Conclusions: We observed 25-OH Vitamin D levels and bone metabolism biomarkers correction during the first two years after LT. Medical intervention prior to LT as well as antiresorptive treatment seem to play a decisive role in bone mineral density improvement.

Disclosure of Interest: None declared

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AB0830 BONE MINERAL DENSITY IN MULTIPLE MYELOMA: 39 CASES

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Background: In multiple myeloma (MM), osteolysis affects more than 80% of patients. This leads to bone pain, pathological fractures and hypercalcemia. These lesions result from an alteration of bone remodeling by increased osteoclast activity and decreased osteoblasts one. The real impact of this osteolysis on bone mineral density remains largely understudied. To the best of our knowledge the impact of MM on bone mineralization was studied worldwide only for 6 times where our study is the second biggest one.

Objectives: The aim of the study was to evaluate bone mineralization in the patients with multiple myeloma according to the criteria of diagnostic (IMWG: International Myeloma Working Group 2014, during a period of 5 years (2011–2016).

Methods: This is a transverse and descriptive study. The bone mineral density was measured by dual-energy X-ray absorptiometry with Lunar Prodigy in spine (L2-L4) and femoral neck.

Results: Thirty-nine patients were collected. The average age was 63±10 years [50 years, 86 years] upon them 26 men and 13 women. The sex-ratio is equal to 2. 11 patients were smoking (35%), 9 of them had diabetes and only 2 were alcoholic (6%). The Body Mass Index (BMI) average was 29 kg/m². Only one case was underweight (3%). The reason of seeking health care was poor general state in 14 cases (49%), bone pain in 22 cases (78%), 5 cases among them of generalized bone pain (23%) and 12 cases of rachialgia (4.5%) and only 4 cases of pathological fracture (15%). The distribution of patients according to the Durie and Salmon Classification was as follows: 25 cases (84%) in stage III, 3 cases (10%) in stage II, 2 cases (7%) in stage I, and 27 cases (90%) Type A and 3 cases (10%) type B. The average of the monoclonal spike was 34g/L [2.5g/L, 88g/L]. The heavy chains antibodies were IgG type in 19 cases (64%), IgA type in 7 cases (24%), IgM type in only one case (4%) and IgD type in only one case (4%). The light chains were Kappa type in 19 cases (64%) and Lambda type in 11 cases (37%). The ISS score was equal to 1 in 6 cases (23%), equal to 2 in 13 cases (34%) and equal to 3 in 8 cases (30%). The average bone mass in the spine was 0.998±0.254g/cm² [0.632g/cm²; 1.892g/cm²] and in the femoral neck 0.869±0.254g/cm² [0.632g/cm²; 1.892g/cm²]. The average of the Z-score in the spine was -0.762±1.895 [-4.4; 5.7] and in the femur -0.438±0.962 [-2.8; 1.4]. The mean T-score in the spine was -1.626±2.025 [-4.9; 5.6] and in the level of the femur -1.567±1.178 [-3.7; 1]. There was a decrease of bone mineral density noticed in 15 patients (39%) in at least one place (T-score more than 2.5 SD below normal of young healthy persons. Seventeen patients (58%) were candidates for *autogenous bone graft*. They had *induction chemotherapy* (Dexamethasone-thalidomide). Others were treated by MPT protocol (Prednisone-Thalidomide-Dexamethasone) in 8 cases (28%), CDT protocol (Cyclophosphamide-Thalidomide-Dexamethasone) in one case (4%) and MP protocol (Melphalan -Prednisone) for the remaining (10%).

Conclusions: BMD analysis suggests that MM is associated with systemic bone disease with progressive loss of bone mass at both the spinal and lumbar levels. In order to better study the impact of multiple myeloma and chemotherapy on bone densitometry, a densitometry control in about 5 years is favorable.

Disclosure of Interest: None declared

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AB0831 FRAX SCORE: AN INTERESTING WAY FOR GASTROENTEROLOGISTS TO ASSESS FRACTURE RISK IN PATIENTS WITH LONG-TERM PROTON PUMP INHIBITORS

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Background: Proton pump inhibitors (PPI) are effective in many indications. Nevertheless, some serious adverse effects associated with prolonged exposure, including an increase in fracture risk, have occurred. This would be explained by two main mechanisms: decreased absorption of calcium secondary to decreased gastric acidity and inhibition of proton pump of osteoclasts reducing bone resorption.

The Frax score assesses the 10-year probability of osteoporotic fracture or hip fracture in subjects older than 40 years.

Objectives: The aim of our study was to evaluate the usefulness in our practice of this score in patients under long-term PPI.

Methods: We included patients who had been taking PPI for at least one year. In all patients, we specified the indication and duration of PPI. We then looked for the main personal or family risk factors for osteoporosis. Bone mineral density (BMD) was performed in all patients and frax score was calculated for those older than 40 years.

