Metabolic Syndrome

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Introduction

Metabolic Syndrome (MS) is a complex disorder characterized by a group of Risk Factors (RF), including changes in glycemic levels, insulin resistance, lipid profile, blood pressure levels and central obesity (visceral adipose tissue – VAT), which increase the incidence of cardiovascular diseases often associated with ageing. [1]

It is estimated to affect over 20% of the global adult population, and women are at greater risk. Central (visceral) obesity is thought to be the predominant RF for MS, especially among overweight and low-educated elderly.[2]

Central obesity can be called an underlying risk factor for cardiovascular disease (ASCVD). It is called this because it raises the risk for ASCVD through other RFs, including major RFs (hypercholesterolemia, hypertension, hyperglycemia) and emerging RFs (atherogenic dyslipidemia, insulin resistance, proinflammatory state, prothrombotic state). The constellation of major and emerging RFs that make up the MS can be called metabolic RFs and, since predictions estimate that 50% of adults will be classified as obese by 2030, it is likely that MS will be a significant problem for health services and a drain on health economies.[3]

Abdominal obesity does not always occur in individuals with elevated BMI. It was recognized as early as 1981 that normal weight, metabolically obese individuals existed due to the presence of excessive visceral fat deposits.[4]

Keywords

Metabolic Syndrome; Risk Factors; Prevention and Control; Obesity; Dyslipidemias; Hypertension; Diabetes Mellitus, Elderly.

In this issue of IJCS, Almerida et al., [5] present a study with 159 patients from Lagarto/Sergipe, whose mean age was 70.9± 7.5 years. Central obesity was present in 43.2% of men and 56.89% of women and was associated with changes in HDL-C levels. The study adds to the understanding of this condition in a Brazilian region where few studies of this kind have been carried out and confirms its high prevalence.

It is important to highlight that measuring waist circumference in older adults can be difficult due to the curvature of the spine and vertebrae and walking or standing limitations. It may be necessary to adjust the cutoff for waist circumference based on age and ethnicity. Sex-specific cut-off criteria for the general population are ≥102 cm (40 in) for men and ≥ 88 for women (35 in).[1] See Table 1.

When the BMI is used as a measure of obesity, only a modest association with cardiovascular RFs is found.

Table 1 – ATP III Clinical identification – Three or more risk factors present	
Risk Factor	**Defining Level**
Waist circumference	
Men	≥ 102 cm (>40 in)
Women	≥ 88 cm (325 in)
Triglycerides	≥\ 150 mg/dL
HDL-C	
Men	< 40 mg/dL
Women	< 50 mg/dl
Blood Pressure	≥ 130/≥ 85 mmHG
Fasting Glucose	≥ 110 mg/dL
The American Diabetes Association established a cut point of 100mg/dL	

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However, when abdominal obesity measurements, such as waist circumference or waist-hip ratio, are included as a measure of abdominal adiposity, a strong association with cardiovascular and metabolic syndrome RFs is found.[6] Therefore, it is important to measure the waist circumference in the patient's routine examination.

Evidence shows that one of the single most important lifestyle changes for the prevention of many chronic diseases is exercise. For this reason, exercise is now recognized as a medical treatment to improve quality of life and functioning in the elderly. There is growing evidence that regular and consistent exercise significantly reduces abdominal fat deposits, *independent of weight loss*.[7]

A systematic review and meta-analysis were conducted by Ostman et al. to determine whether exercise reversed various indices of metabolic syndrome, including body composition, blood cholesterol, fasting blood glucose, fasting insulin, blood pressure and clinical outcome. When the combined exercise group was compared with the control group, the mean difference of: waist circumference was -3.80 cm (95% CI -5.65, -1.95, $p < 0.0001$); systolic blood pressure was -3.79 mmHg (95% CI -6.18, -1.40, $p = 0.002$); and HDL was 0.14 (95% CI 0.04, 0.25, $p = 0.009$). The improvements in waist measurement would suggest that the long-term risks associated with MS were reduced, although the program needs to be tailored to the individual whilst aiming to deliver optimal effects.[8]

Due to population characteristics, further and larger studies are required to improve the diagnosis and treatment of MS in older adults and, consequently, reduce the cardiovascular risk of this growing and vulnerable population.

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