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 DRF’s 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=0.044).

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.

REFERENCES:

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AN AUDIT OF THE USE OF PERCUTANEOUS VERTEBROPLASTY FOR OSTEOPOROTIC VERTEBRAL FRACTURES IN AUK 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

Methods: The records of all UHCW Rheumatology patients who received PVP from MD1 (Interventional Radiologist) between September 2007 and August 2014 were retrospectively assessed against NICE TA279.1

To assess the clinical outcomes of PVP for our patients.

Results: The number of all UHCW Rheumatology patients who received PVP from MD1 was reviewed retrospectively between September 2007 and August 2014. The records of 221 patients were reviewed for inclusion criteria as per NICE TA279.1

Conclusions: The number of all UHCW Rheumatology patients who received PVP from MD1 was reviewed retrospectively between September 2007 and August 2014. The records of 221 patients were reviewed for inclusion criteria as per NICE TA279.1

Disclosure of Interest: None declared


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: 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 previously.

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-osteoarthritis 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

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THU0487
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aged 70–79 years featured amyloidosis associated with hemodialysis (1 case), severe interstitial pneumonia,1 Parkinson’s disease,1 total knee arthroplasty (1 case) and mean RA duration was 17±11 years. Of 3 cases aged 80–89 years, RA onset was after age 80 years in two. At the time of fracture, 7 were receiving anti-osteoporosis treatment; 2 were on teripаратide, 4 on bisphosphonate, and 3 on activated vitamin D. Some patients discontinued anti-osteoporotic medication because of renal failure or side effects; 84% of patients had taken anti-osteoporotic medications prior to fracture. Seven patients were taking steroids (mean prednisolone dose 3.9±1.1 mg/day). Secondary fractures occurred in 2 cases; one had RA of the mutilated type with renal failure; a secondary fracture occurred 4 months later. The 2nd case was taking anti-osteoporotic medication but the secondary fracture occurred 32 months later. At 3 months after surgery, the walking abilities of all patients were the same as prior to fracture. No mortality was recorded at either 30 days or 1 year. No infective complication was noted. Conclusions: Hip fracture in patients with RA occurs in 1.4% of the general population in Joetsu and Myoko, Japan, ranging from 0.93% in Taiwan4 to 1.6% in Sweden5, and 1.6% of all RA patients, ranging 3.3% in Taiwan6 to 6.5% in Sweden7. The mean age at hip fracture was 78±7.0 years, thus about 8 years younger than that of fracture patients from the general population, but was 72±4.5 years 10 years ago1. Among all patients, 64% were on steroids (83% 10 years ago1), 84% were on anti-osteoporosis drugs (31% 10 years ago1) and the n/r ratio was 1.2 (3.2 10 years ago1).

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THU0489
THE IMPACT OF CALCIUM INTAKE AND PHYSICAL EXERCISE ON PEAK BONE MINERAL DENSITY

Background: Regular exercise and adequate nutrition are frequently prescribed as strategies to optimise peak bone mass and maintain bone and muscle health throughout life.

Objectives: The aim of our work was to determine the relationship of clinically assessed milk intake and physical exercise with bone mineral density (BMD) in young adults.

Methods: This cross-sectional study included members of the general population aged between 20 and 30 years from the Portuguese cohort SAOL (individuals aged 18 years randomly selected from a local county of Coimbra, Portugal). No exclusion criteria were applied. Individuals were asked to describe their milk intake (up to 2 glass/day and 2+glass/day, corresponding to up to and more than 480 mg/day), regular physical activity (categorised as none-to-moderate and at least intense physical activity) and strenuous sports practice (up to 2 hours/week and 2+hour/week) from the age of 10 to 25. They underwent a Dual-energy x-ray absorptiometry (DEXA) of the lumbar spine (LS) and proximal femur (PF). Categorical data is presented as proportions/percentages and continuous variable as median ±standard deviation. Differences between groups were assessed by Mann–Whitney U test. Potential predictors of a higher BMD of PF and LS were identified using multiple linear regression analysis. P-values<0.05 were considered statistically significant.

