Reviewer’s report

Title: Comparison of Five TSH-Receptor Antibody Assays in Graves’ disease

Version: 0 Date: 06 Feb 2019

Reviewer: Maria Laura Tanda

Reviewer's report:

The aim of the study is to investigate in a retrospective cohort of Graves’ Hyperthyroid patients treated with antithyroid drugs, the diagnostic and predictive capability of five TSH-receptor Antibody new assays.

The study is well performed and the results demonstrating a great performance of the assays in diagnostic and predictive abilities with respect to routine TSHRAb assay (RSR ELISA 2nd e 3rd generation) and GREAT SCORE. The overall diagnostic accuracy of TSH-RAb assay is increased but the predictive accuracy for relapse, apart for BRAHMS TRAK, seems to be less convincing.

In the present study, clinical data do not report regarding severity and activity of ocular disease in both relapse or remission patients and no information regarding smoking habits in two subgroup. Clinical activity score and severity of orbitopathy and smoke are associate with risk of relapse of hyperthyroidism. It would be interesting to evaluate if the best predictability in terms of relapse of the new TSH-R antibody assay is maintained also in the association with the clinical score that also considers these two risk factors.

In the text on page 7 row 199 to correct a rather small cohort.

As also suggested by the authors, the results should be extended to a larger sample of patients and evaluated prospectively, by the paper is definitely suitable for publication.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes
Are the conclusions drawn adequately supported by the data shown?
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Yes

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I am able to assess the statistics

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