Author's response to reviews

Title: Utility of Waist-to-Height Ratio in Assessing the Status of Central Obesity and Related Cardiometabolic Risk Profile Among Normal Weight and Overweight/Obese Children: The Bogalusa Heart Study.

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Author's response to reviews: see over
Dear Dr. Robin Cassady-Cain,

We thank the reviewers for their thoughtful and constructive comments, which we feel helped to improve and clarify our manuscript. Our point-by-point responses to their comments are as follows:


2. **Subjects:** The sample size has been changed to 3091. We clarified the consent obtained from the study participants in the text. Our study subjects are only African American and Caucasian. We do not have Hispanic and Asian subjects. Details of the study design, participation, and protocols have been described using a reference (The Bogalusa heart Study 20th Anniversary Symposium. Am J Med Sci 1995; (suppl 1): S1-S38). As we do not have pubertal (Tanner stage) data on our study subjects, it has not been included in this current study. Moreover, it should be noted that waist-to-height ratio, unlike BMI, is independent of age, race and sex even among children and adolescents ( Savva SC Int J Obes Relat Metab Disord. 2000;24:1453-8, Maffeis C et al)
J Pediatr. 2008 Feb;152:207-13). This obviates the need for using age-, race- and sex-specific waist-to-height ratio. However, our BMI values are age-, race- and sex-specific.

3. **BMI categories:** Although it would be interesting to divide the study into three BMI categories of ‘normal weight’, ‘Overweight’ and ‘Obese’, we did not have an adequate sample size in the ‘obese’ group to attain significant statistical power. Instead, overweight and obese (according to the BMI) were combined to delineate the ‘normal’ from the ‘abnormal’ based on the waist-to-height ratio and to detect adverse cardiometabolic risk among these groups.

4. **Blood pressure measurement:** As we only have blood pressure measurement data obtained from a mercury sphygmomanometer, the same was used in analysis. Subjects were in a relaxed sitting position and the average of six replicate measurements were used in the analysis.

6. **Cardiovascular risk factors categorization:** Tertiles to categorize cardiovascular risk factor variables, although arbitrary, were used to attain statistical power. Moreover, BMI categories of ‘normal weight’, ‘overweight’ and ‘obese’, all are also arbitrary cut-offs based on centiles (Burniat W, Cole TJ, Lissau I, Poskitt E. Child & Adolescent Obesity: Causes & Consequences, Prevalence & Management. Cambridge University Press, 2002).
7. Results: As suggested, the results and discussion sections have been edited. A comparison between the earlier and present studies is provided.

We hope we have addressed the issues raised by the reviewers and hope the revisions are adequate.

Thanking you,

Yours truly,

Gerald Berenson, MD