The diagnosis of osteoporosis can be anticipated, before the first fracture, thanks to the analysis of risk factors and the measurement of BMD, however many patients at risk are not detected and many fractures are not explained. This is where the FRAX tool has an interest. We do not have an age appropriate FRAX in Algeria. TBS which reflects the structural state of bone microarchitecture can be of great help, hence the usefulness of a national curve. This is a cross-sectional study carried out from May to August 2019 in two Douéra and CHU centers in Tizi Ouzou in women aged 20 y and over. At least 35 subjects per decade by central agency in order to establish a national curve for TBS.

Noninclusion criteria are early menopause, surgical menopause, osteoporotic fracture, osteoporosis treatment, cortisone treatment, treatment with aromatase inhibitors, diabetes, hyperthyroidism, hyperparathyroidism, lumbar scoliosis and intervention on the lumbar spine.

Results: 427 women were recruited, aged on average 50.9±16.03 y

Average BMD at spine (L1-L4): 0.884±0.159 g/cm² (0.478-1.446)

The average value of the GER is: 1.259±0.110 (0.772-1.364)

Correlations of TBS with weight, size and duration of menopause is significant

The values obtained for TBS (L1-L4) decreased with age from 45 y. The decline in TBS between 45-85 y was on average 13.5%.

P306

AUTOMATIC OPPORTUNISTIC CT BASED RISK ASSESSMENT OF OSTEOPOROTIC FRACTURE: RESULTS FROM A 48,744 SUBJECT, 5-YEAR RETROSPECTIVE COHORT STUDY

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Methods for identifying patients at high-risk for osteoporotic fractures, including DXA and risk predictors like FRAX, are underutilized. We assessed the feasibility of automatic opportunistic fracture risk evaluation based on routine abdomen or chest computed tomography (CT) scans. A CT-based predictor was created using three automatically generated bone imaging biomarkers (vertebral compression fractures, simulated DXA T-scores, and lumbar trabecular density) and CT metadata of age and sex. A cohort of 48,227 individuals (51.8% women) aged 50-90 with available CTs prior to 2012 (index-date) were assessed for 5-y fracture risk using FRAX with no BMD input (FRAXnb) and the CT-based predictor. Predictions were compared to outcomes of major osteoporotic fractures (MOF) and hip fractures during 2012-2017 (follow-up period). Compared to FRAXnb, the MOF CT-based predictor presented better area under the receiver-operating-characteristic curve (AUC), sensitivity and positive predictive value (PPV) (+1.9%, +2.4% and +0.7%, respectively). The AUC, sensitivity, and PPV measures of the hip fracture CT-based predictor were noninferior to FRAXnb at a noninferiority margin of 1%. When FRAXnb inputs are not available, the initial evaluation of fracture risk can be done completely automatically based on a single abdomen or chest CT, which is often available for screening candidates.

P307

SENIOR PHYSICAL ACTIVITY CONTESTS IN NURSING HOMES: A FEASIBILITY STUDY

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Objective: Competition has been shown to improve motivation and physical performance in young people. This method has been rarely studied in older people. Our primary objective was to evaluate the feasibility of senior physical activity (PA) contests between two nursing homes. Our secondary objectives were to assess changes in the motivational level and physical performance of the residents over time.

Methods: Residents from two Belgian nursing homes were invited to participate in PA contests. A pretest and three contest sessions were organized over a period of 3 months. The activities proposed were body balance, gait speed, sit-to-stand performance, arm curl and address tests. Feasibility was measured by contest session adherence (expected score >80%), difficulty scores (expected score<40%) and appreciation scores (expected score>80%). Motivational questionnaires were administered: the Behavioral Regulation in Exercise Questionnaire-2 (BREQ-2) (assessing amotivation, introjected regulation, identified regulation, intrinsic motivation and external motivation) and the Abbreviated Perceived Motivational Climate in Exercise Questionnaire (A-PMCEQ) (assessing ego- and task-involving climates). Friedman's analysis of variance was performed to evaluate the changes in physical performance and motivational levels.

Results: Of the 24 participants, 7 did not complete all sessions because of medical or personal reasons not related to the study. During the 3 sessions, the adherence was 86%, the mean difficulty score was 30.8% and the satisfaction score was 87%. After three sessions, residents experienced a significant decrease in amotivation (p=0.03), external motivation (p=0.03) and ego-involving climate (p=0.02) and a significant improvement in gait speed (p<0.001), sit-to-stand performance (p<0.001) and arm curl scores (p<0.001).

Conclusion: In nursing home settings, senior PA contests are feasible and may improve the motivational climate and physical performance.

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MOTIVATIONAL CLIMATE OF GROUP EXERCISE SESSIONS IN NURSING HOMES

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Objective: We examined the motivational climate among nursing home residents who were involved in group exercise sessions.

Methods: This cross-sectional study was conducted in 10 nursing homes of Liège area that offer group exercise sessions. Sociodemographic data (age, sex, BMI), cognitive status (by the Mini Mental State Examination) and independence in activities of daily living (by the Katz Scale) were retrieved in the medical records. The "Abbreviated-Perceived Motivational Climate in Exercise Questionnaire" was translated into French and then administered face to face with a clinical researcher. This is composed of 6 ego-involving climate items (corresponding to rivalry, comparison and favoritism) and 6 task-involving climate items (corresponding to valorization, individual efforts, self-improvement and cooperation). Each item is ranged on a 5-point Likert scale ranging from 1 (not at all focused on ego or task) to 5 (totally focused on ego or task). Each subscale has a total score expressed as an average.

