P224

IS THERE A RELATIONSHIP BETWEEN BONE TURNOVER AND INSULINRESISTANCE? EVALUATION OF AN OSTEOPOROTIC POPULATION TREATED WITH DENOSUMAB

A. P. Barbosa[1], I. Cosme[1], J. V. Rocha[1], F. Costa[1], E. Alves[1], F. Sampaio[1]

[1]Multidisciplinary Fracturary Osteoporosis Outpatient Clinic, Hospital Santa Maria, Lisboa, Portugal

Objective: Denosumab (Dmab), a monoclonal antibody against RANKL is a potent antiresorptive drug used to treat osteoporosis and osteoporotic fractures. Some studies have pointed to an association between RANKL/RANK signaling pathway and energy metabolism, and the downregulation of RANKL signaling seems to improve hepatic insulin sensitivity and glucose metabolism in both mice and humans. We aimed to evaluate the effects of Dmab on bone remodeling markers and on the glucose and insulin metabolism and to study the possible associations between bone turnover and glucose/insulin resistance.
Methods: Retrospective study of patients with severe osteoporosis, treated at least 6 months with Dmab. Bone remodeling markers (CTX, P1NP, BAP, osteocalcin) and fasting insulin and glucose were analysed before (T0) and after (T1) Dmab treatment. HOMA-IR (fasting insulin mcU/ml x fasting glucose mmol/l / 22,5) was calculated in T0 and T1. Adequate statistical tests were used and P<0.05 was considered significant.
Results: 22 patients (19 women), 75.7±9.8 years old, treated with Dmab during 20.8±10.6 months. Three had type 2 diabetes (DM2). The results of bone markers in T0/T1 were, respectively: P1NP 43.2±17.5/21.4±9.7 ng/ml (P<0.01); CTX 0.4±0.2/0.1±0.1 ng/ml (P<0.01); osteocalcin 19.8±8.6/10.5±4 ng/ml (P<0.01); BAP 12.8±5.7/8±1.9 µg/l (P<0.01). That corresponds to decreases of: P1NP 49.5%, CTX 25%, osteocalcin 53%, BAP 62.5%. Regarding glucose metabolism in T0/T1, the reductions were, respectively: glucose (98±22.1/94.2±18 mg/dl; P=0.1), insulin (14.9±22.1/11.3±9.7 µU/ml; P=0.4) and HOMA-IR (3.9±6.3/2.8±2.9; P=0.4). There were no significant correlations between glucose, insulin and the bone markers in T0 and T1 in both diabetics and nondiabetics.
Conclusion: In this group of patients with severe osteoporosis, Dmab reduced bone turnover markers and simultaneously glucose and insulin resistance. This anti-osteoporotic treatment can also be useful in the prevention/treatment of DM2.

P225

BODY COMPOSITION AND CALCIUM METABOLISM IN POSTMENOPAUSAL TYPE 2 DIABETIC WOMEN

A. P. Barbosa[1], B. Dalpizol[2], L. Aguiar[2], J. Ferreira[2], M. R. Mascarenhas[3], M. Bicho[2], A. Inácio[2]

[1]CEDML – Endocrinology, Diabetes and Metabolism Clinic of Lisbon, [2]Genetics Laboratory, Faculty of Medicine, Lisbon Univ., [3]Environmental Health Institute, Associate Laboratory TERRA, Faculty of Medicine, Lisbon Univ., Lisbon, Portugal

