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AB0991

OSTEOPOROSIS AND FRACTURES IN PATIENTS WITH CIRRHOSIS. CAN FRAX BE USEFUL FOR SCREENING?

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Background: Osteoporotic fractures are a serious complication in patients with cirrhosis. In addition to the high morbidity and mortality of the patients who suffer them, fragility fractures represent a high cost for Healthcare systems. However, there are very few studies that evaluate the prevalence of osteoporosis and fractures in patients with liver cirrhosis different than primary biliary cirrhosis (non-PBC cirrhosis). There are also no clinical guidelines with recommendations for osteoporosis screening in these patients.

Objectives: To assess the prevalence of osteoporosis and fragility fractures in patients with non-PBC cirrhosis in our environment, and the associated risk factors.

To analyse if the FRAX tool can be useful in the diagnostic screening of these patients.

Methods: From November 2015 to September 2017, outpatients older than 40 years diagnosed with non-PBC cirrhosis (any Child stage) were randomly included.

Demographic, clinical and analytical data (calcium, phosphorus, 25-hydroxyvitamin D and PTH) were collected from all patients. A bone densitometry, GE, Lunar Prodigy (DXA) and vertebral fracture assessment (VFA) were also performed, for the diagnosis of osteoporosis (T-score ≤ -2.5), and vertebral fracture. The 10 year absolute fracture risk was calculated using FRAX (<https://www.sheffield.ac.uk/FRAX/tool.aspx?country=4>).

A descriptive statistic of the main variables was carried out, with univariate and multivariate analysis to assess which predictive factors could be related to the presence of osteoporosis and/or fragility fractures.

Results: Ninety-two patients were included (71% male and 29% female). Age 63 ± 11 years. The etiology of cirrhosis was: alcohol (52%), hepatitis C virus (27%) and alcohol +hepatitis C virus (9%). Stage: Child A (80.4%), B (17.4%) and C (2.2%). Mean 25-hydroxyvitamin D was 18.5 $\pm$ 9.8 ng/ml and PTH 51.8 $\pm$ 23.0 pg/ml.

16 patients (17%) had osteoporosis by DXA, 54 patients (59%) osteopenia and 22 (24%) had a normal bone mineral density (BMD). 8 patients (9%) had suffered some fragility fracture (vertebral fracture in 6 cases).

The 10 year absolute risk for major fracture (vertebra, humerus, femur or radius) by FRAX without BMD was 5.7 $\pm$ 4.5; and with BMD 4.7 $\pm$ 4.9.

Age and female sex were associated with the presence of osteoporosis, and a BMI higher than 30 was found to be a protective factor. A BMD in the range of osteoporosis was the only factor associated with fracture.

FRAX for major fracture without BMD higher than 6.6% in this population had a high sensitivity (69%) and specificity (85%) for the diagnosis of osteoporosis, which implies a negative predictive value of 93%. Using this FRAX cut-off for indicating DXA in cirrhotic patients could expect a saving of 76% of DXA scans.

Conclusions: The prevalence of osteoporosis and fractures in patients with non-PBC cirrhosis, even in mild stages, is higher than in the healthy population, being more frequent in women and older patients.

The FRAX tool can be useful in the selection of patients with cirrhosis to be assessed by a bone densitometry.

Disclosure of Interest: None declared

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BONE REMODELLING BIOMARKERS IN HIV INFECTED PATIENTS

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Background: Bone metabolism is an equilibrium of resorption and growth, maintained by many regulating factors. Several molecules have been identified that estimate bone turnover, being P1NP and b-CTX the most commonly used. Many studies have shown a relationship between their levels and metabolic bone disease, and possibly with risk of fracture.

Human Immunodeficiency Virus (HIV) infected patients have lower bone mineral density (BMD), as documented on many studies. An increased incidence of

fractures has been noted as well, probably due to predisposing factors related to HIV infection, apart from the traditional risk factors.

