Reviewer's report

Title: Thyroid function derangement and childhood obesity: an Italian experience

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Reviewer: Javier J Salvador

Reviewer's report:

This is an interesting paper dealing with raised TSH concentrations in obesity and its response to weight loss. The authors found a high prevalence of high plasma TSH values (12.8%) in obese children. However, this finding is not associated with changes in leptin or metabolic abnormalities. TSH and T3 elevations reverse following significant weight loss. These changes in hypothalamic-pituitary thyroid axis function in obese patients have been published before. However, this study shows that TSH decreases with significant weight loss, but not in the groups with less weight reduction, suggesting that excess body weight plays a significant role in the elevation of TSH and T3. These finding are important since emphasize the need to assess longitudinally these hormonal changes after weight loss before diagnosing thyroid disease.

I will recommend to display leptin levels after weight loss in the groups showed in Table 3, and to established if there was a correlation between changes in leptin and those in TSH/T3 values following weight loss.

A comment on the possible role of changes in D2 deiodinase activity at pituitary level, which controls the feedback of T3 on TSH secretion should be included in the Discussion.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

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

Declaration of competing interests:

'I declare that I have no competing interests'