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Significance of Myeloperoxidase in the onset of cardiovascular disease in obese children and adolescents

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Background: Obesity has become a serious health issue as it is associated with chronic low-grade inflammation and cardiovascular risk. Studies in adults proved that serum Myeloperoxidase (MPO) is a potent mediator for cardiovascular diseases.

Objective: This study was planned to assess serum MPO activity in obese children and adolescents to elucidate if MPO is linked with cardiovascular risk parameters.

Subjects & Methods: This research work was conducted on 90 subjects (50 obese and 40 controls of matched age and sex). Each group was classified into 2 subgroups according to tanner stage into prepubertal and pubertal. Clinical examination and anthropometric measures were performed for all subjects. Also serum MPO, glucose, insulin, CRP and lipid panel were analyzed.

Results: Significant rise ($P<0.05$) in serum MPO, total cholesterol, triglycerides, LDL and a significant drop ($P<0.01$) in serum HDL values were recorded in the group of prepubertal and pubertal obese individuals relative to controls. Serum MPO activity showed positive correlation with waist: Hip ratio, body fat percentage, serum insulin and HOMA-IR. While it revealed inverse correlation with basal metabolic rate. Linear regression indicated that serum MPO activity has a good association with cardiovascular risk parameters as BMI-z score, waist: Hip ratio, serum insulin and HOMA-IR in both prepubertal and pubertal obese subjects. The cut off value of MPO activity was 480 pg/ ml in pre-pubertal group with sensitivity of 85.8% and specificity of 71% and 490 pg/ml in pubertal group with sensitivity of 84.6% and specificity of 59%.

Conclusion: This study emphasized the elevated MPO activity in the serum of prepubertal and pubertal obese individuals. Therefore, MPO could be considered as a potential link between obesity and cardiovascular complications in prepubertal and pubertal population.

Notes: