THU0483

BONE MINERAL DENSITY AND PREVALENCE OF OSTEOPOROSIS IN HIV-INFECTED PATIENTS IN COMPARISON WITH A REFERENCE SPANISH POPULATION: THE IMPORTANCE OF LOCAL NORMATIVE RANGES

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Background: HIV-infected patients have less bone mineral density (BMD) than non-HIV population. According to current guidelines, the normal BMD reference range is that derived from the US NHANES III (National Health and Nutrition Examination Survey) and from BMDCS-Hologic. However, local variations of BMD could change the interpretation of bone loss and the prevalence of osteoporosis (OP) in this population.

Objectives: To compare the BMD in HIVinfected Spanish patients with values from healthy Spanish population and to estimate the prevalence of OP in this patients, based on the local data.

Methods: This was a cross-sectional study in a homogenous cohort of HIV-infected patients (RyC cohort, EC 009/17). Data of femoral neck and spine BMD were obtained by DXA (Dual-Energy X-ray Absorptiometry) from 949 patients (241 women, 25%) and compared with the results of a nationally representative Spanish cohort (14 centres) including 2442 subjects (1305 women, 53%) aged 20–80 years.

Results: Overall, mean age was 45.4 years (women, 46.5 years). The Spanish reference cohort showed a reduced BMD (–7%, 3%–12%) in comparison with NHANES, especially in middle aged women. HIVinfected patients had a lower BMD than Spanish cohort in both spine and femoral neck localizations for the different age strata ($p<0.001$), not significant in femoral neck for males aged 30–39 ($n=152$ patients, 0.848 vs 0.869 gr/cm²; $p=0.07$). Using NHANES data, the prevalence of OP was 26% in women in the Spanish cohort and 41% in our HIV population. By contrast, if the Spanish data are used as normative range, the prevalence of OP decreased in HIV females, significant between 40–60 years (from 26.5% to 23.5% in spine, $p<0.01$). Although OP in spine was less frequent in males by using Spanish data ($p<0.01$, OP decrease from 17.8% to 6.5%), there was more OP in femoral neck in males older than 40 years (from 13.5% to 21% in 60–69; $p<0.01$).

Conclusions: Our data demonstrate that HIV-infected patients had a significantly reduced BMD in comparison with both US and Spanish reference data for all the age strata. However, the prevalence of osteoporosis could change if local representative cohorts are used as normative data, with almost 30% of patients being reclassified.

Disclosure of Interest: None declared

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THU0484

REBOUND-ASSOCIATED MULTIPLE VERTEBRAL FRACTURES AFTER DISCONTINUATION OF DENOSUMAB: NINE CASES REPORT

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Background: Denosumab (DNB) is an IgG monoclonal antibody with high affinity for RANKL that transiently decreases bone resorption. It increases bone mineral density (BMD) and decreases turnover markers, reducing fracture risk in patients with osteoporosis (OP). Several cases of rapid loss of BMD, severe bone turnover rebound (BTR) and associated fractures have been reported after DNB discontinuation. A clinical alert has been generated from these findings.

Objectives: To evaluate the clinical and demographic features in a case series of patients with multiple vertebral fractures after discontinuation of denosumab.

Methods: An observational descriptive study analysing data from nine patients with multiple vertebral fractures after DNB discontinuation that were admitted to our Rheumatology service between 2015 and 2017.

Results: Nine women with postmenopausal OP that received treatment with DNB were included (table 1). Mean age at treatment onset was 66.9±8.0 SD years. Four of them had previous fragility fractures, and one of them had risk factors for secondary OP (treatment with aromatase inhibitors, case 8). Eight patients (88.9%) had already received treatment other than DNB. Mean DNB received doses was 6±1.6 SD. Mean T-score before treatment was –2.6±0.6 SD for femoral neck (FN) and –3.0±1.3 SD for lumbar spine. Mean T-score ±SD after 6 months or more of DNB discontinuation was –3.5±0.8 and –3.3±1.8, respectively. Bone turnover markers (BTM) remained elevated (CTX mean 0.143 ±0.663 SD ng/ml and P1NP 152.1±122.4 SD ng/ml). There were a total of 47 fractures, and all occurred spontaneously. Most affected vertebrae were D9, D12, L3 y L5. Two patients underwent vertebroplasty, suffering both of them vertebral fractures after surgery.

