

The high odds ratios confirm that reliable results can be achieved by combining the BSV and the SE. This novel algorithm for the assessment of bone microarchitecture may not only be useful in osteoarthritis subjects but also for the early prediction and assessment of other degenerative bone diseases like osteoporosis and rheumatoid arthritis.

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COMPARISON OF THE SCALES FRAX AND QFRACTURE IN THE SPANISH POPULATION

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Background: FRAX is the scale for estimating the risk of fragility fracture more used worldwide. Some other scales have also been published, as Qfracture and Garvan. Qfracture has not been validated outside its country of origin (UK) and a few studies have compared them both.

Main objective: To compare the scales Qfracture and FRAX in the Spanish population. The outcome was the first fracture recorded after the determination of both scales.

Material and Methods: Prospective observational study. 529 patients were included. They all had at least two clinical evaluations and were studied at least for 10 years. Qfracture and FRAX were estimated at the first visit. Some patients were followed up to 24 years. All the new fractures were recorded and verified, either with X-rays or with clinical reports.

Statistical study:

Univariate analysis: The categorical variables expressed as frequencies and percentages, and you continue as averages and diversions standard when the information was following a normal distribution, and as medians and ranges interquartiles (percentiles 25–75) when the distribution was not normal. The percentages were compared using the chi-square test, the media with Student's t-test and the medians with the Wilcoxon's test for independent data. Analysis of survival. In order to explore the predictive capacity of the QFracture major, the patients were classified in agreement by the tertiles corresponding to the predictor (<2.8; 2.8-7; >7). In each of these groups the curves of survival were estimated up to the appearance of the first fracture. In each of these groups the curves of survival were estimated up to the appearance of the first fracture by means of Kaplan-Meier's method. The difference between them was confirmed using

the test log-rank. Likewise there was obtained the value of the statistician D, which evaluates the capacity discriminant of the scoreboard for the fractures. In order to evaluate the capacity discriminant of the QFracture and FRAX for any fracture, the patients who had a follow-up for at least 10 years they were classified as they had had or not at least a fracture in the first 10 years. For this classification it was realized an analysis ROC (receiver operating characteristics), being estimated the area under the curved correspondent ROC by means of a 95 % interval for both scales. Discriminant of the QFracture and FRAX were selected as ideal threshold, the value associated with the point of the curve ROC that minimized the quantity $(1 - \text{sensibility})^2 + (1 - \text{specificity})^2$. For these threshold there were estimated the sensibility, specificity, the predictive positive value (PPV) and the predictive negative (PNV) by means of confidence intervals to 95 %. A contrast of hypothesis was considered to be statistically significant when the corresponding value of p was lower than 5 %. The information was analyzed using the program R, version 3.1.0.

Results: We found no differences with the statistics studied. Both scales seem to discriminate well. The sensibility and specificity were similar. The p value of the AUC was nonsignificant: $p=0.757$.

Conclusion: Qfracture and FRAX have shown similar results for calculating the 10 years risk of fragility fracture in the Spanish population.

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COMPARISON OF DENOSUMAB VERSUS ZOLEDRONIC ON TBS: A HEAD TO HEAD STUDY

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Background: Denosumab and zoledronic acid are the two more powerful drugs used in the treatment of the osteoporosis. Though they have many common points (pharmacological potency, parenteral administration, long duration effect) their mechanisms of action are different. We have found no one “face-to-face” study comparing the effect on the trabecular bone score (TBS) of these two drugs.

Objective: To study the changes produced in the mineral bony metabolism in 2 groups of patients suffering from severe postmenopausal osteoporosis, which were treated either with zoledronic acid or denosumab in a random manner, and followed-up of 3 years. We have analyzed the changes in the quantity of bone (BMD), in his quality (TBS and calcaneal ultrasound - QUS) and finally the biochemical markers of bone remodeling (MRO).