Results: Fifty-two patients were included in our study. The mean age was 49.5±14.55 years [21 - 84 years] with a sex ratio of 0.48. Long-term PPI were indicated in 75% (n=39) of patients for gastroesophageal reflux, in 11.5% (n=6) for chronic gastritis with failure of *Helicobacter Pylori* eradication, in 3.8% (n=2) for persistent epigastralgia, in 5.7% (n=3) for functional dyspepsia and finally in 3.8% (n=2) of patients in prophylaxis of gastroduodenal lesions in chronic use of NSAIDs. The mean duration of intake was 45.4 months [12–240 months]. The main osteoporotic risk factors were tobacco in 25%, alcohol in 12%, physical inactivity in 42% and dysthyroidism in 6% of cases. In our study, 20 women among the 35 included (57% of cases) were already menopausal. An osteoporotic fracture in a first-degree relative was noted in 23% of cases, including one patient reporting two fractures. A history of fragility fracture was observed in 11 patients (21%) including 3 men and 8 women. The mean daily calcium intake was 567.2±327.6 mg/d [230 -2315 mg/d]. Calcium intake was insufficient in 94% of patients. BMD was normal in 15 patients (29% of cases) while 71% (n=37) had low BMD. In our population, age (p=0.02), calcium intake (p=0.029) and menopause (p<0.0001) were significantly related to low BMD. The duration of PPI intake was negatively correlated with BMD. Patients taking PPI for at least 30 months were 6.5 times more likely to have low BMD (95% CI [1.5–27.4]). The mean FRAX score for major osteoporotic fractures in 37 patients older than 40 years was 1.08±0.84% [0.3–3.3%]. For hip fractures, the mean score was 0.26±0.29% [0–1.4%]. There was a significant correlation between mean Frax score and BMD (p<0.0001). None patient had a patent or subclinical fracture during the follow-up period.

Conclusions: Our study shows an increased risk of fracture in patients under long-term PPI, especially if they have other osteoporotic risk factors. In this context, Frax score is a simple and non-invasive tool for assessing fracture risk in these patients and to adapt screening strategy for sub-clinical fractures.

References:

[1] none.

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Disclosure of Interest: None declared

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AB0832 EFFECT OF LONG-TERM PROTON PUMP INHIBITORS ON BONE MINERAL DENSITY

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Background: Proton pump inhibitors (PPI) are widespread nowadays. Recent concerns have emerged about possible bone complications of long-term use of PPIs, such as low bone mineral density (BMD) and an increased risk of fractures.

Objectives: The aim of our study was to evaluate the effect of long-term use of PPIs on bone by measuring the BMD in order to estimate the frequency of osteopenia and osteoporosis, and to determine the risk factors associated to this complication.

Methods: It was a prospective study including consecutive patients who were taking proton pump inhibitors for at least one year. In all patients we realized a bone densitometry in order to evaluate the bone strength and we calculated the FRAX score to estimate the risk of osteoporotic fracture at ten years.

Results: We included 52 patients. The mean age was 49.5 years old. The male-female ratio M/F was 0.48. At least three risk factors were found in more than 50% of the population. The calculated daily calcium intake was insufficient in 94% of the patients. The mean duration of PPIs intake was 45 months. The most frequent indication was gastro esophageal reflux disease (75%). The PPI prescription was appropriate in 94% of the cases. The prevalence of osteopenia and osteoporosis was respectively 52% and 19%. The predictive factors of low BMD were an age ≥50 years old (p=0.03), the menopause (p<0.0001), a calcium intake ≤550 mg/day (p<0.038), and a PPI use duration ≥30 months (p<0.006). The multivariate study could not be undertaken because of co linearity of the factors.

Conclusions: The long term PPI use is associated to the risk of bone complications, especially among patients at risk for osteoporosis. It seems reasonable to be more vigilant in prescribing PPIs and use lowest effective dose for patients with appropriate indications, and to screen these complications if necessary.

Disclosure of Interest: None declared

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AB0833 BONE MINERAL DENSITY IN TUNISIAN PATIENTS WITH AUTOIMMUNE HEPATITIS

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Background: Bone loss in autoimmune hepatitis (AIH) is scanty and conflicting. The pathogenic mechanisms are not completely elucidated.

Objectives: This study aimed to assess the prevalence and risk factors for bone loss in patients with AIH.

Methods: Bone mineral density (BMD) using X-ray absorptiometry at both lumbar spine and femoral neck sites was measured in patients with AIH. Were excluded patients with diseases disturbing the bone density. Osteopenia was considered if T-score <-1.5 DS and osteoporosis if T-score <-2.5 DS.

