Limitations in the Clinical Assessment of Obesity: Comments on the American Heart Association's 2006 Statement

To the Editor:

The American Heart Association (AHA) update on obesity has recently been published.[1] The purpose of this letter is to comment briefly on the limitations of the clinical assessment of obesity.

The link between obesity and cardiovascular risk (CVR) has traditionally been controversial. Although the Framingham study already observed in 1967 that higher body weight raised an individual's probability of cardiovascular disease (CVD),[2] it was only in 1998 that the AHA (American Heart Association class) first recognized obesity as a major independent cardiovascular risk factor.[3] The explanation to this problem lies precisely in the limitations of obesity assessment, which should be expressed as a percentage of body fat,[4,5] but is difficult to quantify clinically.[5] Numerous anthropometric variables have been used for this purpose, but body mass index (BMI) is the most highly extended to assess body weight and, along with abdominal circumference, is the method recommended by the AHA.[1]

The key limitations in the clinical assessment of obesity include the following:

1. Available indexes do not identify the percentage of body fat (ie, they do not discriminate between muscle, fat, and bone).

2. The fat-to-muscle ratio varies with age, gender, ethnic group, and race.[1,6,7]

3. The BMI varies with body proportions and may tend to underestimate the prevalence of obesity in taller subjects and to overestimate it in shorter subjects, although this should be confirmed in larger populations.[8] Moreover, there are multiple confounding factors that can mask the actual relationship between obesity and CVR.

4. Smoking (associated with a lower body weight).[6]

5. Comorbidity of the obese patient.[1]

6. Underweight subjects (BMI <18.5) have an elevated prevalence of smoking, chronic diseases, and risk of death from cancer.[9]

7. CVR varies with height[10] and is lower in tall subjects.[11]

8. Other: physical exercise,[12] diet,[13] etc.

In summary, the main clinical indexes for defining obesity (BMI, abdominal circumference, and even waist/hip circumference[14]) have limitations, although there are practical alternatives such as a combined assessment of weight[1] and degree of physical activity.[12,15] This would make it possible to identify sedentary obese individuals, a subgroup with greater CVR[12] and, theoretically, a higher percentage of body fat.

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