Reviewer's report

Title: Diagnostic accuracy of basal thyroid stimulating hormone (TSH) determinations based on the intravenous thyrotropin releasing hormone (TRH) stimulation test. A retrospective evaluation of 2570 tests and comparison with the literature.

Version: 2 Date: 12 March 2007

Reviewer: Georg Brabant

Reviewer's report:

General
The paper of Moncayo et al evaluates more than 2500 routine iv TRH tests in women for the diagnostic accuracy of basal and stimulated TSH determinations.

The major but fundamental concern is that the authors implicate that normative data for TRH stimulated TSH exists. With the close correlation between basal and stimulated TSH shown in the paper indeed TRH stimulated TSH could be of help. But to my knowledge these cut-off levels have never been determined in a large enough number of well characterized healthy and diseased subjects. The small number of papers refered to in the paper do not contain such data. Normalization for age, gender, potentially iodine intake or smoking appears to be necessary in order to clearly define cut-off levels for response in healthy subjects as compared to patients with thyroid pathology. To my knowledge such data are only provided for basal TSH serum concentrations when studied in large cohorts such as SHIP or NHANES. Variability of response even in healthy subjects is high as published for dynamic testing of other pituitary hormones. Thus, repetitive testing appears in addition necessary to define the precision of test results. Basing cut-off levels on assumptions as done here will not improve distinction and the advantage to use TRH stimulation is thus not convincing.

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article of limited interest

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.