Reviewer's report

Title: Serum Macrophage Migration Inhibition Factor For Diagnosing Endometriosis And Its Severity: Case-Control Study.

Version: 0 Date: 06 Apr 2020

Reviewer's report:

Evaluation:

The authors suggest that the serum macrophage migration inhibitory factor is a non-invasive promising marker to diagnose endometriosis with a good diagnostic accuracy, however many aspects of the manuscript need to be better written and explained.

Why did the authors register an observational study on the Trials.gov platform if there was no intervention?

Abstract:

The authors describe the primary objective of the study the determination of the accuracy of serum MIF for the diagnosis of endometriosis, but the accuracy data is not included in the abstract, it must be added.

Introduction:

The authors describe in the first paragraph that endometriosis is an undetected disease after menopause and before menarche, this statement must be withdrawn since we have case reports both in post menopause and before menarche.

Also, it should contain the existing gap in the scientific literature regarding the existing biomarkers and the sensitivity, specificity, PPV and NPV.

Patients and Methods:

This sentence must be corrected: "we included three hundred postmenstrual women in the childbearing period".

Why was laparoscopy indicated for these patients? Since laparoscopy at this moment is only indicated for failure in clinical treatment or suspect that the endometriosis lesions are compromising the function of organs. Why were the patients out of hormonal treatment for 3 months before surgery if it is only indicated in the failure of medical treatment?

How were chronic diseases (autoimmune, degenerative or neoplastic diseases (e.g. chronic / ulcerative colitis, diabetes mellitus, rheumatoid arthritis, multiple sclerosis, asthma, suspicion of malignancy)) excluded?

Why were patients with with bleeding tendency or active infection excluded? And chronic smoking patients or patients using painkillers were excluded? How was this assessed?

In the statistical description the following sentence is duplicated: For comparing categorical data, Chi-square (χ²) test was performed.
Results:
In line 208 correct typo.
The authors do not describe in the results the accuracy of MIF in detecting endometriosis.
Was a comparison made between the initial stages of endometriosis and the control group? (table 3). This comparison is essential since the main objective in the search for a biomarker for endometriosis would be related to the initial stages of the disease because in the most advanced stages imaging tests are highly accurate.
Table 3 needs to be better presented.
Why do the authors describe the mean and median of MIF results?

Discussion:
The discussion is confusing and should be rewritten.
The first two paragraphs should be removed or placed in the introduction.
The third and fourth paragraphs are confusing and do not show relevant data or should be placed in the introduction.
Do not repeat data already exposed in the results.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.
No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.
Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.
Yes

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