

Cardiometabolic Index (CMI) and Visceral Adiposity Index (VAI) highlight a higher risk of metabolic syndrome in women with severe obesity.

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Recent evidence shows that simple and inexpensive anthropometric measurements can be used to identify, at an early stage, women with obesity at increased risk of developing metabolic syndrome (MetS). Thus, the aim of this study was to compare the accuracy of five different indexes of adiposity and/or body composition in identifying MetS in a group of 876 women (mean age \pm SD: 52.1 \pm 13.8 years; body mass index (BMI): 43.6 \pm 6.1 kgm⁻²). The following indexes were determined for each subject: waist-to-hip ratio (WHR), waist-to-height ratio (WtHR), body mass fat index (BMFI), visceral adiposity index (VAI), and cardiometabolic index (CMI). Overall, the presence of MetS was detected in 544 patients (62%). Pearson correlation coefficients were calculated to evaluate the relationships between body composition indexes and metabolic characteristics of the women. Receiver operating characteristic (ROC) analysis was used to determine the best predictor for each adiposity index among metabolic risk factors. The ROC analysis showed VAI (AUC = 0.84) and CMI (AUC = 0.86) showed the best performance in predicting MetS. Differences were found between the ROC area of CMI and VAI with all other indexes ($p < 0.05$). The optimal cutoff point for early diagnosis of MetS was >0.92 for WHR, >0.76 for WtHR, >30.1 kg m⁻¹ for BMFI, >1.94 for VAI, and >0.84 for CMI. In addition, VAI and CMI were the most sensitive and specific indexes compared with other indexes. In conclusion, VAI and CMI represent the most useful and reliable indexes to be used for detecting MetS in women suffering from obesity in clinical practice.

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