CLINICAL TRIAL OF INTRAVENOUS INFUSION OF FUCOSYLATED BONE MARROW MESENCHYLMAL STEM CELLS IN PATIENTS WITH OSTEOPOORIS


Background: Osteoporosis (OP) is a systemic bone disease characterised by decreased bone mass and deterioration of bone microarchitecture with increased brittleness and susceptibility to fracture. It is a major cause of mortality and morbidity for patients and has a high impact on health expenditure. Bone marrow stromal mesenchymal stem cells (BM-MSC) give rise to osteoprogenitor cells and osteoblasts and influence bone homeostasis. However, after their intravenous (i/v) infusion their osteogenic potential and their influence on bone mass, particularly, 33.3% showed osteopenia and 2.7% osteoporosis. There was no statistically significant difference between mean BMD and TBS in psoriatic patients when compared to the healthy control group. However, in psoriatic patients a negative correlation between neck-BMD and PASI (p=0.003) was determined and independence of sex and age. Conversely, TBS was not statistically correlated with PASI or with BMI. It was interesting to verify that the plaque psoriatic group showed a positive correlation between PASI and age (p<0.01). Conversely, PASI was negatively correlated with lumbar spine T-score (p=0.01) and both lumbar spine and femoral neck BMD (p=0.04 and p=0.02, respectively).

Conclusions: This pilot study suggests that in psoriasis, particularly in the plaque subgroup, the severity of skin involvement might correlate with bone mass but not with bone quality (TBS). Despite previous evidence, we cannot assess any correlation between TBS and metabolic parameters. Further studies with larger cohorts are needed on this topic.

REFERENCES:

Disclosure of Interest: None declared


PREDICTION OF BONE MINERAL DENSITY CHANGES IN PATIENTS WITH RHEUMATOID ARTHRITIS

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Background: Osteoporosis and its related fractures is one of the most dominant, troublesome complications in rheumatoid arthritis (RA). Newly-introduced drugs such as methotrexate and biological and targeted synthetic disease modifying anti-rheumatic drugs have decreased disease activity drastically, but the improvement of osteoporosis remains to be investigated.

Objectives: To find useful factors for bone mineral density (BMD) management of RA patients under the current treatment.

Methods: We consecutively recruited 370 RA patients treated at Kyoto University Hospital in 2012. We prospectively collected the BMD values of the lumbar spine and the distal forearm measured by dual-energy X-ray absorptiometry (DXA), blood sampling test, urinalysis including bone metabolic biomarkers and clinical parameters of the RA patients in 2012 and 2014. Multivariate regression analysis was performed after adjustment by age, sex, body mass index (BMI), steroid use, anti-osteoporosis medication. We set the annualised BMD change as an outcome variable and allotted the other parameters as explanatory variables by a stepwise procedure.

Results: The average values (minimum-maximum value) of age and BMI were 63.3 (32–85) years and 22.1 (12.3–30.0), respectively. Female patients and steroid users accounted for 91.1%, and 41.0%, respectively. Coincidentally, anti-osteoarthritis drug-user also reached 41.0%. User of biological accounted for 31.6%.

The average of disease activity score (DAS) 28-erythrocyte sedimentation rate, Health Assessment Questionnaire was 2.6 (0.1–5.9) and 0.8 (2–9.2), respectively. The average of total Sharp score was 122.6 (0–443). Laboratory data showed serum tartrate-resistant acid phosphatase (TRACP)–5b, serum homocysteine, serum undercarboxylated osteocalcin, bone specific alkaline phosphatase, and urinary pentosidine were 320.0 (68–877) μU/ml, 9.7 (3.2–239.8) ng/ml, 4.8 (0–23) ng/ml, and 1.0 (0.1–561) ppm, respectively. Next, we describe by the result of multiple regression analysis. The levels of serum homocysteine (β=0.19; 95%CI: 0.24 to 1.75; p=0.01) and anti-osteoporosis drug (β=–0.19; 95%CI: –0.26 to –0.04; p=0.009) were consistently significant predictive variables of annualised BMD change of the lumbar-spine. On the other hand, serum TRACP–5b (β=–0.28; 95%CI: –0.005 to –0.001; p=0.002) was significant predictive one for the distal forearm.

Conclusions: Anti-osteoarthritis medication may be particularly important for lumbar spine BMD for RA patients, regardless of steroid-use. Specific biomarkers would be useful such as homocysteine as lumbar spine BMD and TRACP–5b as...