Objective: Diabetic bone disease has been described as a complex chronic complication of people with type 2 diabetes (DM2) because it is associated to osteoporotic fractures, but not with increased bone turnover markers nor reduced BMD. So, its pathogenesis is still in debate and it seems that bone quality can be compromised. We aimed to evaluate the BMD, the bone turnover markers, and the calcium metabolism parameters in a DM2 population by comparison with a population without the disease.
Methods: A group of 47 DM2 postmenopausal women was compared with a control group (N=176) of similar age, stature and time since menopause. Anthropometric parameters were evaluated and BMI (kg/m^2) was calculated. BMD (g/cm^2) at L1-L4 and proximal femur and lean and fat masses were analyzed by DXA (QDR Discovery, Hologic). Patients were categorized as normal, low bone mass and osteoporosis according to ISCD criteria. Fasting blood samples were collected for calcium, phosphorus, PTH, 25(OH)-vitamin D, osteocalcin, bone alkaline phosphatase and CTX. Adequate statistical tests were done with SPSS 28 version and statistical significance was considered for P<0.05.
Results: The DM2 group had higher total fat (30.65 vs. 27.56 kg, P=NS) and lean masses (43.44 vs. 41.39 kg, P=0.04), BMD at the femoral neck (0.838±0.136 vs. 0.780±0.128 g/cm^2, P=0.007) and at the total femur (0.949±0.137 vs. 0.902±0.136 g/cm^2, P=0.04). We found no significant differences between the DM2 and the control group, regarding the levels of: calcium (9.4 vs. 9.4 mg/dL), phosphorus (3.6 vs. 3.5 mg/dL), 25(OH)-vitamin D (17.5 vs. 16.0 ng/mL), osteocalcin (6.5 vs. 8.4 ng/mL), bone alkaline phosphatase (10.0 vs. 11.0 mcg/L), CTX (0.24 vs. 0.29 ng/mL). However, PTH was significantly lower in DM2 (35.4 vs. 48.4 pg/mL, P<0,001). We did not find correlations of PTH with BMD nor with bone markers.
Conclusion: This study shows that this population of DM2 postmenopausal women has not increased bone turnover and has a higher cortical bone mass. We can also hypothesize that the lower PTH levels may play a protective role, reducing the expected increase in the postmenopausal bone resorption.

P226

VITAMIN D STATUS AND SEASONAL VARIATIONS IN SERUM 25-HYDROXYVITAMIN D LEVELS IN CHILDREN WITH CEREBRAL PALSY

A. Halasheuskaya[1], A. Pachkaila[1], E. Rudenka[2]

[1]Institute of Advanced Training and Retraining of Healthcare Personnel of Belarusian State Medical Univ., [2]Belarusian State Medical Univ., Minsk, Belarus

Objective: To assess vitamin D status and seasonal variation in serum 25-hydroxyvitamin D (25(OH)D) levels in children with cerebral palsy (CP).
Methods: The study included 93 patients with CP (41 girls and 52 boys) aged from 2-18 y (median age – 9.9 (7.4; 13.1) y) who were

examined at the Republican Center for Pediatric Osteoporosis. None of the patients had previously received vitamin D supplementation. 47 (50.5%) of all children were ambulatory (GMFCS levels I-III), 46 (49.5%) of all children were nonambulatory (GMFCS levels IV-V). 37 (39.8%) of all children were taking antiepileptic drugs. The level of 25(OH)D was determined by electrochemiluminescence. Vitamin D status was assessed according to international recommendations: normal if 25(OH)D ≥30 ng/ml, insufficiency – 20-29 ng/ml, deficiency – <20 ng/ml, and severe deficiency – <10 ng/ml.

Results: The median 25(OH)D level was 16.2 (11.2, 19.8) ng/ml (range: 2.3-44.3 ng/ml). Severe deficiency, deficiency and insufficiency of vitamin D were detected in 16.1%, 59.2% and 17.2% of children, respectively (total – 92.5%). There were no significant differences in 25(OH)D levels among patients based on their age, gender, ambulation, or history of anticonvulsant drug use. Comparison of vitamin D levels in different seasons showed that the highest median serum 25(OH)D level was found in summer (20.2 (15.7; 28.9) ng/ml), and the lowest one was in winter (12.1 (8.8; 16.8) ng/ml), (p<0.001). The median values of 25(OH)D in spring and autumn did not differ significantly (p>0.05) and were 16.0 (11.3; 18.1) ng/ml and 15.9 (11.5; 21.4) ng/ml, respectively. The prevalence of vitamin D deficiency and insufficiency was 100% in winter, 96.4% in autumn, 90.9% in spring, 80% in summer.

Conclusion: The results of our study revealed a high prevalence of vitamin D deficiency and insufficiency and significant seasonal variations in serum 25(OH)D levels in children with cerebral palsy who did not receive vitamin D supplementation. The obtained data determine the need to optimize measures to prevent vitamin D deficiency in children with CP.

