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CORRELATION OF SERUM TBG CONCENTRATIONS WITH THE RESULTS OF CONVENTIONAL IN VITRO TESTS

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The concentration of TBG is known to be influenced by gonadal hormones, genetic factors and by thyroid disease. To study these influences there is a need for a convenient assay of quantitative measurement of the circulating TBG. In our opinion the immunoelectrophoretic determination of TBG fulfills these criteria.

We used the Laurell rocket immunoelectrophoresis for the determination of serum TBG concentration in 139 euthyroid, 57 hyperthyroid, 28 hypothyroid patients and in another 63 women on BCP medication and in 2 pregnant women.

Serum thyroxine was measured with a commercial modification of the Murphy technique (Thyopac-4); the results of the Thyopac-3 method were expressed as T₄RU. In addition we used a modification of the Thyopac-4, called Thyopac-5, both for measuring serum thyroxine and to evaluate a normalized thyroxine ratio (NTR) either in a two or in a one-step procedure.

In euthyroid patients we found a mean TBG concentration of 2.4 mg/100 ml serum (range 1.4—3.6, s = 0.44). The TBG concentration was slightly lower in the hyperthyroid patients (mean 2.1, range 1.2—2.8, s = 0.4) but significantly higher in the hypothyroid group (mean 3.2, range 2.2—4.4 s = 0.52).

As expected we noticed very high concentrations of TBG in women on BCP-medication (mean 4.59, range 3.0—6.2, s = 1.01), but the highest values were found in pregnant women just before term.

We could not find a linear correlation of the T₄/TBG ratio with T₃ RU, as other authors reported, nor were we able to confirm an inverse linear correlation of fTI with TBG.

Our preliminary statistical evaluation of the correlation data, TBG or the T₄/TBG ratio with either the fTI or T₃RU, follows a second-order polynomia.