Objectives: To assess the relationship between mean values of bone biomarkers P1NP and b-CTX and incidence of vertebral fractures (VF) in a HIV infected population; and compare such values with those of a Spanish healthy population of reference.

Methods: We performed a cross-sectional study with HIV infected patients followed up in the Infectious Diseases Department of our centre from 2014 to 2016. P1NP and b-CTX values were determined and lumbar and thoracic spine radiographs made to assess presence of VF (Genant grading scale). Other clinical and demographic data were collected retrospectively. P1NP and b-CTX values in the presence (VF group) and absence of fractures (non-FV group) were compared. Mean values were also compared with the Camargo cohort, comprised of 1080 healthy postmenopausal Spanish women, used as reference. Statistical analysis were made with STATA. All patients signed and informed consent, previously approved by the Hospital's Ethics Committee.

Results: A total of 144 patients were included, 38 were women with a mean age of 56.4 years old⁴⁵⁻⁷⁷ and 106 men with mean age of 56.5 years old.⁴⁵⁻⁸⁶ 27 of the patients had at least one VF. No statistically significant differences were found between P1NP mean levels in the FV and the non FV groups, with values of 45.30 ng/ml (± 17.59 ng/ml) and 49.48 ng/ml (± 32.92 ng/ml) respectively, (p=0.52). Mean levels of b-CTX were 0.38 ng/ml (± 0.18 ng/ml) in the VF group and 0.43 ng/ml (± 0.22 ng/ml) in the non-FV group, again without significant differences (p=0.35).

Mean general b-CTX values in our population were 0.41 ng/ml (± 0.21); 0.46 ng/ml (± 0.20) in women and 0.39 ng/ml (± 0.20) in men. Higher levels were found in HIV infected women than in the Camargo cohort (0.38 $\pm$ 0.19 ng/ml), with statistical significance (p=0.03). Mean general P1NP values were 48.34 ng/ml (± 29.47), 58.63 ng/ml (± 32.9) in women and 44.95 ng/ml (± 27.56) in men, with no statistically significant differences found when HIV infected women were compared with those of the Camargo cohort, (47.7 $\pm$ 19.9 ng/ml) (p=0.06), although a trend towards higher levels in HIV infected women was observed.

Conclusions: In the present study no correlation between P1NP and b-CTX levels in HIV infected patients and incidence of vertebral fracture was found.

P1NP and b-CTX mean values in HIV infected women in our study are higher than those of healthy postmenopausal Spanish women, which means a higher bone turnover in this population. More studies are needed to clarify the extent and clinical impact of this finding.

Disclosure of Interest: None declared

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AB0993

PAIN RELIEF MANAGEMENT OF ACUTE OSTEOPOROTIC VERTEBRAL FRACTURE IN A REAL LIFE STUDY

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Background: Among all osteoporotic fractures the painful vertebral fractures (PVF) are the minority and their management is challenging for the clinician because the evidences about the best approach are conflicting and of low quality. Moreover there are no guidelines or consensus of experts. A real life picture of the management of the PVF is lacking in the literature.

Objectives: The primary end point of the study is to describe the pharmacological and or non-pharmacological management of PVF through the record of use of individual classes, associations and sequences of drugs or procedures. Secondary end point is the outcome of treatment in term of pain, disabilities and quality of life.

Methods: We present the interim analysis results of a multicentric cross-sectional observational study. 400 interviews will be collected consecutively about pain, disability, pharmacological, spinal orthoses and orthopaedic surgery after the diagnosis of PVF in postmenopausal women treated by orthopaedics, endocrinologists, geriatricians, physiatrists, neurosurgeons and E.R. physicians. Pain and disability were quantified by NRS scale and by QUALEFFO-41. Data collected from the first 100 patients have been analysed.

