potted more or less by chance, are only anecdotal and cast an unreasonable suspicion of unreliability on the est in question. Without doubt, occasional samples showing the reverse behavior (i.e., false-positive with Icon; correct-negative with Neo-Planotest) an also be found. Only a manuscript based on side-by-side testing of at east several hundred urine samples with both or several types of tests would give sufficient basis for considering one test more reliable than another.

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Improved Urinary Oxalate Kit

To the Editor:

Following the highlighting by one of us (1) and others (2, 3) of limitations of a kit (Sigma Chemical Co., St. Louis, MO) for determining urinary oxalate, we report on a modified method released by the manufacturer. Sigma attempted to overcome the two major problems of positive interference by ascorbic acid and of variable extraction at different urinary pH values by mixing urine samples with buffered EDTA, then treating with activated charcoal, whereas the old method used alumina. Also, by increasing concentrations of color and enzyme reagents, the assay time was reduced and sensitivity increased.

We adapted the kit for use in the CC500 centrifugal analyzer (Baker Instruments Corp., Pleasantville, NY 0570). We established the instrument settings shown in Table 1. The near range of the assay was compatible with that of the old kit (up to 3.0 mmol/L). Precision (CV) of 40 determinations at 260 mmol/L was 2.6% within-batch and 5.6% between-batch and 1018 mmol/L was 1.2% and 4.3%, respectively. Comparison of 127 patients' results obtained with the new and old (x) methods gave the regression equation y = 0.919x − 46 mmol/L (r = 0.981). Although correlation is good, numerical difference is evident from the regression parameters; therefore, in view of this discrepancy, new reference ranges need to be established for the new kit; alternatively, slope and intercepts should be programmed into suitable instrumentation to attain parity.

Adding ascorbic acid, 20 mmol/L, to two urine pools (mean urine oxalate = 155 and 980 mmol/L) caused an apparent increase in oxalate of 13% and 6%, respectively, although at physiological concentrations of ascorbic acid (<0.6 mmol/L) this effect is negligible. To investigate the effect of varying the pH of the urine samples on the oxalate concentrations measured, we adjusted nine aliquots from two urine pools to pH 4.0-8.0 (at 0.5 pH unit intervals) and then measured the oxalate. Oxalate extraction efficiency was independent of hydrogen-ion concentration within the sample pH range specified by the manufacturer (pH 5.0-7.0), although there was a slight decrease in recovery below pH 5.0.

We conclude that the modified urine oxalate kit from Sigma overcomes previously highlighted shortcomings and, with significantly reduced assay time, is a welcomed improvement to its predecessor.

We thank Sigma Diagnostics Ltd. for providing reagents for this study.

References

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Methylmalonic Acid in Renal Insufficiency: Evidence of Accumulation and Implications for Diagnosis of Cobalamin Deficiency

To the Editor:

Methylmalonic acid (MMA) in serum appears to reflect the tissue cobalamin status of the patient better than does serum cobalamin, which does not adequately discriminate deficient from normal patients (1-6). The test for MMA is a functional assay, because 5'-deoxyadenosyl-cobalamin is required for the enzymatic conversion of MMA to succinic acid.

Little attention has been paid to the possibility that MMA may accumulate secondarily to decreased excretion, e.g., renal failure. No conclusive data exist on MMA in serum from patients with impaired renal function. Lindenbaum et al. (2) noted that the increased concentration of MMA in serum did not decline after treatment with cobalamin in a cobalamin-deficient patient who had chronic renal insufficiency. We recently reported preliminary data on increased concentrations of MMA in serum specimens from some patients with increased values for serum creatinine (5). To confirm this observation and to examine the relationship between the glomerular filtration rate (GFR), regarded as the best clinical estimate of functioning renal mass, and the concentration of MMA in serum, we studied 20 patients (14 men and six women, ages 18-50 y) from the Department of Nephrology at Aalborg Hospital, either admitted for clinical evaluation of renal function or undergoing treatment for chronic renal disease, selected to cover the entire range of subnormal values of GFR. We chose four patients in each of the following GFR groups: 1-10, 11-25, 26-50, 51-75, and 76-110 mL/min per 1.73 m², selected without conscious bias from consecutive presentations on the basis of having normal concentrations of cobalamin and folate in serum. The exclusion criteria were as follows: preg-