Conclusions: Exposure to Bisphosphonates remains a major risk factor for development of AFF but our case series has shown that other risk factors do play an important part eg. prolonged courses of glucocorticoids and Proton pump inhibitor therapy. It is plausible that bisphosphonates are given for prolonged courses in patients on glucocorticoids and this combination seems to be a particular risk. The risk appears to be greater with multiple risk factors. The temporal relationship of fractures with relation to bisphosphonate therapy cannot be determined as it can happen even after the cessation of therapy. Further longitudinal and larger studies are required to identify whether Bisphosphonate would play a role to reduce the risk of Atypical Femoral fractures.

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THU0494 THE EFFICACY OF DENOSUMAB IN GLUCOCORTICOID-INDUCED OSTEOPOROSIS DID NOT DEPEND ON PRIOR TREATMENT BUT WAS AFFECTED BY THE DOSAGE OF GLUCOCORTICOID

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Background: Despite of the good clinical efficacy of denosumab for primary osteoporosis, 2017 American College of Rheumatology guideline for treatment of glucocorticoid-induced osteoporosis (GIOP) placed denosumab as second-line treatment because of lack of clinical experiences with concomitantly use of immunosuppressive agents. Moreover, recently large phase 3 study in primary osteoporosis revealed that transition from teriparatide to denosumab continuously increased bone mineral density (BMD)¹. However, there is still remain unclear whether prior treatment affect to the efficacy of denosumab in GIOP.

Objectives: The aim of this study is to compare the therapeutic effect of denosumab in GIOP between previous anti-osteoporotic treatments, and to investigate the factor that influence the efficacy of denosumab in GIOP.

Methods: Sixty-six patients for whom treated by denosumab, were enrolled. All patients were receiving several dosages of prednisolone (PSL) (2–20 mg) for RA and connective tissue diseases at initiation of denosumab. 23 patients had been treated with daily teriparatide and 27 patients had been treated with bisphosphonate (BPs) prior to denosumab. The rest 16 patients had not been treated by anti-osteoporosis medication at initiation of denosumab. We evaluated BMD at lumbar spine and bone turnover markers (NTX, BAP and P1NP) every 6 months for 12 months. The changes in BMD was compared among these 3 groups at 6 months and at 12 months. To assess the factors which influences clinical response of denosumab in GIOP, univariate and multivariable ordinal logistic regression analyses were used.

Results: Mean percentage change in BMD of lumbar spine from baseline to 6 and 12 months were significant (2.85% increased; $p < 0.0001$ and 4.40% increased; $p < 0.0001$, respectively). Gains higher than 3% were observed in 68.2%. Whereas, the subjects who showed decrement of BMD at 12 months were few (16.67%). All bone turnover markers determined in this study were decreased at 6 months. Transition from BPs to denosumab further increase BMD at 12 months as compared to transition from teriparatide to denosumab (4.71% increased, 3.71% increased, respectively). However, difference among these 2 groups was not significant and furthermore, the changes in BMD in patients who did no transition from anti-osteoporosis medication to denosumab also showed no significant difference (figure 1). Univariate analysis showed that dosage/duration of PSL, body weight and gender were associated with BMD increase higher than 3% at 12 months. Among these candidates, multivariable logistic analysis showed that dose of PSL was independently associated with clinical response of denosumab (OR 1.36, 95% CI 1.045–1.761 $P < 0.01$). No hypocalcemia and osteonecrosis of the jaw was observed during the study period.

Conclusions: Our present study demonstrated that denosumab increased BMD in GIOP regardless of prior anti-osteoporotic treatment in 'real-world' settings. We should consider denosumab treatment for GIOP, especially who are treated by much dose of glucocorticoids or at the time when the efficacy of BPs is diminished.

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THU0495 INDICES OF VERTEBRAL PAIN SYNDROME, PHYSICAL PERFORMANCE AND QUALITY OF LIFE IN OLDER AGE WOMEN WITH VERTEBRAL FRACTURES DEPENDING ON THEIR QUANTITY AND LOCALIZATION

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Background: Nowadays, vertebral fractures (VF) are one of the frequent and severe complications of systemic osteoporosis, which lead to severe spine pain, restriction of physical activity, increased disability and mortality, however, the data about their particularities depending on their quantity and localization are limited. The purpose was to study the indices of vertebral pain syndrome, physical performance, disability and quality of life in women of older age groups with VF depending on their number and localization.