Results: Twenty eight patients were enrolled in the study. They were 19 women (sex-ratio M/F=0.6), with a mean age of 54 years [extremes: 13 - 73 years]. Most patients had type 1 AIH (89.2%). Seventeen patients were diagnosed at stage of cirrhosis (60.7%). Associated auto-immune manifestations were observed in 42.8% of cases. Overlap syndrome with primary biliary cirrhosis was noted in 21.4% of cases. Fifty five percent of patients were on steroid treatment with or without azathioprine. BMD was low in 9 patients (32%) as follow: osteopenia in 6 cases and osteoporosis in 3 cases. There was a correlation between bone loss and use of steroid treatment but it wasn't statistically significant ($p=0.07$).

Conclusions: In our series, the prevalence of bone loss in AIH is high (45%). This data suggests that bone status should be assessed routinely in patients with AIH, especially in those on steroid treatment.

Disclosure of Interest: None declared

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AB0834 RISK FACTORS FOR DECREASED BONE MINERAL DENSITY IN INFLAMMATORY BOWEL DISEASE IN A TUNISIAN COHORT

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Background: Patients with inflammatory bowel disease [IBD] are at risk for metabolic bone disease. Many studies have identified various risk factors but most of them have involved western patients.

Objectives: The aim of this study was to investigate the prevalence and the risk factors for metabolic bone disease in Tunisian IBD patients.

Methods: Retrospective study including patients with IBD admitted in our department between January 2011 and December 2015. Demographic and clinical characteristics of patients were analysed. Bone mineral density of the femoral neck, total femur and lumbar spine was quantified by dual-energy X-ray absorptiometry.

Results: Among 82 patients followed for IBD (70.7% with Crohn's disease; 29.3% with Ulcerative colitis), a bone densitometry was performed in 56% of cases ($n=46$). 16 patients have osteopenia and 7 had osteoporosis, as assessed by T-score. Univariate analysis showed that Crohn's disease in particular ileal disease, high steroid dose and the presence of extra-intestinal manifestations were significantly associated with a low bone mineral density (for all $p<0.05$). In the other hand, IBD duration since diagnosis, sexe, tabagism were not associated with bone loss.

In multivariate regression analysis, risk factors for decreased bone mineral density were IBD duration since diagnosis, high steroid dose, ileal crohn's disease and extra-intestinal manifestations.

Conclusions: In our Tunisian cohort of IBD patients, Crohn's disease, high steroid dose and extra-intestinal manifestations were associated with increased risk for metabolic bone disease. High risk patients should be identified and appropriate therapies should be started early to improve long term quality of life.

Disclosure of Interest: None declared

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AB0835 DENOSUMAB AS A FIRST CHOICE DRUG FOR GLUCOCORTICOID INDUCED OSTEOPOROSIS TREATMENT INSTEAD OF BISPHOSPHONATE

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Background: Glucocorticoid induced osteoporosis (GIO) is serious problem for raising risk of bone fracture. In general, first choice drug for GIO is bisphosphonate (BPH), however, denosumab (dMAB), a monoclonal antibody of receptor activator of nuclear factor kappa-B ligand, is closed up as a alternative selection for GIO recently.

Objectives: The aim of this study is to evaluate effectiveness of dMAB in bone mineral density (BMD) for GIO treatment compared to BPH.

Methods: In the patients in whom glucocorticoid steroid (GCs) have been administered for more than three months, who met indication criteria for GIO what was determined by the Japanese Society for Bone and Mineral Research in 2014, that is matrix calculated in adding points of past fracture history, age, dosage of GCs, and BMD value (1), were enrolled. Before March 2013, data was lacking, so patients who have been administrated GCs after April 2013 were picked up. Patients BMD at GCs administration, at 6 months after initial treatment, if drug was changed, also at 6 months after second treatment, for minimum lumbar spine (LS), femoral neck (FN), and greater trochanter (GT) were measured with dual-energy X-ray absorptiometry (DEXA). Patients were classified by drug for initial treatment and second drug if administered. Patients age, initial, average, and total dose of GCs, term length of administration, and BMD and its gain for each chance were compared with Mann-Whitney U-test and Student's paired T-test.

Results: 149 patients in whom 48 with no drug administrated (N), 24 for BPH naïve and continued (BB), 22 for BPH naïve and changed to dMAB (BD), 21 for dMAB naïve and continued (DD), 34 for dMAB naïve and changed to BPH (DB) were counted. In these, sex distribution was 26 for men and 123 for women. Underlying disease for administration of GCs were rheumatoid arthritis for 114, polymyalgia rheumatica for 12, idiopathic thrombocytopenic purpura for

9, systemic lupus erythematosus for 6, and others for 8. For groups, age at baseline, initial, average, and total dose, and term length of administration of GCs demonstrated no significant difference between any pairs of the groups. BMD at baseline for Group N demonstrated significant greater per-cent of young adult mean (%YAM) than Group DD ($p<0.01$) in all parts, yet greater than the other groups but not statistically significant. In Group N, BMD had significantly decreased from the baseline to 6 months later in all parts ($p<0.01$). In the other groups, BMD had shown gain at 6 months after drug administration in all part, however, in Group DB showed mean %YAM loss for GT after first and second drug administration compared to Group BD had shown %YAM loss after first but gain after second drug for FN (Table 1).

