

Impact of Demographic and Dietary Behavior on Prevalence of Metabolic Syndrome and Insulin Resistance in Egyptian Adolescents

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Background The prevalence and magnitude of childhood obesity are increasing dramatically. We examined the effect of varying sociodemographic, dietary, and activity factors on the prevalence of metabolic syndrome and its relation to insulin resistance and to C-reactive protein and homocysteine levels in a large, representative sample of Egyptian adolescents.

Methods Survey involved 286 obese, 568 overweight, 320 underweight, and 3076 nonobese adolescents from 7 governorates representing Egypt. Baseline measurements included blood pressure, capillary fasting blood glucose and plasma lipid, C-reactive protein, and homocysteine levels. Levels of triglycerides, high-density lipoprotein cholesterol, and blood pressure were adjusted for age and sex. Because the body-mass index varies according to age, we standardized the value for age and sex with the use of conversion to percentiles.

Results The overall prevalence of the metabolic syndrome was 7.4% with no sex or area of residence predilection. Multivariate regression analysis of risk factors associated with the metabolic syndrome (presented as an ordinal variable that ranked from 0 to 3; having no criterion was scored as 0 and presence of 3 or more criterion had a score of 3), explained 57.5% of variance in the dependent. The overall significance of the model was $P < 0.000$. Variation in the diastolic blood pressure level was responsible for 25.7% of variation in data, body mass index explained another 13.1%, Triglycerides and High density lipoproteins were responsible for 9.7% and 6.7% respectively. Systolic blood pressure, fasting blood glucose, and puberty explained the remaining percentage. Family history of obesity and diabetes mellitus increase the odds for metabolic syndrome significantly (1.68 and 1.3 respectively) and being inactive was associated with an increase in the odds of the metabolic syndrome (odds ratio, 1.9; 95 percent confidence interval, 1.5 to 2.47). High level of C-reactive protein was reported among affected adolescents (odds ratio, 2.2; 95 percent confidence interval, 1.11 to 4.34) and Homocysteine level did not show an influence.

Conclusions The prevalence of the metabolic syndrome is considerable among obese adolescents. Proinflammatory markers of an increased risk of adverse cardiovascular outcomes are already present in these youngsters.

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