Results: One hundred postmenopausal women aged 73.1 $\pm$ 7.49 y.o (age of menopause 48.6 $\pm$ 3.9 years, L1-L4 T-score -2.75 ± 0.92 , Total hip T-score -2.35 ± 0.98) with a new or first PVF were recorded. About 49% of them had a previous vertebral fracture and 22% a previous non-vertebral fragility fracture, 27% was not on osteoporosis treatment. The interviews were collected 135 $\pm$ 114 days from diagnosis of PVF, 174 $\pm$ 141 days from onset of pain. 92.3 $\pm$ 12% of subjects were treated for pain relief for a mean time of 98 $\pm$ 12 days. Only 1.6% of cohort

underwent to percutaneous vertebroplasty while 84.6%±17.1% had spinal orthoses. Pharmacological treatment for pain was prescribed to 98.2±7.1% of subjects: acetaminophen (42%), tapentadol (24%), opioids (24%), NSAID (6%) and codeine with acetaminophen (4%). In 95% of patients with spinal orthoses drugs for pain were assumed. In about 40% of cases NSAID was switched to acetaminophen, in 18% opioid and tapentadol switched to NSAID or acetaminophen. Only a few titration of opioids/tapentadol were reported. Not adequate pain relief (NRS scale 6.2±3.1; QUALEFFO-41 pain score 70±14.2) and impairment quality of life (mean total QUALEFFO-41 score 65.1±20.1) were reported.

Conclusions: With the limits of the study design and low number of cases, preliminary data seem to confirm an inadequate pain relief in PVF. The emerging critical issues crossing all categories of physicians are the lag of diagnosis, the inappropriate use of acetaminophen, the missing titration of opioids or tapentadol. A definition of optimal management of acute vertebral fracture is missing due to conflicting and scarce evidences in this field predisposing to chronic pain and disability.

Disclosure of Interest: None declared

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AB0994 IMPACT ON THE ADHERENCE AND PERSISTENCE OF DENOSUMAB VS WEEKLY BISPHOSPHONATE IN HEALTH-RELATED QUALITY OF LIFE IN POSTMENOPAUSAL OSTEOPOROSIS

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Background: Long term adherence and persistence in patients undergoing treatment for postmenopausal osteoporosis remains poor despite the proven efficacy of the therapy.

Objectives: In this study, we evaluated whether greater adherence and persistence in treatment can lead to an improvement in the quality of life.

Methods: A cohort of 268 patients, all women, in postmenopausal osteoporosis divided into two groups was evaluated: "DEN Group" (DEN) in treatment with denosumab (n=131) and "BIS Group" (BIS) in treatment with bisphosphonates (n=137). Table 1 shows demographic and clinical data. Patients were followed for 3 years with baseline, 6 month, 18 month, and 36 month evaluation. The evaluation criteria were the persistence in therapy and the self-related treatment compliance, as well as the quality of life assessed with the 41-item Quality of Life questionnaire for osteoporosis (QUALEFFO-41) performed at baseline, at 18 and at 36 months.

Results: Table 2 shows the percentage of patients who abandoned treatment at different times with a statistical significance towards both 18 and 36 months. In the BIS the main reason for abandonment were the adverse events (gastrointestinal, dental interventions, etc.), in the DEN the abandonment was due to drop-out. [In BIS, the most frequent reason for non-compliance with therapy was oversight, and most patients who continued treatment always used the drugs regularly on the recommended days and dosages.] In the period of time considered the majority of patients both BIS and DEN said they were satisfied with the treatment and wanted to continue it. The QUALEFFO scores (Fig 1) of patients from the baseline visit were significantly improved in the 36 month visit (BIS 79.6±25.4 vs 65.4±14.6; DEN 80.2±18.5 vs 55.6±16.4 (*p<0.001); the difference was not significant between BIS and DEN groups at both baseline visit and 36 month visit, but in the DEN group there was significance between baseline and 36 month visit.

Abstract AB0994 – Table 1. Baseline characteristics (Mean±SD)

OC=Osteocalcin, CTX=C-terminal telopeptide, PTH=parathyroid hormone, 25OHD=25 hydroxyvitamin D;

Abstract AB0994 – Table 2. Percentage of patients who abandoned.

