Technical Briefs (~300 words text) summarize findings that are of interest to a relatively limited audience. Readers desiring fuller details may obtain them by writing directly to the author(s) at the address given. Briefs dealing with procedure or instrumentation intercomparisons, evaluations, or improvements (including kit applications) should be sent to Clinical Chemistry News, 2020 K Street, Washington, DC 20006.

Decreased Acid Phosphatase Activity in Prostate secretion Associated with Prostatic Carcinoma, W. A. Fournard,1 J. V. Straumfjord,1 L. Persky,1 M. A. Helal,2 and P. R. Fouliis2 (1 Dept. of Pathol. and 2 Dept. of Urology, James A. Haley V.A. Hosp. and The University of South Florida, Tampa, FL)

Twenty-five patients with obstructive urinary symptoms attributed to enlargement of the prostate were evaluated using digital prostatic massage to obtain prostate secretions. The activity of acid phosphatase (EC 3.1.3.2) in the secretion was measured in an attempt to correlate the quantitatively active with the presence of prostate carcinoma. Urine was obtained immediately before and after massage. To measure acid phosphatase activity in the post-massage specimen, we used the thymolphthalein phosphate hydrolysis of Roy et al. (1), with an aco® discrete analyzer (DuPont, Wilmington, DE). Creatinine was measured in pre- and post-massage specimens to determine to what extent the prostate secretion was contaminated with urine, based on the fact that pure prostatic secretion is void of creatinine (2). The corrected prostate secretion of acid phosphatase activity (CPSACP) was obtained from the following formulas: percentage urine contamination = post-massage creatinine/pre-massage creatinine) x 100; CPSACP = 100 x (measured post-massage acid phosphatase) x (100 - percentage urine contamination).

The patients had the following documentation: 13, adenocarcinoma of the prostate, ranging from stage A to D; 11, glandular and stromal hyperplasia; and 4, no tissue abnormality. Nine of the 13 carcinoma patients (69%) had acid phosphatase activity <35 kU/L (true negative); three had acid phosphatase activity >100 U/L (false negative) and stage A1 carcinomas. One case was diagnosed after consultation with the Armed Forces Institute of Pathology. Of the 12 patients with benign disease, 11 (91%) had acid phosphatase activity >35 kU/L (true negatives), nine of which were >100 kU/L. With 35 kU/L as an arbitrary cutoff point below which carcinoma can be suggested (Fig. 1), the test had a sensitivity of 72.8%, a specificity of 99%, a positive predictive value of 89%, and a negative predictive value of 77%. The predictive value was higher in patients with stages B through D only (positive predictive value 100%, negative predictive value 92%). These observations refute the assumption that acid phosphatase activity would be increased in prostatic secretion in patients with carcinoma. The potential use of this test to screen patients with carcinoma of the prostate warrants further investigation.

References

Fig. 1. Determination of corrected prostatic secretion of acid phosphatase (CPSACP) determination in post-massage urine from 25 patients
Benign, glandular and stromal hyperplasia; A, B, C, and D, stages of prostatic carcinoma; y-axis: acid phosphatase activity, U/L

Artificially High Concentration of Iron Determined in Serum from a Patient with a Monoclonal Immunoglobulin, Andries J. Bakker and Marjo J. Kothman-Tijkotte (Depts. of Clin. Chem. and Nursing Home, Medical Centre Leeuwarden, P.O. Box 850, 8901 BR Leeuwarden, The Netherlands)

An 84-year-old woman presented with a fracture of the femur neck, for which she got a Hastings prosthesis. Afterwards she did not do well and could not be mobilized adequately, because she frequently fell. Despite further measures to reactivate her, her condition was worsening. Biochemical analysis showed a slight anemia and, surprisingly, an extreme result of 148 µmol/L for the concentration of serum iron (reference range: 10–30 µmol/L). Further analysis of the serum of this patient revealed a concentration of total protein of 69 g/L (reference range: 60–80 g/L). Finally, protein electrophoresis showed a monoclonal spike of 15 g/L, which was identified as IgG-lambda by immunofixation electrophoresis.

The serum iron had been determined with a Hitachi 717 analyzer, by the procedure recommended by Boehringer Mannheim, involving ferrozine in acetate buffer (prod. no. 1040880; acetate 133 mmol/L, pH 5.5; ferrozine 2.5 mmol/L; detergents and ascorbic acid were also present). The method had been modified, to prevent the effect of carry-over of total protein reagent, by addition of thiourea (66

CLINICAL CHEMISTRY, Vol. 36, No. 8, 1990 1517