Reviewer's report

Title: Bioelectrical impedance phase angle as a prognostic indicator in breast cancer

Version: 1 Date: 24 March 2008

Reviewer: Aluisio J D Barros

Reviewer's report:

Major Compulsory Revisions (which the author must respond to before a decision on publication can be reached)

1. The research question posed by the authors is relevant and well defined. The idea of using BIA as a prognostic factor for survival in cancer patients is interesting and may lead to changes in clinical practice. However, the strong link made by the authors between BIA phase angle and nutrition is not entirely suitable since phase angle measures cell membrane integrity related to various physiological aspects that are not only nutritional.

2. The introduction presents a long report on diet and other nutritional aspects as prognostic factors in breast cancer. On the other hand, several studies that showed BIA phase angle to be a prognostic factor for different conditions were not mentioned, and comments in this area were generally brief. Since what phase angle measures is not specifically or exclusively nutrition, my suggestion is that the introduction gives less emphasis to diet and more to phase angle as a prognostic tool in other diseases.

3. A description of follow-up times should be included in results. It is not clear from the methods whether all patients had equal follow-up periods or not, and if not what was its distribution.

4. Phase angle is defined as Phase Angle = (Resistance/Capacitance)*(180/#), but, its standard definition is PA = arc-tan(reactance/resistance) * (180/pi). It is necessary to correct or explain why a different equation is used. RJL. Also, in the literature Xc has been used as an abbreviation for reactance (or capacitive reactance) and not for capacitance.

5. Several nutritional indicators were measured at baseline, as stated in methods, and none used in the analyses. It would be interesting to assess how SGA or other indicators would change the effect of phase angle.

6. Departure of linearity was not tested for phase angle as a continuous variable in the Cox model. It is necessary to check model fit in this aspect.

7. An alternative approach to dicotomising phase angle using the sample median would be to use the reference values published in Barbosa-Silva MC, Barros AJ, Wang J, Heymsfield SB, Pierson RN, Jr. Bioelectrical impedance analysis:
population reference values for phase angle by age and sex. Am J Clin Nutr 2005 Jul; 82: 49-52. Patients could then be classified into groups such as <-2, -2--<-1, >=-1 standard deviations, giving further insight into phase angle's effect. The value used corresponds roughly to the 5th percentile for women aged 40-49 years. This approach would resolve one limitation mentioned in the discussion (line 268).

8. The paragraph starting at line 214 is a bit confusing. The text suggests some incongruence of results, but they all indicate a positive association of phase angle with survival. By the way, the use of population reference values would avoid the use of different cut-off points for phase angle improving comparability between studies.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

1. A better caption is needed for Table 1, since it presents the outcome as well. It should also present the age distribution of the sample.

2. The second column label in Table 2 should read “Median survival in months”

3. Reporting of p-values should use at least 3 decimal places and be consistent for all results.

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests.