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Assessment of Body Mass Index versus Body Fat Percentage in Detecting Obesity and Related Comorbidity

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Background: Obesity is an increasingly metabolic disorder worldwide. Therefore, obesity comorbidities and risk factors are increasing.

Objective: To assess the relationship between body mass index (BMI) and body fat percentage (BF%) in relation to metabolic risk factors (hypertension, type 2 diabetes-mellitus [DM-II] and dyslipidemia).

Design: A Cross-Sectional Study.

Setting: King Fahd University Hospital, Eastern Province, Saudi Arabia.

Method: Seven hundred eleven individuals were assessed during 2-day campaign; age ranged from 18 to 60 years; 355 (49.9%) were males. The following data were documented: history of DM-II, hypertension and/or dyslipidemia. Measurements included body mass index (BMI), brachial blood pressure, blood glucose and BF%.

Result: The overall prevalence of obesity according to BMI (>30 kg/m2) was 344 (48%) compared to 466 (66.5%) according to BF% (>32% in females and >25% in males). The rate of missed diagnosis of BMI for obesity is higher than BF%. When the BMI cut-off point was lowered to 27.5, the overall prevalence of obesity became 459 (64.6%), which is close to BF% result. The sensitivity and specificity of BMI 30 and BMI 27.5 in detecting the risk of DM-II, hypertension and dyslipidemia were measured.

Conclusion: The sensitivity of BMI 27.5 was higher than that of BMI 30 which gives us a better screening tool for the co-morbidities. The choice of BF% reference is good for assessment of obesity prevalence compared to the BMI.

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