Validity of Predictive Equations for Metabolic Basal Rate in Brazilian Patients with Type 2 Diabetes (P12-039-19)

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Objectives: To evaluate in Brazilian patients with type 2 diabetes which of the seven predictive equations selected to estimate basal metabolic rate (BMR) is the best alternative considering calorimetry indirect (CI) as a reference method.

Methods: A cross-sectional study was conducted with 62 patients (31 men and 31 women) with type 2 diabetes. Clinical and laboratorial variables were evaluated as well as body composition by electrical bioimpedance. The BMR was measured by IC (Analisador MedGraphics Cardiorespiratory Diagnostic Systems, model CCM Express®) and estimated by prediction equations. Dietary intake was evaluated by a food frequency questionnaire (FFQ). Data were analyzed using Bland–Altman plots, paired t-tests, and Pearson’s correlation coefficients.

Results: Our patients were aged 63.1 ± 5.2 years, had diabetes duration of 11 (1–36) years and A1C test 7.6 ± 1.2%. The body composition contained a fat free mass of 35.2 ± 11.8 kg and a fat mass of 29.1 ± 8.8 kg. The energy intake by FFQ was 1826.9 ± 628.1 Kcal/day and the BMR by IC was 1644.6 ± 310.6 kcal/day. There was a wide variation in the accuracy of BMR values predicted by equations when compared to IC BMR measurement. FAO/WHO/UNO and Oxford equations produced the smallest differences to IC. For women, the FAO/WHO/UNO equation provided the best BMR prediction in comparison to measured BMR (−1.8% of the difference). For men, the equation of the Oxford was the one closest to the BMR values as measured by IC (−1.3% of the difference).

Conclusions: In Brazilian patients with type 2 diabetes, the predictive equations by FAO/WHO/UNO (for women) and Oxford (for men) were the best to estimate BMR.

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