editorial

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The Cutoff Values of Visceral Fat in Metabolic Syndrome: Evidence from Studies

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Editorial

Metabolic syndrome (MetS) is associated with abdominal obesity, blood lipid disorders, inflammation, insulin resistance, diabetes, and increased risk of developing cardiovascular disease and death. Visceral fat (VF) is a risk factor for multiple CVD risk factors, including endothelial dysfunction, hypertension, dyslipidemia, diabetes, impaired glucose metabolism, insulin resistance), liver insulin resistance, non-alcoholic fatty liver disease, sleep apnea. Visceral obesity is associated with higher occurrence of cardiovascular events [1-6].

In 1870 middle-aged Japanese, VF was superior to WC and Body mass index (BMI) for discriminating the subjects with two or more components of MetS. The optimal cutoff points of VF and WC were 132.6 cm^2 and 89.8 cm for men and 91.5 cm^2 and 82.3 cm for women [7]. In other Japanese Study, 420 patients with (n=180) or without ASCD (n=240). VF cutoff levels in ROC curve was (r=0.828).

The VF cutoff levels yielding the maximum sensitivity and specificity to predict two or more components of metabolic syndrome were 92 cm^2 in males and 63 cm^2 in females. The male ACM cutoff level was similar to the AC in current Japanese criteria (85 cm. The cutoff levels of VF for predicting presence of ASCD were 98 cm^2 in males and 75 cm^2 in females [8].

In a Korean Study, the authors examined 95 men and 185 women, and determined optimal cutoff values of VF area and (WC) for predicting the presence of MetS. The ROC curve analysis revealed that VF area was the best indicator of MetS (VF and WC was 0.76 and 0.52, P<0.001). The cutoff points of VF and WC for predicting MetS were 136 cm [2] and 89 cm in men and 95 cm [2] and 82 cm in women [9].

The Ansan Geriatric (AGE) cohort study, the authors in two hundred three of 308 men and 280 of 381 women had ≥ 2 metabolic risk factors, the area under the ROC curve (AUC) value for VF to predict the presence of ≥ 2 metabolic risk factors was not significantly different from that for WC (men, 0.735 and 0.750; women, 0.715 and 0.682; AUC values for VF and WC, respectively). The cutoff points for VF and WC for predicting the presence of ≥ 2 metabolic risk factors were 92.6 cm^2 and 86.5 cm for men and 88.9 cm^2 and 86.5 cm for women [10].

In the Hitachi Health Study with 11,561 Japanese men and women, the authors observed the VF cutoff values yielding an 80% sensitivity for the detection of multiple risk factors of MS were typically smaller among men under the age of 40 years (<40 years vs. ≥ 40 years; 86.4 cm^2 vs. 103.9 cm^2). The area under the ROC curve of VF for the detection tended to decrease according to age (P=0.056 and P=0.020 for trends in men and women). The sensitivity of the subjects under the age of 40 years is relatively smaller (70.0% for men and 60.0% for women) compare to other age groups when the same cutoff value is used regardless of age [11].

In other study, the authors observed his cut-off value of VF area associated with an increased risk of obesity-related disorder, according to ROC curve, was 103.8 cm^2 (sensitivity 74.5%, specificity 64.7%, and p<0,001). The cut-off value for the WC was 89.8 cm in men (sensitivity 84.7%, specificity 91.7%, p<0.001) and 86.1 cm in women (sensitivity 83.9%, specificity 62.9%, p<0.001). This results show that VF area associated with an increased risk of obesity-related disorder in Korea was 103.8 cm^2 and the WC was 89.8 cm in men and 86.1 cm in women [12, 13].

These results show that the cutoff VF is associated with MetS. Large-scale studies are needed to define these points in different populations, and are measurement can serve as a target for the treatment and prevention of CVD.

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