

## Author's response to reviews

**Title:** The Relationship between Bioelectrical Impedance Phase Angle and Subjective Global Assessment in Advanced Colorectal Cancer

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#### Reviewer 1 Comments

This retrospective study by Gupta et al. investigates the optimal cut off level of standard BIA phase angle (PA) for the identification of malnutrition in patients with advanced colorectal cancer. Subjective global assessment is taken as a reference in a population of 73 patients with cancer. The main finding of this study is, that a single cut off level of the phase angle may not be suitable in this specific patient population because only values lower than  $5.2^{\circ}$  give acceptable diagnostic specificity (80%) and only values lower than  $6.0^{\circ}$  give acceptable diagnostic sensitivity (83%). The authors point out that further research may be needed to determine a definite cut off level. This paper is overall clear and well written. The statistical methodology is appropriate and has all the right elements needed. I have some minor comments.

#### Minor Essential Revisions

1. The phase angle was found to be non-normally distributed: this observation is in contrast to results of most other studies which looked at the PA of healthy or hospitalized patients. What is the explanation? THIS COULD BE BECAUSE OF THE RELATIVELY SMALL SAMPLE SIZE OF OUR STUDY. THIS LIMITATION HAS BEEN DISCUSSED UNDER THE DISCUSSION SECTION.

2. The sample was not 81 patients, because 8 patients weren't classified by SGA. All the information about data in paper should be changed to 73 patients, that were, in fact, the real sample that could be studied. AS SUGGESTED, THE SAMPLE SIZE HAS BEEN CHANGED FROM 81 TO 73 THROUGHOUT THE PAPER.

3. Page 7, line 4: The frequency is 50 kHz, not Khz. AS SUGGESTED, THE

CHANGE HAS BEEN MADE.

4. Page 7, statistical analysis paragraph: The non-normally distribution of phase angle could be an effect of the small sample. Barbosa-Silva and Barros (Am J Clin Nutr 2005; 82:49 – 52) presented the phase angle results of 1967 volunteers, and they found that phase angle has a normal distribution. Please comment on this in the discussion section. WE HAVE INCLUDED THIS OBSERVATION IN THE DISCUSSION SECTION OF THE REVISED PAPER.

5. Page 9, line 1, it should not be called a “patient cohort” because it was a transversal study. SUGGESTED CHANGE MADE.

6. Page 11, discussion section, line 11: The comment about the correlation should be deleted. DELETED.

7. Hydration status in cancer patients are often due to treatment, just observing “obvious” signs of hydration may have overlooked changes that could further have influenced measurement validity. The authors should discuss this. WE HAVE INCLUDED THIS LIMITATION IN THE DISCUSSION SECTION.

#### Reviewer 2 Comments

Overall, it is a well-written paper with appropriate statistical methodology used. The subject matter is interesting and worthy of future research. I have some minor comments that should be addressed by the authors before this paper can be considered for publication.

The authors do not define “malnutrition” in their population. This should be done. FOR THE PURPOSE OF THIS ANALYSIS, MALNUTRITION WAS DEFINED AS EITHER SGA B OR SGA C. THIS HAS BEEN INCLUDED IN THE METHODS SECTION OF THE PAPER UNDER “NUTRITIONAL ASSESSMENT”.

Precautions for increasing validity of BIA measurements should include adequate hydration for previous 24 hours, including abstaining from alcohol, caffeinated beverages, no food intake at least 2 hours before measurement, and required voiding 30 minutes prior to measurement. Additionally, patient should rest a few minutes before measurement. These precautions are not discussed and could have influenced measurement validity. Omission of these precautions should be more fully addressed in the discussion. THANKS FOR THESE COMMENTS. SOME OF THE PRECAUTIONS THAT YOU HAVE MENTIONED WERE ALREADY DISCUSSED IN THE DISCUSSION SECTION. THE OTHERS HAVE BEEN INCLUDED AS PER YOUR SUGGESTION.

Was informed consent of the patients or their families taken for this study? THIS WAS A RETROSPECTIVE STUDY USING SECONDARY DATA FOR ANALYSIS. WE OBTAINED AN EXPEDITED IRB APPROVAL FROM OUR INSTITUTIONAL IRB ALONG WITH AN APPROVAL OF A WAIVER OF INFORMED CONSENT.

The authors should point out in the discussion that a more objective method of nutritional assessment should be used in order to derive the definitive cut-offs of

phase angle. THIS LIMITATION HAS BEEN INCLUDED IN THE DISCUSSION SECTION OF THE REVISED PAPER.