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Defining a BMI cut-off point for the Iranian population: The Shiraz heart study

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In this study, we evaluated and redefined the optimum body mass index (BMI) cut-off point for the Iranian population based on metabolic syndrome (MeS) risk factors. We further evaluated BMI cut-off points with and without waist circumference (WC) as a cofactor of risk and compared the differences. This study is part of the largest surveillance programs conducted in Shiraz, Iran, termed the Shiraz Heart study. Our study sample included subjects between the ages of 20 to 65 years old. After excluding pregnant women, those with missing data and those with comorbid disease, a total of 12283 made up the study population. The participants underwent a series of tests and evaluations by trained professionals in accordance with WHO recommendations. Hypertension, abnormal fasting blood sugar (FBS), triglyceride (TG) and high density lipoprotein cholesterol (HDL) (in the context of the definition of metabolic syndrome) were prevalent among 32.4%, 27.6%, 42.1% and 44.2% of our participants, respectively. Women displayed higher rates of overall obesity compared to men (based on the definition by the WHO as higher than 30 kg/m2). Regarding MeS, 38.9% of our population had the all symptoms of MeS which was more prevalent among women (41.5% vs. 36%). When excluding WC in the definition of MeS, results showed that males tend to show a higher rate of metabolic risk factors (19.2% vs. 15.6%). Results of multivariate analysis showed that parallel to an increase in BMI, the odds ratio (OR) for acquiring each component of the metabolic syndrome increased (OR=1.178; CI: 1.166–1.190). By excluding WC, the previous OR decreased (OR=1.105; CI: 1.093–1.118). Receiver operating characteristic (ROC) curve analysis showed that the optimum BMI cut-off point for predicting metabolic syndrome was 26.1 kg/m2 and 26.2 kg/m2 [Accuracy (Acc)=69% and 61%, respectively)] for males and females, respectively. The overall BMI cut-off for both sexes was 26.2 kg/m2 (Acc=65%) with sensitivity and specificity of 69% and 62%, respectively. This cut-off had a positive predictive value of 54% and a negative predictive value of 76%. When we excluded waist circumference, the optimum BMI cut-off for acquiring metabolic risk factors in males decreased to 25.7 kg/m2(Acc=67%) and increased for women to 27.05 kg/m2 (Acc=66%). Iranians are at higher risks of morbidity related to metabolic factors at a lower BMI cut-off and prompt action and preventive health policy are required to prevent and educate Iranians regarding diseases associated with obesity.

Biography

Maryam Hadibarhaghtalab has her expertise in evaluation of cardiovascular risk factors and making new cut off and new model for anthropometric indices. She is also trying to make new method and formula to predict cardiovascular events such as metabolic syndrome, stent restenosis and even cardiac surgeries and et al. Moreover, she is the Medical Author of almost 10 books including bio mimicry, innovations in medical sciences and et al. Besides, she has MPH degree along with being the top student in general practitioner duration and she is very good at making innovative methods to evaluate the cardiovascular diseases.

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Page 52