Table 1 Clinical features of the patients

	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8	Case 9
Age*	72	57	59	67	64	61	81	76	65
BMI*	24	24.2	25.7	22.3	22.2	20	30.2	19.1	15.1
FRAX Index*	NR	Major Fx 7.1%; Hip Fx 2.5%	Major Fx 40%; Hip Fx 14%	NR	Major Fx 10%; Hip Fx 2.5%	NR	NR	Major Fx 16%; Hip Fx 9.8%	Major Fx 6.8%; Hip Fx 2.1%
Previous Fx	Right humerus several vertebrae	No	D12	No	Colles	No	No	No	D12, L1, L2, L4
DNB doses	6	8	8	6	4	7	7	7	6
Time last dose-fx*	18	8	10	12	15	9	8	12	8
Number of fx after DNB end	10	5	3	4	2	7	3	5	8
Fx localization	D8, D10, D11, L1, L5	D10, D11, L2, L3, L5	D8, D12	D6, D5, D7, D9, D11	L3, L5	D7, D12, L2, L3, L4, L5	D6, D9, D12	D6, D8, D9, D10, L3	D5, D6, D8, D9, D10, D11, L3, L5
End cause	Oral surgery	Max duration FN -2.2; LS -3.9	Max duration FN -3.5; LS -0.3	Max duration FN -3.4; LS -4.0	Low fx risk FN -2.4; LS -3.4	Oral surgery FN -3.2; LS -3.0	Max duration FN -1.9; LS -2.8	Max duration FN -1.9; LS -2.3	Max duration FN -1.9; LS -2.3
Previous T-score*	-4.4	-3.9	-0.3	-4.0	-3.4	-3.0	-2.8	-2.3	-2.3
Post score*	T: FN -3.2; LS -4.1	FN -3.0; LS -4.7	FN -2.5; LS 0.4	FN -3.4; LS -4.0	NR	FN -4.1; LS -4.0	NR	FN -4.7; LS -3.7	NR
CTX after	1.89	1.40	1.45	1.44	NR	1.07	0.95	NR	NR
P1NP after	387.4	220.6	92.3	154.2	NR	196.0	142.6	NR	NR
Tm after	Teriparatide	Teriparatide	Zoledronic Acid	Zoledronic Acid	Denosumab	Teriparatide	Teriparatide	Teriparatide	Alendronic acid

BMI: Body Mass Index; Fx: fractures; Tm: treatment; CTX: collagen telopeptide; P1NP: collagen propeptide; FN: femoral neck; LS: lumbar spine; NR: Not reported.

*At onset of DNB treatment.

*Time last DNB until first fracture, in months

*T-score before DNB.

*T-score 6 months or later from DNB discontinuation.

*Bone turnover markers after treatment discontinuation, at least 10 months later

Conclusions: This report of nine cases suffering multiple vertebral fractures early after the interruption of the DNB highlights the emerging concern on the subject in the scientific community and the need to clarify its pathogenic mechanism ("rebound effect") and support in solid evidence the new recommendations on its management.

Disclosure of Interest: None declared

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PREDICTING 1-YEAR MORTALITY AFTER A FRAGILITY HIP FRACTURE – THE EXPERIENCE OF A FRACTURE LIAISON SERVICE

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Background: Hip fractures are the most serious outcome of osteoporosis and are a leading public health concern due to the associated increase in morbidity and mortality, loss of independence and financial burden.

Objectives: The aim of this study was to investigate possible predictive factors of 1 year mortality in patients with fragility proximal femur fracture referred to a fracture liaison service (FLS).

