Reviewer's report

Title: Association between lipids profile and thyroid parameters in euthyroid diabetic subjects: A cross-sectional study

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Reviewer: Altan Onat

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Authors aimed in this cross-sectional analysis on 462 (predominantly male) euthyroid diabetic subjects the associations between thyroid-related proteins and serum lipids. They found that in females TSH was positively associated with total and LDL cholesterol and fT3 with HDL-cholesterol. In a small subset with available TPO-Ab assays, the small group exhibiting seropositivity, displayed lower DBP and lower TC levels (correlated with TSH) than the seronegative group, and fT3 (correlated with Trg) was lower. Authors concluded that further investigation is needed to clarify the mechanisms of lipid metabolism in diabetic patients with respect to thyroid function.

Though the topic is worth investigating and findings are of interest, following concerns need addressing.

1. Own salient findings should be stated with greater clarity.
2. A table needs to be constructed replacing the current Table 1 showing the distribution of variables stratified to gender and dichotomous TSH and fT3, with the purpose of better understanding the lipid and BP differences.
3. Table 2 is best to be omitted, simple coefficients for the whole sample being added to Table 3.
4. One explanation to a positive association of TSH with total and LDL cholesterol may be both being a consequence of autoimmune activation involving Lp(a), with ensuing “reduced” Lp(a) levels, a determinant of new-onset diabetes, and accompanied by low circulating total and LDL cholesterol and autoimmune complex involving TSH as well. Among euthyroid patients with established diabetes, the stated variables may tend to normalize secondary to a decline in autoimmune processes and in the reduction of Lp(a) levels, fT3 may be the globulin to aggregate with TSH, similar to apo A-I aggregating with Lp(a) [please, consult Onat A, Anadolu Kardiyl Derg 2013; 13: - ], thus explaining the significant correlation with HDL-cholesterol.
5. Sex distribution should be stated in Table 4. Patients exhibiting TPO-Ab seropositivity and disclosing TSH-correlated lower DBP and TC levels, and fT3-correlated lower HDL and Trg levels…Can this be explained better?
6. Numerous grammar and language errors exist, requiring correction.

Level of interest: An article of outstanding merit and interest in its field
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: no