Reviewer’s report

Title: Comparative Associations between Anthropometric and Bioelectric Impedance Analysis Derived Adiposity Measures with Blood Pressure and Hypertension in India: a cross-sectional analysis

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Reviewer: Pablo Enriòri

Reviewer's report:

Taing et al evaluate the relationship between adiposity measured by bioelectric impedance analysis (BIA) with blood pressure and hypertension using data from the Indian Study on 46 Health of Adults (ISHA), an on-going population based cohort study in India (N=5,990; age 30-47 years). The authors also compared the discriminative capacity of this technique with most standard adiposity measurement such as body mass index (BMI), waist circumference (WC), hip circumference (HC), waist-hip ratio (WHR), waist height ratio (WHtR), whole body fat percentage and trunk fat percentage to predict hypertension. The authors found that all anthropometric measures and BIA were strongly and positively associated with blood pressure and hypertension. Importantly, they found that BIA capacity to discriminate between those with and without hypertension was not superior to the capacity of the others anthropometric measures. The authors conclude that BIA derived estimates of adiposity provide no apparent advantage in the assessment of blood pressure and hypertension and that simple anthropometrics may be sufficient to assess adiposity and adiposity-related risks. This is an important piece of work, since the best methods to assess body composition and determine relative amounts of adipose tissue are costly, invasive and not readily available for large-scale use. However there are some questions that should be addressed:

Main concerns:
The table 1 shows the average BMI is 22.4 for men and 22.7 for women. It seems that all the population studied have to be considered non overweight or obese according WHO criteria (normal 20 to 25). The same table also shows that 29.1 % of men and 30.5 % of women have hypertension. Based on population studies, risk estimates indicate that at least two-thirds of the prevalence of hypertension can be directly attributed to obesity. But, if the hypertension in those people is not related to obesity the inclusion of them to the study could mean a confounding factor. It could be better to excluded them of the study. The failure of the current work in find a stronger relationship between BIA derived estimates of adiposity and hypertension could be due to the study is focused in "normal" body weight people. The fact that there is a strong correlation between whole body fat and trunk fat estimates suggest that the population do not have a higher accumulation of fat in the area abdominal as is expected in obese people. Obesity and in particular central obesity have been consistently associated with hypertension and increased cardiovascular risk. I suggest an additional study, just considering the population with BMI >25, or with higher WC (choosing the appropriate cut-off) and evaluate again the BIA data vs blood pressure to confirm that BIA derived estimates of adiposity provide no apparent advantage in the assessment of blood pressure and hypertension compared with simple anthropometrics measurements.

Others concerns:
It is not clear what the exclusion criteria are. It has to be stated.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**
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No

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If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

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