Letter to the Editor

Use of the FRAX calculator with and without bone mineral density in Greek women

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The creators of the FRAX fracture risk calculator for countries with no national reference values (such as Greece) suggest the use of FRAX from a neighboring country.[1,2] For Greeks (considered to run a high risk for osteoporotic fractures), the Italian FRAX is the suggested choice.[2] The correlation of FRAX results with and without the use of femoral neck T-scores assessed by DXA is considered to be adequate. The aim of our study was to assess the correspondence of 10-year femoral neck fracture risk with and without the inclusion of femoral neck T-scores implementing the Italian FRAX in Greek women and to evaluate, albeit indirectly, its validity.

We studied 88 consecutive women outpatients (mean age±SD: 58±8 years) with 0-3 FRAX risk factors. All had neck femoral bone mineral density (BMD) assessed by DXA and received only calcium supplements ± vitamin D3 (500 mg/day to1200 mg/day ± 400 IU/day to 1200 IU/day, respectively); all were bisphosphonate-naive. We calculated the 10-year femoral neck fracture risk with and without inclusion of femoral neck T-scores, drafted a Bland-Altman diagram and calculated Cohen's Kappa coefficient

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(with the accepted 3% 10-year femoral neck fracture risk as a discriminatory threshold).[3,4]

Based on DXA measurements, 17 women had a BMD within normal limits, 53 had osteopenia and 18 had various degrees of osteoporosis. Inspection of the Bland-Altman diagram showed that although the correlation of FRAX scores was acceptable for most women, there were nevertheless inconsistencies for a substantial number of them (Figure 1). Discrepancies in FRAX scores with clinical importance (based on the accepted 3% 10-year femoral neck fracture risk) were noted in 21/88 women (24%) (Table 1). The Kappa coefficient was low (0.33).[4]
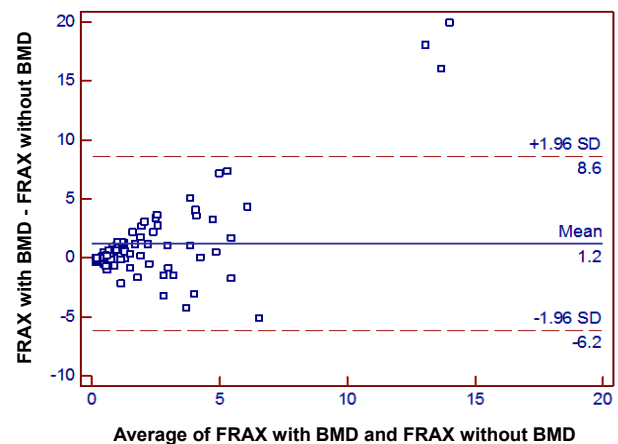
The correlation of femoral neck fracture risk in Greek women using the Italian version of FRAX with

Figure 1. Bland-Altman plot of FRAX estimated 10-year hip fracture rate with and without the inclusion of BMD results.

Table 1. 2x2 table for calculation of Cohen's Kappa

		Estimated 10-year hip fracture rate from FRAX with BMD	
		<3%	≥3%
Estimated 10-year hip fracture rate from FRAX without BMD	<3%	57	14
	≥3%	7	10

and without the inclusion of femoral neck T-scores was not satisfactory (76%) and was worse than that reported during the validation of FRAX in other countries (approximately 85%-90%).[2] This finding is important in view of the proposed use of FRAX as a means to identify low- or high-fracture risk patients who do not require DXA[5] and must be taken into consideration when interpreting results in Greek women. A Greek FRAX appears to be necessary.

All the authors declare no conflict of interest.

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