Abstract

Introduction: Body weight is useful for many medical and nutritional procedures. When it is difficult or impossible to measure body weight in hospitalized/institutionalized elderly, it can be estimated through equations based on anthropometry generated in other countries, although their validity in other contexts has been poorly studied. Objectives: To create and validate an equation for estimating body weight for both, hospitalized and nursing home residents Mexican elderly women (institutionalized) using anthropometric measurements. Methods: A validation study was carried out in elderly women (60 years old), admitted to the Geriatrics Service of the Hospital Civil de Guadalajara "Fray Antonio Alcalde" during February-April 19th (n = 43) and April 20th-June 2005 (n = 29), and elderly women residing in three nursing homes in the Metropolitan Area of Guadalajara evaluated during June 2003-June 2004 (n = 23). Subjects were weighed using a scale which was adapted to their clinical situation and were anthropometrically assessed. In the first sample, we generated a new equation using multiple regression analyses. Then, the equation was validated in the other two samples. We also estimated weight using Chumlea’s equations: in all samples, estimated and actual weights were compared between each other through a paired t-test. A p < 0.05 was considered as significant. Results: Mean ages in each sample were: 84.3 ± 7.3, 84.4 ± 9.1, and 84.2 ± 8.5 years, respectively. Mean actual weights were: 48.2 ± 13.5, 48.1 ± 10.1, and 55.0 ± 12.3 kg, respectively. The resulting equation was: estimated weight = (1.599* knee height) + (1.135* mid arm circumference) + (0.735*calf circumference) + (0.621* tricipital skinfold thickness) - 83.123 (R² = 0.896, p < 0.001). In hospitalized women, there were no significant differences between estimated and actual weight (sample 1: D-0.02 ± 4.3kg, p = 0.976; sample 2: D-0.7 ± 4.2 kg, p = 0.352). In female nursing homes residents (institutionalized women) weight was significantly overestimated (1.9 ± 3.2 kg p < 0.01), but the mean difference was smaller than the ones found using Chumlea’s equations. Conclusions: The developed equation predicted accurately hospitalized elderly women’s body weight in our context. In institutionalized elderly women, weight was significantly overestimated. It would be useful to derive equations for different settings that present normal body weight.

Keywords