Reviewer’s report

Title: Is Albumin Gradient Or Fluid To Serum Albumin Ratio Better Than The Established Criteria In The Diagnostic Separation Pleural Effusion? An Analysis Of Data From 200 Patients.

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Reviewer: Dr Lesley J Burgess

Level of interest: A paper whose findings are important to those with closely related research interests

Advice on publication: Accept after discretionary revisions

This paper deals with the diagnostic separation of pleural effusions into exudates and transudates. This subject has been debated at some length over the past decade or so, resulting in numerous papers being published in a number of international journals. The most striking difference between these papers have been the various choice of compared parameters. In this paper, the authors have elected to compare the accuracy of SEAG and ALBR with that of FLDH, the most widely used test. This in itself is not a novel approach and certainly does not break new ground. The paper is, however, scientifically sound and the use of ROC curves to analyse these parameters is interesting.

Compulsory revisions
1. The term Serum to effusion albumin gradient should be corrected to read Serum-effusion albumin gradient throughout.

2. Is the title a true reflection of the contents of the paper? The Straditional methods for exudate-transudate differentiation is Lights criteria and I would thus tend to regard these criteria as the Sestablished criteria. However, the authors compare SEAG and ALBR to only one criterion V namely FLDH.

3. There are numerous grammatical and typographical errors throughout. The most obvious have been indicated below. The manuscript would be greatly strengthened with the use of an editing service or assistance by an English-speaking researcher.

The following errors need correction:
(a) Title: Should be changed to read SAre albumin gradient or fluid to serum albumin ratio better than the established criteria in the diagnostic separation of pleural effusions? K... (In the event that the authors choose not to change the title).
(b) Page 2, Line 1 of the objective section: Change Serum to effusion albumin gradient to read Serum-effusion albumin gradient.
Discretionary revisions

1. According to the Smaterials and methods section:
   (a) Samples were collected from 212 patients. Were these consecutive patients? According to the abstract, consecutive patients were included, but this is not stated in the body of the paper.
   (b) On Page 5 it is stated that samples were collected and stored for later analysis. How were these specimens stored (at what temperature) and for how long before being analysed?
   (c) More details pertaining to sample collection would be useful e.g. Were pleural and plasma samples taken concurrently? Were patients receiving treatment at the time of the pleural tap?

2. As already mentioned, there have been numerous papers comparing various biochemical markers use to differentiate between pleural exudates and transudates. This paper would benefit greatly if the authors could give a convincing motivation for yet another comparative study.
   Eg. The most important benefit of using the SEAG for this comparison has been the correct classification of patients having CHF and using diuretics at the time of the tap V a group of patients commonly misdiagnosed as exudates according the traditional Lights criteria. These patients were misdiagnosed as a result of falsely elevated fluid protein levels (i.e. TPR).
   What are the benefits of the results of the comparison in this paper?

3. I would suggest elaborating the results section. More details pertaining to false negatives and false positives would be worthwhile. What were the diagnoses of the Sfalsely-classified effusion? Were any trends noticed between the different test groups?

4. The last statement is not entirely true V TPR was not studied in this paper.

**Competing interests:**

None declared.