

Dear Editor.

Thank you for the excellent and thorough review provided by you and the reviewers.

I am providing below point to point answers to reviewers of the ESPS Manuscript NO: 26886, entitled 'THORACIC ULTRASOUND. AN ADJUNCTIVE AND VALUABLE IMAGING TOOL IN EMERGENCY, RESOURCE-LIMITED SETTINGS AND FOR A SUSTAINABLE MONITORING OF PATIENTS'.

Yours sincerely

GT

Questions *A. answers*

- 1) The abstract is complete. There are some English grammatical and typographical errors that should be corrected.
A. We performed several corrections, with the help of a mother tongue British Colleague.
- 2) Please rephrase the sentence 'The avoidance of misunderstanding and of misleading artefacts increases quality and information of the procedure' and 'without asking to the procedure more than it can give'.
A. Thank you for this comment. We changed the sentences, which should be now sufficiently clear and explicit.
- 3) The introduction section is too long. The historical background is interesting, however it could be reduced considerably by a summary.
A. Thank you. Yes, we agree. The present introduction is significantly abridged, 30% less than the original.
- 4) Clinical risk analysis: Page 5, last paragraph the authors state: 'TUS is on the road of becoming a reliable tool capable of diagnosing pneumonia with high accuracy' Please provide additional references.
A. Yes, we provided additional and very recent references (also from WJ Radiology)
- 5) Page 5, last paragraph, page 6 1st paragraph the authors state: 'most of the many studies published aimed at the definitions of the usefulness of lung ultrasound as a lone procedure for the diagnosis of pneumonia, substantially report inconsistent and inconclusive results' However in their review Hu QJ et al showed that lung ultrasound had a high diagnostic performance for the diagnosis of pneumonia, with 97% sensitivity and 94% specificity and concluded that TUS plays a valuable role in

the diagnosis of pneumonia, and can be a promising attractive alternative to chest radiography and thoracic CT scan.

A. Yes, thank you. We quoted the exact sentence of Hu et al, which performed an excellent metanalysis using the few articles which adheres to convincing methodological criteria. Nonetheless, limitations of the application of TUS are still consistent, are strongly acknowledged by Hu; when we now write on this subject we cannot skip the limitations not sufficiently considered by the researchers, such as the fact that it is unlikely that all the lung can be explored to find the signs of pneumonitis – which is very often not widespread -. Therefore, the figures of so high sensitivity and specificity could need some consideration. The oldest MDs of our group are integrating since two decades physical chest examination of all our patients with ultrasound: the procedure is greatly valuable, when confirmatory, and sometimes reveals unsuspected consolidations. But a negative TUS finding with clinical suspicion of evidence of pneumonitis often requires the radiological confirm.

6) Page 6, last paragraph: 'The detection of pneumothorax by TUS is a quite simple...'. What are the main US findings for the diagnosis of pneumothorax (PTX) ? Are they accurate? What is the diagnostic performance of TUS for the diagnosis of PTX?

A. We completed briefly this section. TUS diagnosis of pneumothorax is a dynamic one, and should be displayed better by videoclips: it is less suitable to be described as still images or only by words. Also in this case our group worked well with the criteria described and defined by dr Targhetta in France, 30 years ago, which are still in use everywhere, even periodically rediscovered.

7) EMERGENCY: OPPORTUNITIES AND RELIABILITY. Page 7, 5th paragraph: 'The most relevant and relatively recent application of TUS in emergency is the quick detection of pneumothorax; [29-31] this is a preliminary clinical diagnosis. Precious in conditions of extreme facility shortage, [32] but usually a very important indication for a timely confirm, by CXR or CT, needed before any intervention procedure. [33]'. **Please discuss in detail this statement. In my opinion TUS is very helpful for the diagnosis of tension PTX, where urgent interventions are required.**

A. Thank you. Yes, we agree and refined the concept and the sentence addressing this special opportunity of urgent intervention – without full certainty of a correct diagnosis – which TUS may provide (Press et al. 2014).

8) Page 8, 1st paragraph: 'lung ultrasound in the intensive care unit is an idea that may be too good to be true'. Lichtenstein D. Lung ultrasound in the critically ill. Ann

Intensive Care. 2014 Jan 9;4(1):1. suggests that TUS is a basic application in ICU and can become a useful daily tool for the intensivist.

A. *Thank you. I know and appreciate these efforts. However, I quoted exactly the comment (2015) of a radiologist – Tuft University, Boston, and expert in ultrasound in this regard.*

9) THE NEWBORN AND SMALL CHILDREN. Page 8, 2nd paragraph: 'still epidemic in many Regions, and the use of TUS is found precious in tuberculosis, [66-70] AIDS, [71-77] parasitic disease [78] and other conditions, both in adults and in children'. **Please present the main findings from these studies.**

A. *Thank you. Yes, I briefly summarized these topics.*

10) OCCUPATIONAL AND SPORT MEDICINE. MILITARY AND MOBILE RESCUE SUPPORT. Page 9, 1st paragraph: **Please define fnab.**

A. *Ok, done.*

11) ASSESSMENT AND MANAGEMENT OF COMPREHENSIVE ELECTIVE WORKUPS. Page 9, 5th paragraph: **Reliable monitoring of patients is possible in several disease and context...** Please discuss more detailed.

A. *Thank you. We detailed more this topic.*

12) The role of TUS for the diagnosis and management of pleural effusion is not sufficiently presented and discussed.

A. *We briefly discussed in greater detail this aspect.*

13) CHEST RADIOLOGY AND ULTRASOUND: WHAT, WHO, WHERE, WHEN, WHY. **The conclusions are not clear.**

A. *I added briefly a section of conclusion.*

14) GENERAL There are some English gramm

A. *Thank you. We had the collaboration of an English mother tongue Colleague.*