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AB1014 EPIDEMIOLOGICAL FEATURES OF PERIPHERAL FRAGILITY FRACTURES IN WOMEN IN REPUBLIC OF MOLDOVA

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Background: Osteoporosis is a disease which is frequently asymptomatic until fragility fractures occur. The study of risk factors in osteoporosis is continuously developing, considering that there is a tremendous geographic variety in osteoporosis occurrence. We present the results of an epidemiological study of fragility fracture cases in Republic of Moldova, trying to underline differences in fragility fracture epidemiology, based on residence region, and possibly lifestyle factors, in a female population.

Objectives: The purpose of the study was to determine the incidence and prevalence of fragility fractures in women, with comparison of epidemiological indexes between urban and rural areas in Republic of Moldova.

Methods: Approximately 6% of the female population was included in the study. Data regarding peripheral fragility fracture cases was collected from all specialised and primary medical institutions from the defined area. Fragility fractures of proximal humerus, distal forearm, proximal femur and distal calf, in women aged over 40 years old were collected. Using population statistics provided by the National Bureau of Statistics, epidemiological indexes regarding fracture incidence and prevalence were derived, with further comparison of derived epidemiological indexes for urban and rural areas, as well as separate epidemiological indexes for the four fracture regions.

Results: A general incidence of 1033.4 peripheral fragility fractures per 1 000 000 female population >40 years was determined, with a significantly higher incidence in urban areas (1216.7 vs 980.1, p<0.05). The incidence of proximal humerus fracture was 149 per 1 000 000 female population >40 years, with a small, but significantly higher incidence in urban areas (159.5 vs 145.9, p<0.05). The incidence of distal forearm fractures was 393.4 per 1 000 000 population >40 years, significantly higher in urban areas (528.5 vs 354.1, p<0.05). The incidence of proximal femur fracture was 208.5 per 1 000 000 population >40 years, significantly higher in urban areas (227.9 vs 202.9, p<0.05). The incidence of distal calf fractures was 282.5 per 1 000 000 population >40 years, with a small, but significantly higher incidence in urban areas (300.7 vs 277.2, p<0.05).

Conclusions: There was an overall higher incidence of fragility fractures in the urban female population compared to the rural one, with a similar relationship in all four fracture groups. The association between urban residence and increased incidence of fragility fractures in women, could be attributed to a less active physical lifestyle (known risk factor in osteoporosis) in urban areas. Distal forearm fractures showed a greater prevalence both in urban and in rural areas, compared to other fracture types. Moreover, the incidence difference between urban and rural areas was most prevalent in the distal forearm fracture group. The latter observation was not determined in a similar study in men, in the same population and period of time.

Disclosure of Interest: None declared


AB1016 OSSEINTEGRATED IMPLANTS FOR LOWER LIMB AMPUTEES: EVALUATION OF BONE MINERAL DENSITY

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Background: The use of dual-energy X-ray absorptiometry (DXA) is a standard clinical procedure for the evaluation of bone mineral density (BMD). Amputee patients are known to have decreased BMD and an increased risk of osteoporosis in the affected proximal femur and hip region. The major cause of these issues in these patients is the absence adequate loading leading to bone resorption in accordance to Wolff’s law.

Objectives: In this paper, we present a prospective study reporting changes in BMD among amputees who received osseointegrated implants to determine if the loading through the Osseointegrated implant can overcome the bone resorption issues.

Methods: This is a prospective study of 33 patients, consisting of 24 males and 9 females, aged 22–77 (mean±1.0±2.0) years with one and two-year follow-up. Selection criteria included age over 18 years, unilateral amputees with socket-related problems. All patients received osseointegrated implants press-fitted into the amputated limb. BMD was assessed using DXA in the femoral neck (operative and contralateral) and lumbar spine (L2-L4) regions, and corresponding Z-scores were generated. DXA scans were taken preoperatively as well as one-year and two-years following osseointegration surgery.

Results: Mean BMD and Z-scores of spine, and operative and contralateral sides were generated for all patients. Dependent t-tests were used to test for significant differences (p<0.05) preoperative, one-year, and two-years for mean changes in BMD and Z-Scores following surgery. Analysis of the BMD and Z-scores indicated that patients showed improvements at one-year post-surgery.

Conclusions: These results suggest that osseointegrated implants are effective at encouraging bone growth and restoring BMD levels for amputees within a short period of time post-surgery. Osseointegrated implants therefore have the potential to address stress distribution issues associated with socket prostheses and restore the normal bone loading regime in lower limb amputees.

Disclosure of Interest: None declared