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Could be useful to measurement short-term analysis of heart rate variability to access autonomic function in obese children and its relationship with metabolic syndrome?

Baspinar O. (2), Altuncu M.E. (1), Keskin M. (3), Kilinc M. (2)
Gaziantep University Medical Faculty, Department of Pediatrics (1),
Pediatric Cardiology (2) and Pediatric Endocrinology (3), Gaziantep, Turkey

Cardiovascular autonomic nerve system in obese children is one of the main initiators of coronary heart disease and hypertension development and also may have close relationship with insulin resistance. Heart rate variability is one of the non-invasive methods for assessment of cardiovascular autonomic system. In this method, low frequency parameters reflect sympathovagal activity, high frequency reflects vagal activity and their ratio reflects sympathovagal balance.
In this study, short term analysis of heart rate variability was investigated in 66 obese children and 40 healthy controls. While high frequency parameter values are low in the obese compared to controls (16.02 ± 12.9 nu vs 21.45 ± 13.6 nu, p=0.046), low frequency / high frequency ratio was found significantly high (3.79 ± 2.34 vs 2.25 ± 0.93, p<0.001), a significant difference was not detected in low frequency values (p=0.787). Insulin resistance was found in 33 (50%) patients, dyslipidemia was found in 39 (59%) and hypertension was found in 18 (27%). Metabolic syndrome in obese group was detected in 39.4% patients.
Conclusion: As the result of our study, we found that vagal activity decreased in obesity and autonomic nervous system balance was impaired in favor of sympathetic activity at the short term heart rate analysis. We put forward that metabolic syndrome frequency is too higher in obese children.