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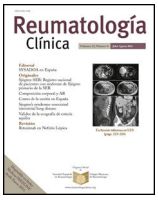

Letter to the Editor

The application of the FRIDEX calibration of the FRAX tool to determine the absolute risk of osteoporotic fracture among Spanish women☆

La aplicación de la calibración FRIDEX de la herramienta FRAX® para determinar el riesgo absoluto de fractura osteoporótica en mujeres españolas

Dear Editor,

We read with interest the recently published article in your journal by Kyriakos et al.[1] This article contains a cost-effective analysis of applying the intervention thresholds of 2 models for calculating the risk of fracture in osteoporosis management: the FRIDEX[2] calibration, based on the cohort of the same name[3] and validated for the Spanish population,[4] for the one part and the thresholds of the *National Osteoporosis Guideline Group* (NOGG)[5,6] for the other. Both models use the FRAX® tool (http://www.shef.ac.uk/FRAX/), but as highlighted by the authors themselves, the NOGG thresholds are specific to the population of the United Kingdom and their use in the Spanish population would give rise to considerable errors in the calculation of fracture risk.[1,7] The NOGG[6] itself concludes "*the use of FRAX®—with fixed or age-dependent thresholds—as a gateway to assessment, identifies high risk individuals with greater efficacy than the use of bone mineral density (BMD). Notwithstanding, the establishment of intervention thresholds should be country-specific*". As a result we understand that they have used NOGG thresholds as a "hypothetical" model so as to have another reference in the analysis of FRIDEX calibration efficiency in our sample.[1]

This study is very interesting because, among other aspects, it analyses the behaviour of the FRIDEX calibration in a specific Spanish autonomous community and because it provides data which confirm several improvable aspects in current medical practice regarding the approach to osteoporosis. For example, it shows that 36% of women with previous fragility fractures do not receive pharmacological treatment (PT) from physicians of different specialties,[1,8] although there is broad consensus that these women are at high risk of fracture.[5,6] It also indicates that 31.4% of the sample received PT, although here it would be of interest to determine concordance with the densitometry result (DXA) and what happened in each of the 2 models analysed.

Regarding more technical aspects, we have a doubt about Figure 1 of Kyriakos et al.[1] where the FRIDEX calibration would indicate PT to 138 women at high initial risk (FRAX® $\geq$ 7.5%) plus the 24 cases with osteoporosis in the DXA among the 77 at intermediate risk. This may be interpreted that the 138 cases would pass directly to the final table without applying the result of the DNX to them which the FRIDEX model would advise.[2] Although this aspect is quoted in the redaction, there is no explicit record of what the result of recalculating FRAX® with the *T-score* of the neck of the femur (NF) would be in these 138 cases.[1] It could also be interpreted that they all become high risk again on being recalculated with FRAX® and the *T-score* of the NF. We therefore believe it would be relevant for the authors to clarify this point.

In the FRIDEX[2] cohort we observed that 21.4% of initially high risk cases (FRAX® $\geq$ 7.5%) became not high risk when FRAX with T-score of the NF was re-calculated. If we apply the same percentage, the group to which the FRIDEX model would indicate a PT to would drop from 26.7% to 21.9%, and healthy lifestyles would be recommended to 78.1%.[1] Although the conclusions on the number of DXA indicated would not vary, in the case of the PT the results and conclusions could be severely affected in both financial analysis and in the concordance between the models (FRIDEX vs NOGG). The authors conclude that the general application of the FRIDEX calibration thresholds would be cost-effective.[1] It has yet to be seen, however, whether routine application could imply even greater cost savings in PT.

According to previous experience,[2,8] it would be difficult when requesting a DXA that no cases with an initial FRAX® $\geq$ 7.5% appear and without densitometry osteoporosis in the DXA.[2–4] Some cases would become not high risk and would therefore not imply PT. In the FRIDEX[2,3] cohort the saving over regular practice was 28% (3% in the reduction in DXA and 25% in the reduction in PT).[2]

We believe that the readers will be interested in finding out if there are changes or if the results remain the same, in the cost-effective analysis and Cohen's kappa concordance coefficient.

We also wish to take this opportunity to encourage other researchers to carry out further analysis on the FRIDEX calibration of behavioural models in determining absolute risk of fragility fracture in their own populations.

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