur Robertson
Pathol. Assoc. of Southwestern Michigan, P.C.
777 Riverview
Benton Harbor, MI 49022

Markedly Increased Prostatic Acid Phosphatase as Measured In a Patient by a Monoclonal Antibody Method

To the Editor:

We wish to report a case of a patient with an extremely increased value for prostatic acid phosphatase (PAP, EC 3.1.3.2). This 73-year-old white man was being treated with diethylstilbestrol for carcinomatosis secondary to prostatic cancer. His serum PAP value was 11.6 mg/L (normal reference interval for males: <2.8 mg/L).

The "Tandem" PAP kit (Hybritech, Inc., San Diego, CA 92121) was used for the assay. This is a solid phase two-site immunoradiometric assay technique in which the test sample reacts simultaneously with radiola beled monoclonal antibody and solid-phase monoclonal antibody. The bound counts per minute (cpm) are directly proportional to the concentration of PAP in the test sample. The patient's sample was initially assayed undiluted and gave bound cpm essentially equal to the highest standard provided (30 mg/L). The specimen was re-assayed, after dilution with the zero standard. Data are presented in Table 1.

We believe this to be the highest result for PAP yet reported. Note that neither the undiluted sample nor the threefold dilution gave the maximum bound counts, as would be expected with such high values. Although the assay has excess binding agent, there must have been considerable unbound PAP, especially in the undiluted and low-dilution specimens. This would result in a disproportionate amount of labeled antibody bound to the free PAP antigen, so that less than maximal counts were gotten with the undiluted specimen. A plateau of maximal counts was obtained beginning with the specimen diluted fivefold, and the PAP was quantitated by using the 500-fold dilution.

Even though fewer than maximal counts were obtained with the undiluted specimen, the counts were sufficiently high to alert us to the high PAP concentrations and the need to repeat the test with diluted sample. According to the manufacturer, the assay will be re-optimized by increasing the concentration of the labeled monoclonal antibody (personal communication, Hybritech, Inc.).

Regina Hedrick
Jean Watson
John C. Cate, IV
Dept. of Lab. Med.
Holston Valley Hosp. and Med. Center
Kingsport, TN 37660

Pathology Associates of Kingsport
Ravine St.
Kingsport, TN 37660

Short-Term Variability of Ferritin Concentrations in Serum of Children with Severe Protein–Energy Malnutrition

To the Editor:

Serum ferritin (SF) assay has been widely used as an indicator of iron stores in normal subjects and in several disorders of iron metabolism (1, 2). Nevertheless, the correlation between SF and storage iron is lost in several conditions, including liver disease, malignancies, and severe infection (3). We would like to address another possible cause of such variability, the marked changes in plasma volume and total plasma proteins during the early phase of the recovery from protein–energy malnutrition (PEM) in children. This concern is justified by the increasing use of SF in the diagnosis and follow-up of the anemia associated with PEM.

We studied 19 children, ages 12 to 56 months, admitted to our Clinical Research Center with a diagnosis of severe PEM of the edematous type (kwashiorkor and marasmic kwashiorkor). Blood was sampled at admission and on the seventh day of hospitalization. SF was determined by immunoradiometric assay (4) (Per-Iron; Ramco Laboratories, Inc., Houston, TX 77093). Total plasma proteins were determined refractometrically. Also, a microhematocrit was obtained for each