

P407

**FRACTURE PREDICTION MODEL FOR WOMEN  
AGED OVER 50 IN THE REPUBLIC OF BELARUS**

H. Ramanau<sup>1</sup>, E. Rudenka<sup>2</sup>

<sup>1</sup>Gomel State Medical University, Gomel, Belarus, <sup>2</sup>Minsk  
City Center of Osteoporosis, Minsk, Belarus

Low-energy fractures are a common complication of osteoporosis for women aged over 50. The elaboration of national fracture prediction models based on risk factors with and without DXA is obligatory. Aim: To define the significant risk factors for low-energy fractures for women aged over 50 and to create prediction models for Belarusian population.

**Materials and Methods:** The study protocol included the following parameters: height, weight, age, age at menopause, chronic diseases (glucocorticoids intake, thyrotoxicosis, RA, GI ulcers, COPD, liver cirrhosis and ESRD), low-energy fractures in anamnesis at patients aged over 50 (forearm, hip fractures, spine), smoking, frequent falls (>1 per month), a parental history of hip

fractures and living alone. The measurements of BMD were performed by DXA for 1,533 females aged over 50.

**Results:** The mean age in the study group was  $64.3 \pm 8.0$  (95 %CI 63.9; 64.7). During the survey it was revealed 416 previous low-energy fractures of typical localization in the cohort aged over 50: 283 (68.0 %) forearm fractures, 83 (20.0 %) spine fractures and 31 (7.5 %) hip fractures. The most significant variables identified by ROC-analyses: 'age' with the optimal cutoff point  $>65$  (sensitivity 69 %, specificity 68 %) and the variable 'T-score FN'  $<-1.7$  (sensitivity 74 %, specificity 75 %). Six significant ( $p < 0.005$ ) variables were included into the regression analysis with optimal scaling (CATREG) to calculate the standardized coefficient B and scoring ( $B \cdot 100$ ). The most significant risk factors were identified as the following: a parental history of hip fracture (+37 points), chronic diseases (+25), T-score FN  $<-1.7$  (+16), living alone (+15), age  $>65$  (+5) and falls (+2). The threshold value of the total score associated with a high risk of fracture was calculated using the ROC-curve. The predicted frequency for fracture prediction model by logistic regression with the cutoff of 33 points was 70.3 % (AUC 0.928 (95%CI 0.914; 0.941);  $p < 0.001$ ).

**Conclusion:** The proposed fracture prediction model allows calculating the risk of low-energy fracture with high probability even in cases of DXA inaccessibility for timely starting of antiosteoporotic therapy.