Objectives: We examined 230 women aged 50–89 years old, which were divided into 2 groups: I – patients without any history of osteoporotic fractures ($n=151$), II – women with VF at thoracic and/or lumbar spine ($n=79$). Subsequently, the persons of the second group were divided into subgroups depending on the number (1 or 2 and more) and localization (thoracic, lumbar spine or combined) VF.

Methods: The presence and intensity of pain in the thoracic and lumbar spine were evaluated using the 11-component visual analogue scale (VAS), the level of physical performance was evaluated using static and dynamic functional tests (FT) (Thomayer, Schober tests, chest excursion, lateral trunk lean, 3-, 4-, 15-metre tests, "stand up from the chair", static balancing); disturbance of life was determined using Roland-Morris questionnaire, quality of life - EuroQol-5D questionnaire.

Results: It was demonstrated that the intensity of vertebral pain (pain at the time of investigation, the most common level of pain, pain in the best periods of the disease) is significantly worse in women with VF than corresponding parameters in persons without fractures. It was found that women with 2 and more VF have worse values of majority of measured FT (results of Schober test, lateral trunk lean, chest excursion, breath holding, hand grip strength, 15-metre test) in comparison with control group, while in women with 1 VF only results of Schober test and breath holding were significantly worse than same ones in control group. It was shown that for women with VF at the thoracic spine, results of breath holding

and 15-metre tests were significantly worse compared with control, whereas in persons with VF at lumbar spine results of Schober index, lateral trunk lean, hand grip strength and test "stand up from the chair" were worse. In patients with combined VF most of the FT (lateral trunk lean, chest excursion, hand grip strength and 15-metre test) were significantly worse in comparison with control group. The Roland-Morris questionnaire score was significantly higher in women with 2 or more VF compared to controls, unlike the women with 1 VF. We did not found any differences in EQ-5D questionnaire score depending on the number and location of VF.

Conclusions: Indices of pain assessment and physical performance in women of older age groups have own peculiarities depending on the number and location of VF, which should be taken into account while assessing of physical abilities and developing of rehabilitation programs for people with VF.

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THU0496 SKELETAL DEFICIT DUE TO ALTERED BONE QUALITY IN TYPE 1 DIABETES MELLITUS

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Background: Diabetes mellitus (DM) is associated with osteoporosis and increase fracture risk¹. Increase fractures in type 1 DM are linked to decrease bone mineral density (BMD) but BMD alone does not explain the increase fracture rate seen in diabetics. Alterations in bone quality which entails bone microarchitecture, material and composition of bone tissue also contributes to diabetic osteopathy². Chronic state of hyperglycaemia, hypoinsulinemia, inflammation, low levels of insulin growth factor-1 (IGF-1), increased marrow adiposity, altered adipokine and endocrine factors, increased cell death and accumulation of advanced glycation products that compromise matrix properties impairs normal bone metabolism in type 1 DM³. While BMD is detected clinically using a dual-energy X-ray absorptiometry (DEXA) scan, methods to detect changes in bone quality are limited. Estimating bone markers in serum and urine are used in assessing bone quality. An imbalance in bone remodelling as measured by various bone markers is observed in type I DM. But due to discrepancy in results of various studies the exact mechanisms is still elusive.

Objectives: To investigate the underlying mechanism of altered bone quality in type 1 diabetes:

1. By measuring the bone formations and resorption markers.
2. By measuring the advanced glycation end products.
3. By analysing the changes at cellular level in type I diabetes

Methods: Experimental diabetes mellitus was induced in 24 Wistar rats by injecting streptozotocin 60 mg/kg body weight intraperitoneally. Rats were sacrificed at 6th, 8th and 12th week of developing diabetes. Blood and bone specimens were collected. Serum levels of osteocalcin, bone alkaline phosphatase, C-terminal cross-linked telopeptide of type-I collagen (CTX) and pentosidine were measured using ELISA to investigate bone turnover in type I DM. The bone specimens were fixed, processed, sectioned and stained for bone histomorphometry³. Histological analysis was carried out using an 'Olympus Research Inverted Microscope Model IX53' complete with fluorescent attachment equipped with a DP73 camera (Olympus). Statistical analysis was carried out using sigmastat 4.0.