Material and Methods: Observational, opened, “face to face” and longitudinal study, performed in patients suffering from severe postmenopausal osteoporosis who were assigned to group I treated with zoledronic acid, 5 mg i.v. yearly and Group II treated with denosumab 60 mg s.c each 6 months. We measured BMD, TBS and QUS, and also determined biochemical markers of bone remodelling. The statistical study was effected realizing the analysis of the variance with repeated measures, using the program SPSS.

Results: The patients were randomized correctly and all their basal characteristics were similar.

Conclusion: This is the first “face-to-face” study that compares denosumab with zoledronic acid to 3 years measuring BMD, TBS and calcaneus ultrasound (bone quantity and quality). We have not found any similar reference in the consulted bibliography. At the end of 3 years of the study, denosumab, produces a major increase in the quantity of bone, estimated by BMD, and also in the quality estimated by both TBS in the lumbar spine and QUS parameters.

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EVALUATION OF THE ACUTE EFFECTS OF WHOLE BODY VIBRATION EXERCISES IN BALANCE, FLEXIBILITY AND MUSCLE ACTIVATION OF WOMEN WITH SYSTEMIC LUPUS ERYTHEMATOSUS WITH AND WITHOUT OSTEOPOROSIS

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Objective: To evaluate the acute effects of whole body vibration exercises (WBVE) in balance, flexibility and muscle activation of women with systemic lupus erythematosus (SLE) with and without osteoporosis (OP).

Methods: Following the local ethical committee designations 20 women with SLE diagnosed for more than 5 years, with ages above 40 years old, that were using corticosteroids for more than 5 years consented their participation on the study. They were divided in two groups: 10 patients had demonstrated OP in the DXA studies and 10 patients had not demonstrated OP in DXA. Patients were attended in the Rheumatology

Division of the Hospital Pedro Ernesto, in Rio de Janeiro. The 20 DXA studies were performed by the same technician and the results interpreted by the same doctor. For the entire group of SLE women it was performed 2 separate evaluations of a unique protocol, the first evaluation before the WBVE and the second evaluation within 5 minutes after the WBVE were finished. The evaluation protocol consisted of the Short Physical Performance Balance (SPPB), the timed up and go test (TUG), the finger-to-toe distance (FTT), and an electromyography (EMG) of the vastus lateralis muscle. The room was at a temperature of 21 °C. The patients must have eaten 30 min before the exercises. WBVE were performed in a triplanar platform, the patients were stand with 130° of knee flexion, holding the platform bars and being observed by a physiotherapist during the entire time of the exercise. The only set performed consisted of 15 bouts that lasted 1 min (frequency of 25 Hz and amplitude of 4 mm; 2.54 multiples of g force) with rest periods of 30 s between the bouts.

Results: It was demonstrated differences between the SLE with OP group and the SLE without OP group in the EMG study before and after WBVE. It was not demonstrated differences between the groups in FTT, but the first and second FTT evaluation of both groups had differences. The balance evaluation (SPPB and TUG) had no differences between the groups or moment of evaluation.

Conclusions: The WBVE are an option for physical activity for patients with SLE and OP, since it is safe and easy to perform. These patients are at increased risk of falls, due to sarcopenia and medications for the treatment of the disease. The evaluation of balance, flexibility and muscle activity is suitable and important to these patients. It was confirmed the difference of muscle activation between the groups. Flexibility evaluation was different before and after WBVE.

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GESTATIONAL VITAMIN D STATUS AND OFFSPRING BONE MINERAL MEASURES IN CHILDHOOD: A PRELIMINARY ANALYSIS

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Objective: To determine the association between gestational vitamin D status and offspring bone mineral measures during childhood.

Methods: Data were collected from the Vitamin D in Pregnancy (VIP) study (2002–04); a cohort of 475 pregnant women, recruited from the Geelong Hospital in early pregnancy (gestation 12.6±2.8 weeks). Blood samples were taken at recruitment and later pregnancy (28–32 weeks).