First Drug (FD)	none	bisphosphonate		denosumab	
Second Drug (SD)	none	none	denosumab	none	bisphosphonate
Cases	48	24	22	21	34
age at baseline	69.7±10.8	73.7±16.5	81.8±12.2	72.5±11.5	71.5±10.8
initial dose of GCs	6.78±8.98	6.88±8.25	5.58±6.95	5.21±3.47	6.95±2.25
average dose of GCs	3.77±2.13	5.49±3.76	5.06±1.61	3.49±1.49	5.12±2.06
term length of administration	53.6±45.3	84.7±44.9	38.2±46.4	51.9±58.7	65.2±46.0
total dose of GCs	3836.8±4444.3	7170.2±10923.8	2447.1±6365.9	5017.1±9057.3	7898.2±772.9
BMD of lumbar spine at baseline	89.1±16.9	78.1±17.7	80.2±12.4	70.9±9.3	75.9±12.4
BMD of LS at six months after administration of FD	86.5±19.1	79.3±10.5	81.8±15.2	72.9±13.5	75.9±15.5
BMD of LS at six months after administration of SD	90.8±12.8	81.2±12.8			77.3±9.2
BMD of FN at baseline	90.8±12.8	77.3±9.3	70.6±12.9	66.8±7.6	72.1±8.8
BMD of FN at six months after administration of FD	87.8±15.4	80.0±14.6	69.1±12.2	65.9±12.4	74.3±11.4
BMD of FN at six months after administration of SD			71.2±11.3		74.4±15.3
BMD of GT at baseline	85.8±9.8	80.8±10.1	71.2±12.7	67.1±12.6	75.2±9.4
BMD of GT at six months after administration of FD	83.5±14.5	80.1±12.9	71.2±12.7	68.9±12.6	75.3±9.3
BMD of GT at six months after administration of SD			74.2±13.3		74.2±10.3

Table 1. Results of glucocorticoid induced osteoporosis (GIO) patients for each group classified by used drugs. GCs: glucocorticoids. BMD: bone mineral density, LS: lumbar spine, FN: femoral neck, GT: greater trochanter. Unit in BMD is per cent of young adult mean (%YAM).

Conclusions: From these results, dMAB is effective role in raising BMD for GIO as a initial drug, and a second drug even after inadequate response to BPH. dMAB could be possible to be chosen as a first choice drug for GIO treatment.

References:

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Disclosure of Interest: None declared

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AB0836 PERFORMANCE OF QUANTITATIVE ULTRASOUND AND SIX OSTEOPOROSIS RISK INDEXES IN MENOPAUSAL WOMEN: VALIDATION AND COMPARATIVE EVALUATION STUDY

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Background: A number of questionnaire-based systems and the use of portable quantitative ultrasound scanners (QUS) have been devised in an attempt to produce a cost-effective method of screening for osteoporosis.

Objectives: to assess the sensitivity and specificity of different techniques and their ability to act as screening tools in relation to dual energy X-ray absorptiometry (DXA).

Methods: 295 white postmenopausal women aged over 60 were enrolled. Each subject completed a standardized questionnaire which permits the measure of six osteoporosis indexes and had bone mineral density (BMD) measured using QUS and DXA. Sensitivity and specificity of the different techniques in relation to DXA were plotted as receiver-operating characteristic (ROC) curves at DXA T-score total hip ≤ -2.5 (osteoporosis).

Results: BUA sensitivity and specificity values were respectively 76.8% and 51.2% at the total hip. The optimal cut-off T-score for QUS was -2 at the total hip. The osteoporosis self-assessment tool (OST) provided consistently the highest AUC (0.80) among the clinical tools and had the best sensitivity and specificity balance (90.2%>44.5%). OST negative likelihood ratio was 0.22.

Conclusions: OST (based only on the weight and the age) performed slightly better than QUS and other risk questionnaires in predicting low BMD at the total hip.

Disclosure of Interest: None declared

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AB0837 BONE METABOLISM AND OSTEOPOROSIS RISK FACTORS ANALYSIS IN SPINAL CORD INJURY PATIENTS AT TWELVE MONTHS FOLLOW UP

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Background: The spinal cord injury associated with the immobilization of the