Comparison of Methods for Setting Weight Loss Goals in Males

To the Editor:
In the American Heart Association’s (AHA) guidelines for the metabolic syndrome, the diagnosis of obesity is based on an abdominal circumference (AC) of 40 inches or more in males and 35 inches or more in females. For weight management, the AHA guidelines recommend reduction of weight to a body mass index (BMI) of less than 25 kg/m². In this study, we compare that recommendation to two other methods for setting weight loss goals.

The subjects in this study were a convenience sample of volunteers at health screenings conducted at a hospice, a family medicine residency, and a community center. Six of the male subjects had an AC of 44 inches or more (moderate and severe obesity), and 11 of the male subjects had an AC of 40 inches to 42 inches (mild obesity).

Figure 1 shows a comparison of weight loss goals in six subjects with moderate or severe obesity. The weight loss goals were BMI 24 kg/m² (not overweight), BMI 29 kg/m² (not obese), and 24% body fat (not obese) measured by bioelectric impedance analysis (BIA).

As shown in Figure 1, the BMI of 24 kg/m² method produced weight loss recommendations that exceeded those of BIA by a range of 112% to 310% in five of the six subjects. In contrast, the BMI of 29 kg/m² method produced weight loss recommendations that were comparable to BIA ratings in four of the six subjects. Recommendations with the degree of error found when using a BMI of 24 kg/m² are a health hazard because the patient either drops out of treatment or follows a weight loss goal that will result in a significant loss of lean weight and increased morbidity.

Figure 2 shows a comparison of weight loss goals in 11 male subjects with mild obesity. As in

Figure 1

Weight Loss Recommendations

Figure 2

Weight Loss Goals

BMI—body mass index
BIA—bioelectric impedance analysis

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the first group, BMI 29 kg/m² and BIA weight loss recommendations were similar, but the BMI 24 kg/m² recommendations exceeded BIA recommendations by 200% or more in nine of the 11 subjects. Overall, weight loss recommendations by BMI 24 kg/m² were excessive in 14 of 17 subjects.

Subjects 9 and 10 in Figure 2 were both considered normal by the BMI 24 kg/m² method. When AC and BIA diagnose obesity in a subject but the BMI diagnosis is normal, the subject will almost always have low lean weight. Subjects 9 and 10 were taller than average (72 inches and 70 inches), but both had a lean weight of 131 pounds, the lowest lean weight in the group (The range for lean weight was 131 pounds to 199 pounds). The first intervention in these two subjects should be an increase in lean weight to more than 140 pounds.

The primary cause of serious error by the BMI is inadequate information. The BMI uses only height to determine a healthy weight range, but at any given height, a subject’s healthy weight range will also vary with muscular development, body frame size, and gender. An accurate weight assessment cannot be done with a method that uses only one of the above four variables.

This study demonstrates the frequency of serious error when BMI 24 kg/m² recommendations are the only method used to set a desired weight in an adult male. An excellent source for information about BIA and other practical weight assessment is Applied Body Composition Assessment by Heyward and Wagner. Several articles have been published regarding the limitations of the BMI and about the health problems associated with low lean weight, but we could not find any article comparing weight loss recommendations set by a BMI of 24 kg/m² to those set by other methods.

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References

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