Review of: "Neoadjuvant chemotherapy modifies thyroid function in postmenopausal but not premenopausal women with breast cancer"

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Potential competing interests: No potential competing interests to declare.

The link between thyroid hormones and breast cancer is a potentially interesting one, as outlined by this paper. However, I have the following feedback to offer:

- patient characteristics - I note you have linked to your other paper with a patient characteristics table. I'm not sure if it is a formatting issue, but it is quite difficult to interpret this table - for example the tumour histology rows all state 0%

- your results section is quite short an results are presented only in a graph - it would be nice to see the numbers also presented in the text in a standard biostatistical format (ie the mean TSH was XX, 95% CI xx-xx, p= xx)

- while there is a statistically significant difference in TSH and T4, it's unclear if this is a **clinically** significant difference as it looks like the differences in TSH and T4 are quite small and all the mean values remain well within the normal range

- in my view the conclusion that "thyroid hormone profile takes on special relevance in women with BC, as well as their hormonal profile, in relation to tumor progression and the effectiveness of chemotherapy treatment" is unfounded because:

  - while there is some preclinical data available, there does not seem to be any evidence to suggest that in human subjects there is a prognostic role for thyroid hormone. The effects on breast cancer cell lines are interesting but not sufficient to extend to patients

  - as stated above, the changes in thryoid hormones seem very small and I am concerned that this would not be clinically significant

  - your data suggests a small change in thyroid hormones due to chemo but no information on outcomes, however this is a potentially interesting gap - have you considered monitoring and recording long term outcomes like disease free survival for participants?

I think this is a promising subject area but your conclusions should stick to the data presented.