Distribution of HOMA-IR in Brazilian Subjects with Different Body Mass Indexes

carta ao editor

To the editor

IN THE CLINICAL SETTING, assessment of insulin resistance (IR) can be made without any laboratory test, but by evaluating data such as weight or BMI, among others. However, in the last few years laboratories have been asked to provide direct or indirect measures of IR. Homeostatic model assessment (HOMA-IR) is a simple and inexpensive technique to evaluate IR from basal (fasting) glucose and insulin or C-peptide concentrations, validated against a variety of physiological methods (1-4). To validate the potential use of HOMA-IR values in clinical practice, it is important to establish its distribution in a sample of normoglycemic individuals from a population with the same genetic background (2). In this regard, we aim to describe the distribution of HOMA-IR values in a large sample of Brazilian population. We analyzed retrospectively fasting insulin and glucose levels in 1,898 Brazilian adults (25% males, age range 18-90 years). All had fasting glucose < 99 mg/dL, none on insulin secretagogues or insulin use. Insulin levels were determined by a time-resolved fluroimmunoassay (Perkin Elmer). HOMA-IR was calculated with the following: fasting serum insulin (μU/ml) + fasting plasma glucose (mmol/l)/22.5 (1). In the entire group the mean HOMA-IR was 1.8 ± 0.9 (M $\pm$ SD). Taking into account the relationship between adiposity and insulin levels and IR, we stratified the group according to the BMI (kg/m²) in terciles: < 25 (n= 883); 25-30 (n= 624) and > 30 (n= 391) (table 1). A recent publication in a group of 312 non-obese, normoglicemic Brazilian subjects found a mean HOMA-IR of 1.7, and a threshold value for insulin resistance of 2.71 (3). The use of HOMA –IR to quantify insulin sensitivity can be helpful in clinical practice for comparisons of insulin sensitivity, gathering of longitudinal data in subjects at risk for development of abnormal glucose tolerance. Also, HOMA –IR can be used to assess longitudinal changes of IR in patients with diabetes in order to examine the natural history of the disease and to assess the effects of treatment, as demonstrated for example in the U.K. Prospective Diabetes Study (UKPDS) (5). Our results can be useful as a reference for further Brazilian studies using HOMA-IR values as a measure of IR in this particular population.

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Table 1. Distribution and mean ± SD in a group of 1,898 Brazilian adults with normal fasting glucose levels.

BMI (kg/m²)	n	HOMA-IR Mean ± SD	Distribution (95% CI)
< 25	883	1.2 ± 0.65	0.4-2.9
25 a 30	624	1.8 ± 0.98	0.4-4.3
> 30	391	2.9 ± 1.6	0.7-8.2

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ERRATUM

Na edição de Abril de 2006, o artigo de Luciana Bahia e colaboradores — "O Endotélio na Síndrome Metabólica" (Arq Bras Endocrinol Metab 2006; 50/2:291-303), por uma falha na diagramação, foi impresso com o endereço errado da Instituição.

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