Results: Low levels of osteocalcin and bone alkaline phosphatase and increased levels of pentosidine and CTx levels in serum were found in 6th and 12th week duration of diabetes. Additionally increase number of mast cells p<0.05 were observed in diabetic bones as compared to control specimens

Conclusions: Chronic hyperglycaemic state in type I DM impairs bone remodelling by decreasing bone formation and increasing bone resorption. Increase in advanced glycation end products and mast cells also contribute to diabetic osteopathy.

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THU0497 IS THE SECONDARY OSTEOPOROSIS SOMETHING SECONDARY? EXPERIENCE OF A SECONDARY OSTEOPOROSIS CONSULTATION

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Background: There are many pathologies and drugs that favour the development of Osteoporosis (OP). Although the prevalence of this secondary OP is very high, sometimes assuming a high risk of fracture, it remains an underdiagnosed and undertreated pathology.

Objectives: To assess the characteristics of the patients and bone metabolic pathology referred to a secondary OP consultation.

Methods: In order to optimise the management of bone metabolic pathology associated with Rheumatoid Arthritis (RA) and other inflammatory articular diseases, an inflammatory op consultation was founded in april/2012. Faced with the growing demand from other medical specialities, it became a secondary OP Consultation in 2014, 2 days per week. Sociodemographic, clinical, biochemical and densitometric data were collected.

Results: 418 patients with a mean age of 58.7±11.3 years were evaluated, 78.9% were women, 15.4% premenopausal. 57.4% of patients had densitometric OP and 25.8% Osteopenia. 22.4% had a fragility fracture (60.6% vertebral, 26.5% peripheral, 1.1% hip, 8.5% peripheral/vertebral). Vitamin D level was deficient in 71% of patients.

The most frequent medical specialities who referred patients to our consultation were Rheumatology (18.9% from early RA Unit and 18.2% from Consultation or Rheumatol. Day Hospital), Gynaecology (12.7%) and Neumology (11.2%). But also, there were patient from Oncology, Endocrinology, Nephrology, Haematology and several more medical specialities.

The most frequent underlying diseases were: breast cancer (22.5%, 77.6% in treatment with aromatase inhibitors, early RA (12.4%) and pulmonary disease (11.5%), 41.6% of them were sarcoidosis, other diseases are shown in table 1.

The glucocorticoid-induced OP represented 30.1% of the sample, with a main age of 60.2±11.4 years, being 73% women, 20.6% premenopausal. The most frequent reasons for the use of corticosteroids were: early RA and pulmonary disease (23% respectively), rheumatic diseases (autoimmune dis.(13.5%), established RA (12%), other inflammatory articular disease(7.9%)), multifactorial (8.7%), haematological conditions and kidney transplantation(4% respectively). 42.8% of these patients had densitometric OP and 29.3% osteopenia We found 33 fragility fractures (26.1% of patients), 25 were vertebral (75.7%), peripheral 5 (15.1%) and 3 (9.1%) vertebral and peripheral. In 21.2% of cases, these fractures presented with BMD in the osteopenic range and in 6% with a normal BMD.

DISORDER	N (%)
Breast Cancer	94 (22.5%)
Early RA	52 (12.4%)
Endocrinopathies	31 (7.4%)
Pulmonary dis.	48 (11.5%)
Other inflamm. articular dis.	28 (6.7%)
Autoimmune dis.	27 (6.4%)
Multifactorial	27 (6.4%)
Stablished RA	25 (6%)
Digestive dis.	22 (5.3%)
Haematological condition	17 (4%)
Kidney transpl.	12 (2.9%)
Abnormal bone architecture	6 (1.4%)
Nutritional dis.	5 (1.2%)
Prostate Cancer androgenic supp.	5 (1.2%)
Other (HIV, neurological dis,...)	19 (4.5%)

Conclusions: There are multiple processes that can associate bone metabolic pathology or a secondary OP, with a high prevalence of fragility fracture in these patients, being the rheumatologist a reference for the management of this comorbidity. A monographic consultation of secondary OP has been useful for other medical specialities and to optimise the management of OP associated with inflammatory/autoimmune diseases in Rheumatology

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