TT4–RIA results (reaching statistical significance in the euthyroid group), in line with the manufacturers’ quoted normal ranges, but this bias was reversed (reaching statistical significance) in the nonthyroidally ill group.

The FPIA–TU and hybrid RIA–TU free-thyroxin index (FT4I) results for the euthyroid, hypothyroid, and hyperthyroid subjects showed the same bias (and statistical significance) but there was no statistically significant difference between these results and those for the nonthyroidally ill group. Typically, TT4 and FT4 results are decreased during nonthyroidal illness (1). The fact that our RIA results showed a greater decrease than the FPIA results suggests that it is the FPIA–TT4 that is discrepant in the clinical situation. The explanation for this methodological difference is not clear to us. When considering the attractions of nonisotopic immunoassays, laboratorians should therefore be aware that thyroid-function tests involving different methodologies may give inconsistent results in the nonthyroidally ill, reinforcing the view that, whenever possible, thyroid-function tests should be deferred to the convalescent phase of illness (1).

Abbott Laboratories Ltd supplied the FPIA TT4 and T-Uptake reagents and Amersham International plc the RIA TT4 results. Statistics by J. R. Ennis, Regional Statistician, Oxford Regional Health Authority, 0X3 7LP, U.K.

Reference

A Bromcresol Purple Method for Measuring Albumin In the “Monarch” Centrifugal Analyzer, Peter Miller and Frances Taylor (The Hospitals for Sick Children, Great Ormond St., London WC1N 3JH, U.K.)

We investigated the use of bromcresol purple (BCP) for determination of plasma albumin in the “Monarch” centrifugal analyzer (Instrumentation Laboratory Inc., Lexington, MA), because accuracy with the recommended bromcresol green (BCG) procedure was unsatisfactory. BCP binds more specifically than BCG to human albumin (1).

We selected reading and blanking wavelengths (600 and 650 nm, respectively) that offered the least likelihood of interferences and the most favorable absorbance change, and we shortened reading times to 30 and 55 s.

The reagent contained, per liter, 10 g of sodium acetate trihydrate, 1.5 mL of glacial acetic acid, 1 mL of Brij 35 detergent solution, and 2 mL of stock BCP (1.08 g of BCP in 25 mL of ethanol), adjusted to pH 5.2 ± 0.03. It is stable indefinitely.

Results for 50 samples of heparinized plasma from patients correlated well with measurements by ‘‘rocket’’ immunoelectrophoresis (r = 0.90, slope = 0.89, intercept 3.2, Deming’s linear regression Lambda = 1). With the BCG method, a positive bias was found over the whole range, and overestimation was marked below 20 g/L.

We saw no significant interference by bilirubin (up to 1500 μmol/L) or lipemia. Interference by hemoglobin (up to 20 g/L) was considerably less in the BCP method than with BCG. Adding heparin to control sera caused no interference.

Hill et al. (2) suggest that heparin itself does not interfere, but fibrinogen does. We agree with Maguire (3) that bichromatic blanking obviates this problem.

The standard curve is linear to 50 g/L. We obtained the recommended value for four human reference materials. Precision is similar to that for the BCG method (inter-run CV = 3.4% at 28 g/L).

References

Serum Magnesium Determined by Use of Methylthymol Blue, Phichai Thuwaseethakul and Worawidh Wajirwatkul (Dept. of Pathol., Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Rama 6 Road, Bangkok, 10400 Thailand)

Spectrophotometric methods for serum magnesium determination with methylthymol blue (1, 2) have been reported and are available in commercial kit form, but details of the reagents are often omitted. The present method is intended to fulfill the need for these.