blood from full-term neonates. All pregnancies were uncomplicated, involving healthy mothers who did not receive any drug therapy. The DLIF measurements, in duplicate, were by radioimmunoassay (RIANEN; New England Nuclear, Billerica, MA) with a few modifications as described elsewhere (6). Between-day CVs were 6.4%, 4.2%, and 2.4% at concentrations of 300, 500, and 1000 ng/L, respectively. All the samples were diluted threefold with de-ionized water before analysis, and placed into a hot water bath at 82 °C for 5 min. According to this dilution factor, the lower limit of sensitivity was 150 ng/L. The heating method increases the measurable immunoreactivity as the DLIF is liberated from binding protein(s). This fraction, plus that not protein bound, defines the "total" DLIF (7). Total bilirubin was determined by a standard method (8).

Concentrations of DLIF in all the cord plasma samples ranged between 40 and 2080 ng/L (mean ± SD = 1224 ± 353 ng/L, n = 32); the mean total bilirubin concentration was 53.0 (SD 46.1) mmol/L, the range 8.5–184.7 mmol/L. The mean birth weight was 3415 (SD 330) g at a mean gestational age of 39.7 (SD 1.0) weeks. No correlation was found between the DLIF and the total bilirubin concentration (r = 0.055; P > 0.05), nor was there any correlation between DLIF and the neonate’s weight (r = 0.13; P > 0.05).

A close relation of DLIF to total serum bilirubin in patients with heptobiliary diseases was previously documented (2). Although the concentration of bile salts in neonates is low (5), the total bilirubin concentration might be increased, which may interfere with DLIF measurements. According to our results, the total bilirubin, in the range of 8.5 to 184.7 mmol/L, had no correlation with the measured DLIF, which is in contradiction to previous reports (2,3). However, those studies involved a different method of radioimmunoassay and only the "free" DLIF was measured. Additionally, the total bilirubin concentrations in these studies were in a substantially higher range and the number of patients was relatively small.

We also found no correlation between DLIF concentrations and birth weight. These results contradict those of Seccombe et al. (9), who found a strong negative correlation between birth weight and DLIF. However, they measured DLIF only in premature infants with a very low birth weight, ≤1500 g, compared with the higher birth weight in our population, 2850–3925 g.

We suggest that the presence of total bilirubin in neonates in the reported range does not affect DLIF measurements, and that hyperbilirubinemia in term neonates is not the cause for the increased concentrations of total DLIF.

References

Norberto Krivy
Dept. of Medicine A
Clin. Pharmacol. Unit
Peter Jakobi
Amir Weissman
Etan Z. Zimmer
Dept. Gynecol./Obstet. B
Rambam Medical Center
Faculty of Medicine
Technion, Haifa, Israel

Errors in a Report: Thyroid Dysfunction Detection Strategy

To the Editor:

We are currently in the process of changing our thyroid-function testing protocol to take advantage of changing technology, and thus it was with interest that I read "Evaluation of a New Strategy for Detection of Thyroid Dysfunction in the Routine Laboratory" by Rhys John et al. in the June issue (Clin Chem 1988;34:1110–4). However, I must draw readers’ attention to some miscalculation errors that have great bearing on the conclusions drawn toward the end of the Discussion section concerning T₄-treated patients.

Even though the total number of patients in this section of their Table 1 should read 227 and not n = 219, the quoted proportions are in error vastly more than could be thus accounted for. At the bottom of page 1113 it should read: "Of all subjects taking replacement T₄ 10.9% [and not 32.1%] had increased FT₄ concentrations," which is clearly inconsistent with (instead of "consistent with") "other findings of high FT₄ concentration in subjects on T₄ replacement." The figure of 10.9% is derived from the 18 patients with FT₄ >26 and undetectable TSH plus the six patients with raised FT₄ in the euthyroid group divided by their total of 219 subjects. "A surprisingly high proportion 18.5% [and not 60.7%] of patients who were taking T₄ and had normal free thyroid hormone concentrations also had undetectable concentrations of TSH." The figure of 18.5% is derived from the 34 patients with normal FT₄ and FT₃ and undetectable TSH divided by these 34 plus the remaining 84 patients in the euthyroid group with normal FT₄ plus the 55 subclinical hypothyroid group plus 10 of the group with low but detectable TSH who had normal free thyroid hormone concentrations.

The true figure here is obviously less surprising and would detract from their conclusion on the last line of the page: "The value of TSH as a screening test in patients who are taking T₄ is not as great as in those patients who are not on T₄ replacement." A high proportion of our work involves the monitoring of patients on replacement therapy. However, we find that our initial TSH screening assay does not lead to a great deal of unnecessary thyroid hormone estimations. I think that these errors need pointing out to those concerned about the validity of their own thyroid-function testing protocols.

M. R. Hammer
Dept. of Chem. Pathol.
North Manchester General Hosp.
Crumpsall, Manchester M8 6RB, U.K.