

Dear editor,

On the behalf of all co-authors I thank all esteemed reviewers for an excellent review and providing us the point to improve the manuscript. We have carefully read all points raised by reviewers. All the grammatical errors have been corrected. All the major changes have been highlighted in the revised manuscript.

Please find below point wise response to comments givens by reviewers: **Reviewer 1 (00189260)**

Comment: The article in interesting, analysis is excelent and material and method very good. I only do not know, why to measure quadriceps muscle thickness?

Response: Thank you very much for review and positive comments. Measurement of quadriceps muscle thickness is useful among critically ill patients. Followings are reasons for this:

1. There is enough data which has shown that critically ill patients exhibit significant muscle mass.
2. Loss of muscle mass is associated with adverse outcomes such as difficult weaning, prolong mechanical ventilation, prolonged stay in ICU and hospital.
3. Muscle thickness can give an estimate of muscle mass.
4. Quadriceps muscle thickness can measured with ease.
5. Quadriceps muscle thickness may be an early marker of adverse outcome among these patients.

All these points are highlighted in the introduction section.

Reviewer 2 (02577402)

Comment: In this MS, the authors assessed quadriceps muscle thickness using bedside USG by nurses and physicians in ICU. Some problems existed.

1. The language needs to be improved because some grammar mistakes.

Response: The manuscript has been reviewed thoroughly and necessary modifications has been done.

2. In the Methodology section, the authors should mentioned that all the patients had given their signed informed consent to participate in this study.

Response: Thank you very much for suggestion. We have incorporated the statement “All patients provided a written consent for participation in the study”

3. Results: Please use your own language to describe the major results and outcomes of the study. It is absolutely not good to just present the tables for the reader to check themselves. Please describe the major outcomes of the tables.

Response: Thank you very much. The same has been included in the revised manuscript.

Reviewer 3 (02008546)

Comment: In this observational study, authors investigated if non medical professionals could perform bedside US for the assessment of muscle mass in the ICU. Although this is not new (Sabatino A et al 2017 a dietitian and a nephrologist performed the measurements for the assessment of inter-observer reliability), findings were positive, which could allow for a broader application of the US technique for muscle mass evaluation.

Response: Thank you very much. We agree with the reviewer that Sabatino and colleagues has done a similar study where inter-observer variability was tested between 2 observers. In our study, there were 5 observers with varied experience (2 nurses, 2 fellows and 1 consultant) and showed excellent intra and inter-observer reliability. These results suggest that USG can be used by relatively lesser experienced observer after a short training.

Introduction

1. In the second paragraph, please rephrase the following sentence “MRC score assessment and anthropometry requires patients’ full alertness and effort and normal hydration status, respectively” to “ MRC score assessment requires patient to be fully alert, while anthropometry depends on a normal hydration status”.

Response: The statement has been modified.

2. Second paragraph, affirmation that “ muscle thickness is a good surrogate of muscle function”: That affirmation is not necessarily true, you can say that muscle thickness correlates to muscle function, but it is not a surrogate, since a good muscle mass not always represents a good or preserved muscle function (). Muscle fibers may have fat infiltration and fibrosis, which interfere with muscle quality and function ().That said, you can’t say that DEXA, CT and MRI provide information regarding muscle function, only muscle quantity and quality (CT and MRI only).

Response: We agree with the esteemed reviewer that “muscle thickness” may not be a “true surrogate” however sometimes authors use this statement [for example “Although muscle mass may technically be a surrogate measure of muscle function, not all studies support this relationship” Marina Mourtzakis et al. Annals of the American Thoracic Society 2017;14(10)]. However, as suggested by the reviewer we have modified the statement in the revised manuscript.

3. Include the following bibliography together with references 8 and 9: Sabatino A et al. Reliability of bedside ultrasound for measurement of quadriceps muscle thickness in critically ill patients with acute kidney injury. Clin Nutr. 2017 Dec;36(6):1710-1715.

Response: The bibliography has been modified as per suggestion.

Discussion 1. Second paragraph, sentence “Recently, USG has been used more frequently for assessment of muscle functions.(8, 9)”: correct to muscle mass (see comments above)

Response: Thank you for the suggestion. Modification has been done in the revised manuscript.