P227

MELORHEOSTOSIS: A RARE SCLEROSING BONE DYSPLASIA

A. Halasheuskaya[1], A. Pachkaila[1], V. Vadzianava[1]

[1]Institute of Advanced Training and Retraining of Healthcare Personnel of Belarusian State Medical Univ., Minsk, Belarus

We present a case of a rare skeletal dysplasia. Melorheostosis is a rare sclerosing bone dysplasia that affects both cortical bone and adjacent soft tissue structures in a sclerotomal distribution.
Case report: We present a case of melorheostosis in an 8-year-old boy with scleroderma-like skin lesions at the onset of the disease and a description of the dynamics of the disease over the next 10 y of observation. From the age of 6 y the patient had a scleroderma-like skin lesion in the area of the right thigh. At the age of 7 (after an injury) deformity of the second toe of the right foot appeared, and even later – slight hardening and swelling of the tissues of the right thigh, discrepancy in the length of the lower extremities and compensatory scoliosis. At 8 y of age radiography of the pelvis and lower extremities demonstrated the presence of extensive, irregular endosteal hyperostosis in the diaphyses of the right femur and right tibia. The diagnosis was verified: Melorheostosis, polyostotic form. Since the age of 10 he was periodically bothered by unexpressed pain in the right lower limb, limited range of motion in the right knee joint, shortening of the affected limb by up to 3 cm, compensatory lameness and compensatory right-sided thoracolumbar scoliosis. The patient received conservative treatment: NSAIDs (for pain relief), physiotherapeutic treatment, physical therapy, massage. Further observation showed a gradual and steady progression of the radiological manifestations of the disease. By the age of 18 the patient had spread of the melorheostotic lesion to the pelvic bones with the formation of secondary coxarthrosis of the right hip joint, grade 3.
Conclusion: The dynamics of the development of the disease in the patient in the presented clinical case indicates a gradual, steady progression of clinical and radiological manifestations of melorheostosis over time. There is currently no effective specific treatment for the described skeletal dysplasia. The used treatment is symptomatic and requires the participation of a multidisciplinary team of specialists.

P228

THE ICARE FEASIBILITY STUDY: AN INTEGRATED COLLECTION OF EDUCATION MODULES FOR FALL AND FRACTURE PREVENTION FOR HEALTHCARE PROVIDERS IN LONG TERM CARE

A. Papaioannou[1], G. Ioannidis[1], L. Hillier[2], J. D. Adachi[1], A. Costa[3], G. Heckman[4], J. Hirdes[4], J. Holroyd-Leduc[5], S. Jaglal[6], S. Kaasalainen[7], A. Lau[1], C. Mcarthur[8], L. Kane[1], S. Marr[9], S. Straus[10], J.-E. Tarride[3], L. Thabane[1], M. Abbas[11], I. Rodrigues[12]

[1]McMaster Univ., Dept. of Medicine, Hamilton, [2]Geras Centre for Aging Research, Hamilton, [3]McMaster Univ., Dept. of Health Research Methods, Hamilton, [4]Univ. of Waterloo, School of Public Health Sciences, Waterloo, [5]Univ. of Calgary, Dept. of Medicine and Community Health Sciences, Calgary, [6]Univ. of Toronto, Dept. of Physical Therapy, Toronto, [7]McMaster Univ., School of Nursing, Hamilton, [8]Dalhousie Univ., School of Physiotherapy, Halifax, [9]Unity Health Toronto, Hamilton, [10]McMaster Univ., Unity Health Toronto, Hamilton, [11]McMaster Univ., Hamilton, [12]Univ. of Manitoba, Max Rady College of Medicine, Winnipeg, Canada

Objective: To determine the feasibility (recruitment rate and adaptations), with a subobjective to understand facilitators to and barriers of, implementing the PREVENT (Person-centred Routine Fracture PreEVENTion) model in practice. The model includes a multifactorial intervention on improving diet, exercise, environmental adaptations, hip protectors, osteoporosis medications, and medication reviews to treat residents at high risk of fracture. Our secondary outcomes were to determine if there was a change in knowledge uptake and in the proportion of fracture prevention prescriptions post-intervention.**Methods:** We conducted a mixed methods longitudinal cohort study in three LTC homes across Ontario. A local champion was selected to guide the implementation of the model and promote best practices. We reported recruitment rates using descriptive statistics and implementation process using content analysis.**Results:** Within 5 months, we recruited one for-profit and two not-for profit LTC homes, Home A (120 beds), Home B (425 beds), and Home C (240 beds) and

WORLD CONGRESS ON OSTEOPOROSIS, OSTEOARTHRITIS AND MUSCULOSKELETAL DISEASES

WCO IOF-ESCEO

2024 LONDON

April 11-14, 2024

London | United Kingdom
Hilton London Metropole

WORLD'S LEADING CLINICAL CONFERENCE ON BONE, JOINT AND MUSCLE HEALTH

Congress Organizer Sinklar Congress Management B.V.
Congress Secretariat www.humacom.com

www.**WCO-IOF-ESCEO**.org

IOF International Osteoporosis Foundation

ESCEO

AbstractBook