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

Inas R E I-Alameey
National Research Centre, Egypt

**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.