Evaluating Osteoporotic Fracture Risk in Latin American Countries

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Clinical risk factors (CRFs) have long been recognized as key elements associated with both OP risk as well as fragility fractures. Several studies have focused on identifying the strength of association of selected CRFs such as age, sex, family and personal history of fracture, smoking, alcohol, and physical activity, with fragility fractures. Some of these CRFs have been shown to be independent of BMD and therefore provide additional information in the identification of fracture risk. Several instruments have attempted to identify patients at risk by combining CRFs (OST, osteorisk, ORAI, SCORE).

Among the tools available for fracture risk assessment, the most commonly used is FRAX® [10]. The FRAX model is a computerized algorithm developed in 2008 by the Bone Metabolic Disease Center in Sheffield, UK (http://www.shef.ac.uk/FRAX). FRAX models are currently available for 63 countries, accounting for 79% of the world’s population of 50 years or more [10]. The algorithm, intended for primary care, calculates the probability of fracture from clinical risk factors (CRFs) that are very easy to obtain in men and women. The outcome of the FRAX is the probability at 10 years of suffering a major fracture (MF) (hip, clinical spine, humerus or wrist) and/or an HF. The probability is calculated from age, body mass index (BMI), and dichotomized risk factors that have been extensively described in previous publications [11].

To calculate the risk of specific fractures in each country, it is necessary to know the epidemiology of HF and/or other osteoporotic fractures (MF), as well as mortality data in each country [12]. The available evidence indicates that the incidence of MF can reasonably be predicted from the incidence of HF. Most LA countries incorporated into FRAX have only provided data on the incidence of HF, which required assuming that the age-specific and gender-specific rates of MF found in Malmö, Sweden [13] are comparable to those from countries with incomplete epidemiological information [14, 15].

The intervention thresholds (IT) are specific to age and vary in each region and country studied. For example, in US for any MF treatment thresholds ≥ 20% (≥3% in Hip Fractures) are considered, in the UK it is 7.5% and in Japan 10%. In LA, the following intervention thresholds specific to age and sex were...
recently established. For the ages of 40 and 90 years respectively IT varies from 1.5 to 27.5% in Argentina, in Brazil 3.8 and 25.2%, in Chile 1.6 and 20.0%, in Colombia 0, 6 and 10.2%, in Ecuador 0.9 and 13.6%, in Mexico 2.6 and 20.0%, and in Venezuela 0.7 and 22.0% [16].

In the case of Ecuador, the information on the epidemiology of HF has been recently updated [8], so the its has been recalculated [17] and the updated thresholds with the 2016 Ecuadorian population will be updated soon.

The recent availability of the thresholds for assessment and treatment of OP specific age and gender in 7 countries incorporated into the FRAX tool, are an important advance in the prevention strategy of fragility fractures. Its use by the medical staff of the countries of the region will be of great benefit to populations at risk of LA.

The FRAX instrument can be used at the primary care level to define the actual fracture risk of individual patients in daily practice as an aid in deciding other assessments, referring patients, or to initiate treatment. Its impact may be more important among primary care physicians and specialists with little experience in the detection and treatment of patients at risk of fractures. It should be emphasized that the FRAX model is an evolving tool that is being continuously refined, as the databases of each country are updated with more epidemiological information.

**Keywords:** FRAX Tool; Osteoporosis; Hip Fracture; Latin America; Osteoporotic Fracture Risk

**References**