OVERWEIGHT STATUS IN CHILDREN IS HIGH-RISK FOR CARDIAC DAMAGE INDEPENDENT OF BLOOD PRESSURES

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Background
• Childhood overweight/obesity is associated with pre-hypertension and hypertension.
• Hypertension and obesity can result in left ventricular hypertrophy.
• The relative contributions of body mass index (BMI) status and systolic blood pressure (SBP) status on cardiac size are not well defined.

Methods
• 1059 of 2071 children were lean and normotensive (control).
• Controls had a normal distribution for BMI Z-scores, SBP, LVMi g/m².⁷ and LA height mm.
• Their 95th percentile for LVMi – 45 g/m².⁷ and LA height – 24mm was used to determine the relative risk for having an abnormal LVMi g/m².⁷ and LA height mm in the high-risk groups (varying combinations of overweight/obese and pre-hypertension/hypertension).
• SAS v9.2 and SPSS v18 were used for analysis.

Results
• Red bar indicates that the risk group had a higher mean value compared to controls (p <0.05).
• A black circle indicates the control group.

Conclusions
• Overweight/obese children, regardless of SBP class, are at high-risk for cardiac damage.
• Much of the abnormal LVMi g/m².⁷ and LA height mm in pre-hypertensive and hypertensive children were due to the associated overweight/obese status.
• Mechanisms mediated by being overweight/obese and besides high SBP induces cardiac structural abnormalities in children.
• The clinical implications of these cardiac structural changes may be distinct from what has been described in adults with hypertension and advanced atherosclerosis.

Objectives
• How do varying combinations of BMI and SBP risks correlate with abnormal left ventricular mass index in grams/meter².⁷ (LVMi g/m².⁷)¹ and left atrial size in millimeters height in meters (LAheight mm)² in children 10 – 18 years of age?

References