New data regarding the validation of the Pediatric Visceral Adipose Tissue Index (VAIP)

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Introduction: Visceral Adiposity Index (VAI) is a mathematical model associated with cardiometabolic diseases in adults. Previous studies in pediatric population have failed to demonstrate any association of VAI with metabolic and cardiovascular risk. In a previous paper we adapted VAI components to pediatric population (VAI^P); the aim of the present study was to analyze the correlation of insulin resistance indexes and surrogate markers of cardiovascular abnormalities in order to validate VAI^P.

Methods: A prospective analysis was performed. A hundred children (normal weight, overweight and obese) between 8 and 12 years of age were recruited. Correlation analysis between risk variables (intima media thickness (IMT), flow mediated dilatation (FMD), HOMA-IR and Matsuda-ISI indexes, Visceral Fat Adiposity (VFA), Body Fat, and preperitoneal fat thickness (PP)) and VAI^P was performed. Pearson and Spearman correlations were done. Cut points were designed using ROC curves and Odds ratios calculated by logistic regression analysis.

Results: Significant strong correlation was found between VAI^P and HOMA-IR (r=0.537, p=0.001), Matsuda (r=-0.607, p=0.001), IMT (r= 0.705, p=0.001), FMD (r = -0.464, p= 0.001), VFA (r= 0.616, p= 0.001), Body Fat (r= 0.735, p= 0.001), and PP (r= 0.696, p= 0.001). For children with obesity, the best cut off point of VAI^P to predict insulin resistance was 4.88. All the children with obesity had abnormal values regarding IMT.

Conclusions: Adjusted VAI^P has a strong correlation with adiposity and correlates with cardiovascular and metabolic distress. It could be a helpful tool for identifying children at cardiometabolic risks, and for assessment of these children throughout intervention strategies.

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