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LETTER TO THE EDITOR

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Body fat, cholesterol, triglycerides, and adipokines as predictors of waist circumference in overweight and obese adults

Comment to:

Diversity of metabolic syndrome criteria in association with cardiovascular diseases – a family medicine-based investigation

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Dear Editor,

The study by Ivezić-Lalić et al. compared the association between 3 definitions of metabolic syndrome and the risk of cardio-vascular disease [1]. The authors mentioned that among variables measured, the waist circumference [WC] is not a sufficient indicator of general obesity, even though it is recognized as useful in assessing abdominal fat, particularly visceral fat [2].

The present study included 67 persons, of whom 5 were overweight (BMI ≥25 kg/m^2) and 62 were obese (BMI ≥30 kg/m^2). Their ages were between 20 and 55 years (group mean ±SD, 36.0±11.0 years) and there were 35 females in the group. The body composition was measured by the BIA method, total cholesterol and triglycerides were measured by spectrophotometry, and serum leptin and adiponectin levels were estimated by radioimmunoassay. The study aimed to determine whether total body fat (a measure of general obesity), total cholesterol, triglyceride levels, leptin, and/or adiponectin could predict the waist circumference (WC), and hence central adiposity.

Multiple regression analysis using SPSS version 18 was carried out with WC as the dependent variable and with total body fat, total cholesterol, triglycerides, leptin, and adiponectin as independent variables. Multiple regression showed a significant prediction of the variables [F=19.72, DF (5, 61), p<0.001, adjusted R^2=0.587]. However, of the 5 independent variables studied, body fat (kg) alone was a significant predictor of WC [p<0.001, t=9.53, β=0.800; multi-collinearity statistics (tolerance) =0.891].

Triglycerides and total cholesterol were not significant predictors of the WC, but an earlier report emphasized that high levels of both are associated with metabolic syndrome [3]. Leptin and adiponectin were also not predictors of WC.

WC is increasingly regarded as a simple way of measuring central adiposity and, more specifically, visceral fat [1]. The present results suggest that higher total body fat, measured as a part of body composition analysis, can predict higher WC in this population of South Asian Indians. It would be useful to study this association in a larger sample and in different ethnic groups, so that the usefulness of body composition in assessing central obesity can be understood.

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