Obesity and central obesity

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Overweight and obesity are condition that are associated with increased morbidity and mortality of chronic diseases and health problems, including cardiovascular disease, type II diabetes, musculoskeletal disorders, especially osteoarthritis and certain site-specific cancers, including colorectal and breast cancer. Overweight and obesity is defined as having a body mass index (BMI) >25 kg/m (BMI; obtained by dividing the individual's weight in kilograms by the squared of height in meters). This measurement is easy to obtain, reproducible, and widely accepted not only for epidemiological purpose and physician use a BMI data to manage their patient in daily clinical setting. There are different categories from overweight to morbid obesity based on BMI, for different gender and age. There is also a different standard BMI for children; age and sex matched should be considered before diagnosing overweight or obese based on their percentile position.

Epidemiological studies have used a BMI as the chosen method to measure the body size. World Health Organization (WHO) stated that by 2016 around 39% of adults were overweight and 13% adult were obese, with women population has slightly higher prevalence.[1] Mortality of non-communicable disease (NCD) related to overweight and obesity is increased globally, even in developing world where malnourishment is still become a problem. The prevalence of obesity and central obesity in the Indonesian adult population according to National Health Census in 2007 were 23.1% and 28%, according to recent publication.[2] The prevalence of both obesity criteria are higher in females than males. This phenomenon has driven a global campaign to develop a prevention of overweight with an introduction of healthy diet and promotion of physical activity.

Determining the best method for quantifying body fat is important in selecting population who will require a specific intervention to lower NCD risk. The concept of central obesity seemed to have a better predicting a degree of fatness and eventually metabolic problem. Fat distribution in abdominal obesity has worsened the correlation with metabolic problem.[3] Central obesity using waist circumference (WC) or waist to hip ratio (WHR) has been suggested to be better in predicting CVD risk individually than using only a BMI (obesity).[4] Different pattern of central obesity between man and woman is recognized as the android pattern; thus increase waist circumference is seen more in men. However, an advanced age in woman also change the obesity pattern. Currently, the WHO recognizes that WC between 94.0–101.9 cm in men and 80.0–87.9 cm in women and WHR 40.8 and 40.9 in women and men, respectively, correspond with the BMI overweight range 25–29.9 kg/m.

The Emerging Risk Factors Collaboration (2011)[5] stated that incorporating a waist circumference information in prediction models

Table 1. Combined recommendations of BMI and waist circumference cut-off points made for overweight or obesity, and association with co-morbidities risk.[1]

Classification	BMI (kg/m²)	Risk of co-morbidities	
		Waist circumference	
		<90 cm (men)	≥90 cm (men)
		<80 cm (women)	≥80 cm (women)
Underweight	<18.5	Low (but increased risk of other clinical problems)	Average
Normal	18.5–22.9	Average	Increased
Overweight	≥23		
At risk	23-24.9	Increased	Moderate
Obese I	25-29.9	Moderate	Severe
Obese II	≥30	Severe	Very severe

did not increase the prognostic value provided by BMI if they have other information such as circumference information in prediction models did not increase the prognostic value provided by BMI if they have other information such as a history of diabetes, high blood pressure, and high cholesterol levels. However, the study also showed that for a certain BMI category, subgroups of waist circumference or WHR were associated with an increased mortality risk.

Other studies demonstrated that a measure of central obesity such as waist-to-hip ratio, waist-to-height ratio,[6,7] or waist circumference alone may provide an additional information beyond a BMI on mortality risk among middle-aged adults; there is no adjustment for obesity-related cardiovascular risk factors.[8,9] Moreover, a study has also shown that measures of central obesity are more strongly associated with total and cardiovascular disease death than BMI.[9]

In this issue of Medical Journal of Indonesia (MJI), Harbuwono et al[2] provide the obesity data not only using BMI measurement, but also waist circumference in relation to several prognostic factor of NCD. The main finding was that one-fourth Indonesian population fell into obesity category, even in 10-year old survey data. The message is clear that given the pattern of increased obesity globally, Indonesian epidemiological data should show more than 25% obese population. As a physician, we should always spend time to consider an obesity and its related problem in our population.

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