Review of: "Theory of the Leaky Intestine: Gender Differences in Intestinal Parasitic Infections, Cytoskeletal Wall Dysfunctions, and Hypertension"

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Potential competing interests: No potential competing interests to declare.

After carefully reading and revising the article titled *"Theory of the Leaky Intestine: Gender Differences in Intestinal Parasitic Infections, Cytoskeletal Wall Dysfunctions, and Hypertension,"* I would like to provide a constructive assessment of the paper.

Before delving into specific details, I would recommend adding examples to illustrate how the intestinal microbiome may differ between males and females in the introduction. Perhaps mentioning the most prevalent species in the male versus female microbiome, especially in the second paragraph of the introduction where it is mentioned, would provide a clearer context.

1. Methods:

Strengths:

If regarded as a pilot study, the project's inclusion of participants is reasonable, although incorporating a larger participant pool in a subsequent study would enhance the robustness of the results. The utilization of a questionnaire to gather information, along with the collection of clinical data, facilitates a more comprehensive assessment of the outcomes. The methods employed prove effective to a certain extent in achieving the study's objectives. In terms of duodenography and colonography, the authors have provided a commendable and detailed description of the processes, which is appreciated by those seeking to replicate the methodology.

Areas for Improvement:

Including more details on the selection criteria for participants, particularly the inclusion criteria, would be advantageous. The method by which the authors recorded exposure to contaminated food and water should be clarified. In the laboratory tests for parasites, only wet smears were employed. It is recommended to utilize stained smears, particularly for the detection of challenging-to-identify species like coccidia, which may be less discernible in wet mounts. Additionally, it is essential to elucidate how the antiparasitic treatment was assessed. Was it supervised or endorsed by a medical professional? This information should be explicitly stated in the text.

2. Results:

Strengths:

The presented results were lucid and easily comprehensible, incorporating detailed information on the range of symptoms and identified parasites. The explanation of the sonography and duodonometrics section was well-executed, providing measurement parameters that enhance comprehension. Including clinical cases as examples, such as those involving participants with specific issues like hematochezia and diabetes, was a commendable approach. Tables and figures effectively complement the textual presentation of results. The findings pertaining to variations in wall thickness among patients with Intestinal Parasitic Infections (IPIs) compared to the control group, along with the associations discovered with diastolic blood pressure and sodium levels, are both interesting and significant. Likewise, the information concerning the improvement of conditions after treatment is noteworthy.

Areas for Improvement:

- The authors highlighted the detection of *Entamoeba histolytica* among the identified parasites. It is crucial to elucidate the methodology employed for differentiating this pathogenic species from other *Entamoeba* species within the complex, particularly considering the challenges associated with distinguishing them through wet mounts alone.
- Regarding the age parameter, the age range of the participants remains undisclosed (we do not know the age of the youngest and the oldest participant), and I believe this detail should be incorporated for clarity.
- While evaluating the case reports, it would have been informative to identify the specific parasite infecting the described cases.

3. Discussion and conclusions:

The results substantiate the information regarding how Intestinal Parasitic Infections (IPIs) alter and reorganize the intestinal wall, consequently contributing to the onset of the leaky gut syndrome. The provided details encompass both pre- and post-treatment scenarios. The authors commendably buttressed their findings by referencing pertinent prior research and related information. Their awareness of specific aspects in their research that necessitate further studies is evident, and they have thoughtfully presented suggestions for future research directions.

Overall Impression and Final comments:

The article addresses an intriguing topic and presents a compelling exploration into the intricate relationship between gender-specific intestinal microbiomes, parasitic infections, and associated health outcomes, and the effort put into the research is evident. The constructive assessment of the paper reveals notable strengths, such as the clear and comprehensive presentation of results, the commendable effort in supporting findings with relevant literature, and the thoughtful suggestions for future research directions. However, addressing the mentioned areas for improvement would further enhance the rigor and impact of the paper. Nonetheless, the authors' commitment to addressing these aspects and their evident dedication to advancing knowledge in the field make this paper a promising foundation for future research.