Aim: Atherosclerotic cardiovascular disease, one of the world's leading causes of death, first manifests itself at an early age. The identification of children who may have increased cardiovascular risk in the future could be an important prevention strategy. Our aim was to assess the clinical, analytical, and dietary variables associated with arterial stiffness (AS), measured by pulse wave velocity (PWV) in a prepubescent population with metabolically healthy obesity (MHO). Subjects and Methods: A cross-sectional study in prepubescent subjects with obesity who had ≤1 metabolic syndrome criteria (abdominal perimeter and blood pressure ≥90th percentile, triglycerides >150 mg/dL, HDL-cholesterol <40 mg/dL, fasting plasma glucose ≥100 mg/dL) were conducted. Adherence to Mediterranean Diet, blood pressure, BMI, waist/height ratio (WHtR), glycemic status, lipid profile, and carotid-femoral PWV were analyzed. 75 MHO children (boys: 43; girls: 32; p=0.20) (age=10.05±1.29 years; BMI=25.29±3.5 kg/m2) were included. Results: We found a positive correlation between carotid-femoral PWV and weight (r=0.51; p<0.0001), BMI (r=0.44; p<0.0001), WHtR (r=0.26; p=0.02), fasting insulin levels (r=0.28; p=0.02), and insulin resistance (HOMA-IR index) (r=0.25; p=0.04). Multiple linear regression analysis identified BMI and HOMA-IR as independent parameters associated with PWV. Conclusions: In MHO prepubescent children, BMI and insulin-resistance status are related to arterial stiffness. PWV could potentially be a useful non-invasive technique to identify cardiovascular risk in childhood.

Author's Reply to the Review Report (Reviewer 1)

Please provide a point-by-point response to the reviewer's comments and either enter it in the box below or upload it as a Word/PDF file. Please write down "Please see the attachment." in the box if you only upload an attachment. An example can be found here.

Open Review

(×) I would not like to sign my review report
( ) I would like to sign my review report

English language and style

( ) Extensive editing of English language and style required
( ) Moderate English changes required
(×) English language and style are fine/minor spell check required
( ) I don't feel qualified to judge about the English language and style
The authors evaluated anthropometric, analytical, and dietary variables associated with arterial stiffness for to identify children who may have an increased in ACVD. The current study examines the relationships between anthropometric characteristics and analytical parameters with cfPWV value, and demonstrated that insulin resistance and BMI are closely related to the presence of arterial stiffness in prepubescent MHO children.

While this study is well done and could be of value to this field of research. It is necessary to include a group of children of the same ages and sex with BMI values of normoweight in order to validate determination of the cfPWV as a good marker of risk for ACVD.

**Response:** To evaluate whether our prepubescent population with obesity presented with abnormal cfPWV values, the authors used those included in reference 22 as reference values [Diaz A, Zócalo Y, Bia D, Wray S, Fischer EC. Reference intervals and percentiles for carotid-femoral pulse wave velocity in a healthy population aged between 9 and 87 years. J Clin Hypertens (Greenwich). 2018; 20:659-71].

On the other hand, and as the reviewer comments, to analyze the results obtained, the authors compared the cfPWV values of our prepubertal population with obesity with the cfPWV values for the population with normal weight matched by age and sex. These values are indicated in the following references:


The authors analyzed arterial stiffness in our prepubertal population with obesity as compared to the reference values of cfPWV for a normal weight prepubescent population.

**In consequence, this sentence had been added in “Discussion” section:** “The main finding of our work is that insulin resistance and BMI are closely related to the presence of arterial stiffness in prepubescent children with obesity. Secondly, this study seriously calls into question the existence of an MHO phenotype in children. **AS was found in our prepubescent**
population with obesity compared with children with normal-weight matched by aged and sex. These findings are in concordance with previous studies [22,23,27].