Abstract AB0994 – Figure 1. Qualeffo-41 Score (* see text)

Conclusions: In conclusion, the observation, although numerically limited, notes that the use of denosumab in patients with postmenopausal osteoporosis leads to a greater persistence in treatment and a statistically significant adherence to therapy, which allows to obtain the maximum therapeutic effect of the therapy, also determining in 36 months of treatment an improvement in the quality of life, which is not achieved in subjects treated with bisphosphonates.

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AB0995 VERTEBRAL FRACTURES CASCADE: POTENTIAL ETIOLOGIES AND RISK FACTORS

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Background: Vertebral fracture (VF) is the most common osteoporotic fracture, and a strong risk factor of subsequent vertebral fracture. Prospective studies have shown that a recent VF increases an imminent risk of a subsequent one, and attention has been paid recently to a possible cascade phenomenon i.e. the occurrence of multiples VFs in less than one year.

Objectives: This cascade could have severe consequences, and we prompted a study to identify potential causes of osteoporosis and risk factors.

Methods: Vertebral fractures cascade (VFC) observations were collected retrospectively between January 2016 and April 2017. VFC was defined as the occurrence of at least 3 vertebral fractures within one year. Patients with other etiologies than osteoporosis (i.e. malignant or traumatic VFs) were excluded. The cause of osteoporosis associated with VFC was the one retained by the physician at the time of diagnosis.

Results: Ninety-five observations of VFC (80% of women, mean age of 71 years) were collected in 10 centres (9 tertiary centres and 1 outpatient centre). The median number of incident VFs over 1 year was 4.3-11. Forty-five patients (45.9%) had a previous major fracture before the VFC and 65 (70.7%) had densitometric osteoporosis (T-Score ≤ -2.5 SD either at lumbar or femoral site). Eighteen (19%) patients currently received oral glucocorticoids treatment at the time of VFC, with a mean daily dose of 20 mg. Thirty-three (35.1%) patients received systemic glucocorticoids in the past. The main comorbidities were history of cancer (n=19) and chronic inflammatory diseases (n=21) including asthma (n=7), chronic obstructive pulmonary disease (n=7) and rheumatoid arthritis (n=7).

A secondary osteoporosis associated with the cascade was diagnosed in 54 patients (54.5%) with the following causes: glucocorticoid-induced osteoporosis (n=22, 23.7%), benign hemopathies (mastocytosis, MGUS) (n=7, 7.1%), use of aromatase inhibitors (n=3, 3.1%), anorexia nervosa (n=3, 3.1%), alcoholism (n=3, 3.1%), pregnancy and lactation-associated osteoporosis (n=2, 2.1%), primary hyperparathyroidism (n=2, 2.1%) and hypercorticism (n=1, 1.1%). In addition, 11 cases (11.3%) were reported following a vertebroplasty procedure.

Primary either postmenopausal or idiopathic osteoporosis was diagnosed in 48 patients (51.6%). A total of 29 (29.6%) patients previously received an anti-osteoporotic treatment. In six patients (6.3%), VFC occurred early (in the year) following discontinuation of an anti-osteoporotic treatment: 5 after denosumab and one 12 months after an infusion of zoledronic acid.

Conclusions: The results of this retrospective study show that almost half of VFC occurred in patients with secondary osteoporosis. While they suggest that a careful management has to be given to these patients in order to prevent VFC in these circumstances, prospective studies are needed to further explore the determinants of such a severe complication of osteoporosis.

Disclosure of Interest: None declared

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AB0996 BONE MINERAL DENSITY AT DIFFERENT SITES AS A PREDICTOR OF RIB FRACTURES: A CASE-CONTROL STUDY

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Background: Rib fractures commonly occur as a result of direct trauma, though pathological causes have also been identified. Literature on the specific risk factors of rib fractures is scarce. There was an American prospective cohort study