Results: A total of 102 subjects of exercise group sessions were included (84.3±7.7 y and 83 (81.4%) women). The mean score of task-involving and ego-evolving motivational climate was respectively 3.57 (SD=0.67) and 1.52 (SD=0.49), suggesting that the motivational climate was more focused on the task-involving climate than on ego-involving climate. Some items results were of particular interest: 55.9% of the respondents found that the instructor doesn't remark/reward when they try hard, 63.7% said that the instructor doesn't encourage mutual aid and 38.2% found that instructor doesn't encourage to do new exercises.

Conclusion: Participants tended to perceive motivational climate as more task-involving than ego-involving. The absence of individual positive feedback, new exercises and mutual aid were also highlighted.

P309

INFLUENCE OF BONE MINERAL DENSITY ON HEALTH-RELATED QUALITY OF LIFE IN HEMODIALYSIS PATIENTS

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Objective: Chronic kidney disease (CKD) is associated with impaired health-related quality of life outcomes. The measurement of health-related quality of life by EuroQol five-dimensional questionnaire (EQ-5D), has become important tool for the assessment of health care in a wide range of diagnoses. BMD is one of the objective characteristics of the health state in dialysis patients. The aim of our study was to analyze influence of BMD on quality of life of hemodialysis patient.

Methods: A common EQ-5D questionnaire and EQ-VAS (visual analogue scale) were used to assess the quality of life of 343 patients (male - 174, female - 169, middle age 45.0±13.8) with CKD stage 5, receiving hemodialysis. BMD (lumbar spine, hip, and distal arm) was analyzed in all patients with QDR Hologic Discovery W. As a control, we used the results of a survey of 250 people with normal kidney function, from 20-68 y (average age 43.5±12.7).

Results: In patients with CKD, there was a decrease in the EQ index scores in comparison with the control group. Respondents with CKD reported more problems in the dimensions 'mobility', 'pain' and 'usual activities' than in the dimensions 'self-care' and 'anxiety/depression'. The mean EQ-VAS scores in CKD patients was 62.4±19.3 comparing with the 80.6±15.6 in control group (p<0.01). Respondents with low BMD of the hip and distal arm assessed by indexes T and Z had significantly more problems with 'mobility', 'pain', 'anxiety/depression'. The patients with low BMD in lumbar spine had more problems with 'self-care'. Rank correlation (Spearman's) confirmed the negative association of low BMD with

worse self-assessment of respondents. The strongest negative influence on EQ index scores had BMD of the hip.

Conclusion: The results of the study of quality of life indicate a significant deterioration of some of its parameters in hemodialysis patients with low BMD compared with patients with normal BMD. The worst results of self-assessment obtained in patients with low BMD of the hip.

P310

COLLAGEN TYPE I ALPHA1 GENE POLYMORPHISM DOES NOT PREDICT BONE MINERAL DENSITY BUT CAN BE ASSOCIATED WITH HIGHER RISK OF FRACTURES IN FEMALE HEMODIALYSIS PATIENTS

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Objective: Previous works have shown that polymorphism that affects at *Sp1* binding site in the *COL1A1* gene could be associated with reduced BMD and an increased risk of osteoporotic fracture in several populations. The aim of the study was to analyze the influence of collagen type I α1 (COL1A1) gene polymorphism on BMD and risk of fractures in female patients with chronic kidney disease on hemodialysis.

Methods: To test the relationship between COL1A1 gene polymorphism, BMD and fractures, 86 female patients, middle age 38.7 ±11.4 y, treated on hemodialysis for 4.1±1.2 y, have been studied. 22 (25.6%) patients had typical osteoporotic fractures. BMD was measured by DXA (Hologic W Discovery). To analyze BMD we used Z-score and considered two diagnostic categories: normal BMD – Z-score >-1.0 and deficit BMD – Z-score ≤1.0. Genotypes SS, Ss and ss have been considered.

Results: Patient with fractures had higher levels of intact PTH, alkaline phosphatase and longer received hemodialysis (p<0.01). We did not reveal difference in age, years of menopause, levels of serum phosphorus and calcium in patients with and without fractures. The relative distribution of COL1A1 alleles was S - 83.7%, and s - 16.3%. The COL1A1 genotype SS was revealed in 67.4% patients, Ss – 32.6 %. No one studied patient had genotype ss. There were no remarkable differences in genotype SS and Ss groups in laboratory results, including intact PTH, ionized calcium, phosphates and alkaline phosphatase and BMD. Among 22 patients who had typical osteoporotic fractures, 28,6% had genotype Ss, and 24,1% - SS.

Conclusion: We did not find obvious association of COL1A1 gene polymorphism with BMD in studied population of hemodialysis patients. However, we suggested the hypothesis that people with allele "s" could be more inclined to fractures.

P311

AGE-RELATED CHANGES IN FEMORAL HEAD BONE DENSITY AND VOLUME OF HIP FRACTURES

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Objective: Little is known about the femoral head bone changes with aging. The aim of this study is to provide reference data for volume BMD