Methods: Patients aged ≥65 years admitted in Orthopaedics department with a fragility hip fracture were evaluated and referred to the Rheumatology outpatient clinic. In this setting patients were evaluated with laboratory and radiological workup and afterwards anti-osteoporotic therapy was started. We retrospectively collected information regarding patients hospitalised from March 2015 to March 2017 and conducted univariate and multivariate analysis to determine possible predictive factors of 1 year mortality.

Results: 522 patients were included, with a median age of 84 years (range 65–104), 416 (79.7%) females. The median time to intervention was 2 days (range 0–44) and median hospital stay 10 days (range 0–175). Median Charlson Comorbidity Index (CCI) score was 5 (range 2–13). In-hospital mortality was 6.3% and overall 1 year mortality was 16.7%.

In the univariate analysis, the factors significantly associated with death in one year time were male gender, CCI score >5, previous physical limitation in daily activities, walking disability previously and 2 months after the fracture, longer time to surgery (>48 hour), conservative treatment and previous osteoporosis diagnosis. In multivariate analysis previous physical limitation in daily activities (OR 2.1, CI 1.22–3.62; $p=0.007$) and walking disability 2 months after the fracture (OR 4.23, CI 1.73–10.37; $p=0.002$) were independent predictors of 1 year mortality.

Conclusions: In this study, in-hospital mortality was similar to what has been described in literature but 1 year mortality was slightly lower. Previous physical limitation and walking disability 2 months after the fracture were independent risk factors for 1 year mortality. These findings should be confirmed in larger, prospective studies with a control group.

Disclosure of Interest: None declared

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THU0486

THE VITAMIN D RECEPTOR EXPRESSION IN SKELETAL MUSCLE OF WOMEN WITH DISTAL RADIUS FRACTURE

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Background: A distal radius fracture (DRF) is the most common upper extremity fracture in old women. Since DRFs typically occur earlier than hip fractures by an average of 15 years, they can reflect early changes of bone such as osteoporosis and muscle frailty for instance, the loss of muscle mass.

Objectives: We aimed to evaluate the relationship between the vitamin D receptor (VDR) expression in the muscle cell and the muscle mass in women with a DRF.

Methods: This research was conducted as a part of the Study on Ageing Radial fracture Cohort (SARCO) which is an ongoing longitudinal, population-based cohort investigation of patients with a DRF which began in November 2015. For the current study, we prospectively recruited 45 women over 50 years of age (mean age, 66 years) with DRF and acquired biopsy of the forearm flexor muscle. The muscle cross-sectional area (CSA) and VDR expression were measured using immunohistochemistry staining. The clinical parameters including grip strength, gait speed, body mass index (BMI), bone mineral density (BMD), and serum vitamin D levels were compared between patients grouped by appendicular lean mass index and were correlated with the VDR expression.

Results: Twelve patients (27%) showed a decreased appendicular lean mass index, less than the cut-off value of 5.4 kg/m² which was suggested by the Asian Working Group for Sarcopenia. Patients with a low appendicular lean mass index had significantly lower muscle CSA ($p=0.037$), but a higher VDR expression ($p=0.045$) than those with higher indices. VDR expression was negatively correlated with BMI ($r=-0.417$, $p=0.004$) and appendicular lean mass index ($r=-0.316$, $p=0.044$).

Conclusions: DRF patients with low appendicular lean mass index presented high VDR expression and low CSA in forearm muscle cells. This suggests that the VDR expression might be up-regulated in the attempt to compensate for the decreasing muscle mass. Further studies are necessary to explore the role of VDR in the progression of sarcopenia.

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THU0487

AN AUDIT OF THE USE OF PERCUTANEOUS VERTEBROPLASTY FOR OSTEOPOROTIC VERTEBRAL FRACTURES IN A UK RHEUMATOLOGY CLINIC

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Background: University Hospital, Coventry, UK (UHCW), offers percutaneous vertebroplasty (PVP) to patients with painful osteoporotic vertebral fractures. The National Institute for Health and Care Excellence (NICE) Technology Appraisal 279 (TA279) (2013) restricts the use of PVP to patients with severe ongoing pain despite optimal pain management, where the pain corresponds to the level of fracture on examination and imaging.¹

Objectives: To audit the use of PVP by Rheumatology at UHCW against NICE TA279.¹

To assess the clinical outcomes of PVP for our patients.

Methods: The records of all UHCW Rheumatology patients who received PVP from MD³ (Interventional Radiologist) between September 2007 and August 2014 were retrospectively assessed against NICE TA279.¹

We defined a 'recent' fracture as occurring 6–12 weeks prior to PVP as this allows time for natural bone healing whilst minimising therapeutic delay.¹ 'Optimal pain

management' was defined as analgesia in addition to, or stronger than, paracetamol.

Results: 57 of the 221 PVP performed by MD were for Rheumatology patients. 38 patients were female and 19 were male. They were aged 42–95 years (median 73), and 95% were Caucasian. 26 had taken corticosteroids for more than 6 months.

7 patients received PVP 6–12 weeks after their fracture. 10 patients had PVP within 6 weeks. 39 patients waited 12 weeks or longer due to late patient presentation, slow referral processes, and the time taken to optimise analgesia.

38 (67%) patients received optimal analgesia before PVP.

46 (81%) patients had pain that correlated with the level of vertebral fracture.¹

Following PVP back pain was gone for 9 (16%) patients, improved for 38 (66%), not changed for 4 (7%), and worse for 1 (2%) patient.

Complications included leakage of cement locally (57%) or into local veins (5%). 2 patients had pulmonary cement emboli. One presented with breathlessness and the second was found incidentally. Both recovered with conservative therapy.

Conclusions: In line with NICE TA279, most patients had pain at the level of their fracture and received optimal pain management prior to receiving PVP.

10 patients received PVP earlier than our standard of 6 weeks. However, recent randomised trials suggest that PVP may be beneficial in this group.²

Most (68%) patients received PVP later than 12 weeks but they often found benefit. The VERTOS V trial may help determine the role of PVP for chronic fractures.³

Introducing an osteoporotic vertebral fracture pathway at UHCW will help ensure appropriate management, timely review and, when necessary, prompt PVP.

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THU0488

AGE AT THE TIME OF HIP FRACTURE IN PATIENTS WITH RHEUMATOID ARTHRITIS IS GREATER THAN IT WAS 10 YEARS AGO, BUT IS STILL YOUNGER THAN THAT OF THE GENERAL POPULATION

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Background: Niigata Prefectural Central Hospital (NPCH) is the principal hospital of Joetsu and Myoko cities in Niigata Prefecture, Japan. It serves a population of 230,186, of whom 70,205 (30.5%) were aged ≥65 years in 2015. About 90% of patients with hip fractures underwent surgery within 48 working hours after admission in NPCH. Between 50% and 60% of all hip fractures in our region are treated at the NPCH, which employs two rheumatologists and treats 500 rheumatoid arthritis (RA) patients.

Objectives: We sought to identify the characteristics of RA patients with hip fractures, as compared to those of the general population and of RA patients treated 10 years previously¹.

Methods: Between 2012 and 2015, 789 hip fractures were treated at the NPCH. The mean age of these patients was 84±8.0 years. RA patients with such fractures were compared with fracture patients from the general population. We recorded the neck/trochanter (n/t) ratio, age at fracture, disease duration, steroid and anti-osteoporosis drug-use rates, secondary fracture rate, walking capacity after operation, 1 year and 30 day mortality rates, and infection rate, in both current RA patients and those treated 10 years previously.

Results: Eleven RA cases had hip fractures (mean age: 76±7.0 years; all females); 8 had been treated for RA at NPCH. RA patients constitute 1.4% of the general population, and 1.6% of all RA patients treated at the NPCH. Mean RA duration was 23±20 years. The n/t ratio was 1.2. Three cases aged 60–69 years were of the mutilated type and mean RA duration was 35±18 years. Five cases