Results: We included 259 individuals (mean age of 24.7±2.7 years, 60.6% being female). The majority (82.6%), described having a moderate regular physical activity (equivalent to working as a mailman), practicing strenuous sports at least 2 hours per week (81.1%) and ingesting at least two glasses of milk per day (83.4%). The current BMD of the PF and LS were 0.85±0.13 and 0.99±0.11, respectively. On univariate analysis, the only significant association related the BMD: milk intake and milk intake (p=0.008). Multiple linear regression analysis showed that while physical activity and sports practice did not predict BMD values, milk intake persisted as a predictor of a higher BMD of PF (p=0.022), even after including other explanatory variables. No statistically significant predictors were found for BMD of the LS.

Conclusions: Our study showed that clinically assessed milk intake between the ages of 10 and 25 years, but not physical exercise, is a significant predictor of higher bone mineral density assessed by DEXA at the PF. These results do not exclude a positive impact of exercise upon peak bone mass, but suggest that its retrospective evaluation in a clinical setting should not be taken as reassurance that a good peak bone mass was achieved in early adulthood.

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THU0490
TEMPORAL INCREASES IN SIDE EFFECT CONCERNS OF OSTEOPOROSIS MEDICATIONS AMONG WOMEN WITH PREVIOUS FRACTURES
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Background: High-consequence, albeit rare, adverse side effects of osteoporosis medication raise patients’ risk perceptions and contribute to non-adherence. In the past decade, fears of osteonecrosis of the jaw (ONJ) and atypical femoral fractures (AFF) have been increasingly reported as barriers to both the initiation and adherence to osteoporosis medications.

Objectives: To examine the temporal prevalence of self-reported concern about ONJ and AFF as reason for discontinuation of osteoporosis medication.

Methods: Activating Patients at Risk for OsteoPorOsis (APPROS) enrolled US women from the Global Longitudinal Study of Osteoporosis with previous self-reported fractures and no current use of osteoporosis medication. Using mailed surveys in 2010 (T1), 2012 (T2) and 2013 (T3), women were asked whether they discontinued osteoporosis medication in the prior year because of concerns about ONJ at three time points (T1, T2, T3) and AFF at two time points (T2, T3). We calculated the proportion of women reporting fears of ONJ and AFF among those who discontinued osteoporosis medication, and compared the proportions using chi-square tests.

Results: A total of 833 women discontinued osteoporosis treatment at three time points, T1 (n=255), T2 (n=471), and T3 (n=107), respectively. There were no differences in the demographic characteristics between groups. The proportion of women reporting concerns of ONJ was 18.4% (T1), 28.7% (T2) and 64.5% (T3), while 23.5% (T2) and 60.7% (T3) reported fear of AFF as reason to discontinue osteoporosis treatment. These differences were statistically significant (p<0.0001) for all comparisons.

Conclusions: The proportion of women reporting concerns of ONJ and AFF increased over time among those women who discontinue osteoporosis medications. Strategies are needed to help patients balance risks and benefits given a significant and temporally growing concern of rare bisphosphonate side effects.


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THU0491
FACTORS ASSOCIATED WITH ANNUAL PERCENTAGE CHANGES IN BONE MINERAL DENSITY: A 14-YEARS PROSPECTIVE POPULATION-BASED STUDY

Background: Gradual bone loss is expected with advancing age and gender differences were reported in the rate of annual loss of bone. Ideally, the decision to introduce interventions designed to prevent bone loss would be informed by reliable algorithms to identify fast bone losers. However, these are not readily available.

Objectives: In this analysis of 14 years prospective population-based data, we aim to identify predictors of the bone mineral density (BMD) loss in the perimenopausal and elderly population.

Methods: This study included members of the general population aged 40+ years from the longitudinal cohort SAOL (individuals aged 18+ years randomly selected from a local county of Coimbra, Portugal). The included individuals answered validated self-reported questionnaires at baseline (1997–2000) comprising questions on osteoporosis risk factors and medication use and underwent a Dual-energy x-ray absorptiometry (DXA) of the proximal femur (PF) and lumbar spine (LS). These procedures were repeated at follow-up (2011–2014). Demographic characteristics and DXA BMD details were descriptively summarised at baseline.