Accuracy of different indexes of body composition and adiposity in identifying metabolic syndrome in adult subjects with Prader-Willi syndrome.

G. Radetti, A. Fanolla, F. Lupi, A. Sartorio, G. Grugni

Journal of Clinical Medicine 9: 1646-1657, 2020.

Objective: To compare the accuracy of different indexes of adiposity and/or body composition in identifying metabolic syndrome (MetS) in adult patients suffering from Prader-Willi syndrome (PWS).

Study Design: One hundred and twenty PWS patients (69 females and 51 males), aged 29.1 ± 9.4 years, body mass index (BMI) 36.7 ± 9.9, were evaluated. The following indexes were assessed in each subject: body mass index (BMI), fat-free mass index (FFMI), fat mass index (FMI), tri-ponderal mass index (TMI), waist-to-height ratio (WtHR) and the body mass fat index (BMFI), which adjusts the BMI for the percentage of body fat and waist circumference. Thereafter, a threshold value adjusted for age and sex, which could identify MetS, was calculated for each index.

Results: A significant correlation was found among all indexes ($p < 0.0001$ for all). However, when the area under the curve (AUC) was compared, BMFI performed better than FMI ($p < 0.05$) and BMI better than TMI ($p < 0.05$), but only in females.

Conclusions: Besides small differences, all the indexes taken into consideration seem to have the same ability to identify MetS in adults with PWS. Consequently, the most easily calculated index, i.e., BMI, should be considered as the best choice. The use of thresholds appropriate for sex and age can further improve its accuracy.