Reviewer's report

Title: Serotonin transporter gene polymorphism is associated with functional dyspepsia: a case control study

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Reviewer: Beate Niesler

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In their manuscript entitled ‘Serotonin transporter gene polymorphism is associated with functional dyspepsia: a case control study’ Toyoshima et al. report on an association study investigating the serotonin receptor gene SLC6A4 promoter polymorphism in functional dyspepsia.

This is the first study addressing the relationship between the SLC6A4 promoter polymorphism S/L and dyspepsia in a Japanese case control sample. The study is in principle a well designed but yet underpowered study resulting in only marginal associations not withstanding correction for multiple testing. In conclusion, this data represent very preliminary data which should be pointed out in the discussion of the manuscript more carefully.

I have some major points which the authors should address:

1. My main criticism represents the poor writing style in terms of terminology concerning molecular genetics. Terms are often used incorrectly or are inappropriate. Most importantly, the term ‘SERT’ used as gene name has to be replaced by SLC6A4 which is the actual gene name according to GenBank. The terms for the gene, the protein as well as the analysed polymorphism are mixed up and should be used correctly depending on the respective context. Consequently, the text needs critical proof reading and correction. I strongly recommend revision of the manuscript with the support of experts of the genetics field.

2. In the background section of their abstract the authors state that they ‘clarified’ the relationship between the serotonin receptor gene polymorphism and FD. At best they addressed this topic and report on first preliminary results. This holds true throughout the manuscript. The authors highly overrated their results and should discuss their data more carefully taking also most recent publications in the field into account.

3. The major weakness of the data is caused by the fact that the authors did not correct for multiple testing of their data and did not even address this problematic in the manuscript.

4. Taking the small sample size of patients and the number of tests into account, the authors are dealing with a low statistical power and very high risk for false positive findings. Therefore, correction of the p-values for multiple testing is essential. At the end, none of the associations would withstand correction.
5. The authors should therefore state this problematic more clearly in the manuscript and also discuss this possibility. It is mandatory to call the association nominally associated and to take the possibility of false positive findings into account.

6. In the text as well as in the tables p-values AND odds ratios plus confidence intervals should be included.

7. In general, the gene names have to be written in italics

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

**Quality of written English:** Not suitable for publication unless extensively edited

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests.