**The prevalence of obesity in children with congenital heart disease**

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Background: Overweight and obesity is a growing concern among children with congenial heart disease. However, little is known about prevalence among children with complex congenital heart disease compared to patients with innocent murmurs. We performed a retrospective chart review study to determine the prevalence of overweight/obesity among children with congenital heart disease in a tertiary medical center in the Midwest.

Methods: We recorded height and weight of 1,053 patients to calculate body mass index (BMI) and BMI z-score. Body surface area (BSA) was calculated using the Mosteller formula. One-way ANOVA was used for statistical analysis for the three patient groups: 1) innocent murmurs (n=308), 2) congenital heart disease in patients with two ventricles (n=686), and 3) congenital heart disease with single ventricle physiology (n=59).

Results: Patients in Group 1 were on average noted to have a higher BMI percentile than patients in Groups 2 and 3 (f=11.03, p=<0.0001). Moreover, Group 3 had lower BMI percentile than Group 2. Group 3 also had lower BMI z-scores than Groups 1 and 2 (f=9.76, p=<0.0001). Following propensity matching, Group 3 had lower BMI percentile on average than Groups 1 and 2 (f=10.60, p<0.0001) as well as lower BMI z-score (f=9.02, p=0.0002). No significant difference in BSA was observed between the three groups (f=0.27, p=0.7628) even with propensity matching (f=0.61, p=0.5453).

Conclusions: In our patient population, there is a higher prevalence of overweight/obesity in patients with innocent murmurs than congenital heart disease. The small sample size of patients with single ventricle physiology is a major limitation. The lower BMI percentile and z-scores in patients with single ventricle physiology requires further exploration including lipid panel. Finally, the difference in estimation of overweight/obesity between BMI and BSA may have implications for future research and clinical practice.