

## P331

**Biochemical Predictors of Low Bone Mineral Density and Fracture Susceptibility in Maltese Postmenopausal Women**

Melissa Formosa, Angela Xuereb-Anastasi  
Department of Applied Biomedical Science, Faculty of Health Sciences, University of Malta, Msida, Malta

**Background:** Osteoporosis and fracture risk are polygenic conditions which result from an interplay of genetic, biochemical and environmental factors. A number of biochemical markers including serum calcium, total alkaline phosphatase (ALP) and albumin, were analysed in relation to bone mineral density (BMD) and different types of low-trauma fractures in Maltese postmenopausal women. Levels were also correlated with a number of clinical risk factors including physical activity and years since menopause (YSM).

**Methods:** An age-matched case-control study of 1045 women was performed. Women who suffered low-trauma fractures were classified as cases whereas those without a fracture history were included as controls subdivided into normal, osteopenic or osteoporotic according to their BMD status. Blood specimens were collected following good standard practice and within 18 hours of fracture in the case of fresh-trauma fractures. Biochemical testing was performed using spectrophotometric analysis.

**Results:** Serum calcium, and to a lower extent ALP levels, were correlated with BMD levels at the femoral neck, FN (calcium rho: 0.111,  $P < 0.01$ , ALP rho: 0.089,  $P < 0.05$ ). Fracture cases had the lowest levels of serum calcium, ALP and albumin relative to all other control groups ( $P < 0.05$ ), which significantly decreased with increasing age ( $P < 0.05$ ), possibly contributing to an increased fracture risk due to reduced intestinal absorption, malnutrition and depleted protein levels, as well as a lower overall well-being. Levels were lowest in women who sustained a hip fracture and in those who sustained more than one fracture ( $P < 0.05$ ). YSM was correlated with lower calcium levels in fracture cases (rho: -0.229,  $P < 0.01$ ). Low physical activity was associated with low BMD at the lumbar spine (LS) and FN ( $P < 0.00$ ), and with lower concentrations of serum calcium, ALP and albumin ( $P < 0.05$ ).

**Conclusion:** Results suggest that measurements of serum calcium, ALP and albumin levels could be indicative of frailty and low BMD.

**Disclosure:** The authors declared no competing interests.

## P332

**Vitamin D Deficiency in Patients with Psoriatic Arthritis and its Role in Disease Activity**

Cristina Vergara Dangond, Montserrat Robustillo-Villarino, Juan Jose Alegre Sancho, Elia Valls Pascual, Elvira Vicens Bernabeu, Jose Eloy Oller-Rodriguez, Amparo Ybañez Garcia, Gloria Albert E., Angels Martinez-Ferrer  
Department of Rheumatology, Hospital Dr. Peset, Universidad de Valencia, Valencia, Spain

**Background:** Vitamin D is crucial in calcium homeostasis, playing a role in the modulation of the immune system. The objectives were to assess BMD, bone turnover markers

and 25OHD levels in psoriatic arthritis (PsA) patients; and to investigate the relationship between 25OHD and disease activity.

**Methods:** Fifty patients were recruited. Patients with axial involvement were excluded. Calcium, phosphorus, 25OHD, PTH, P1NP and  $\beta$ CTX were measured as bone turnover markers. BMD was measured at the lumbar spine and hip by DXA. Disease activity was assessed using DAS-28, BASDAI, CRR and ESR levels; HAQ for functional impairment.

**Results:** Twelve premenopausal women, 22 postmenopausal women and 16 men were included. The clinical forms of PsA were: 32% oligoarticular and 54% polyarticular. Mean disease duration was  $111 \pm 108$  months, 25OHD levels was  $28,91 \pm 13,3$  ng/dl, DAS-28  $1,61 \pm 0,70$  and BASDAI  $3,24 \pm 1,99$ . Sixteen patients (32%) presented insufficient 25OHD levels ( $< 30$  ng/ml) and 22% showed deficiency ( $< 20$  ng/ml). Frequency of osteoporosis was 14% and osteopenia 49%, being higher in postmenopausal women (75%) rather than premenopausal (25%) or men (29.4%). P1NP  $38,9$  (14-72) ng/ml and  $\beta$ CTX  $341,2$  (142-866) pg/ml had normal values. Six fractures were registered. Mean values of ESR, CRR and HAQ were  $10,9 \pm 11,41$  mm/h,  $5,38 \pm 0,86$  mg/L and  $0,33 \pm 0,48$  respectively, in patients with normal vitamin D levels; whereas patients with low vitamin D levels presented higher values (ESR, CRR and HAQ mean values of  $12,1 \pm 9,82$  mm/h,  $6,48 \pm 5,38$  mg/L and  $0,37 \pm 0,56$ ). Our results are not statistically significant due to low sample population.

**Conclusions:** High prevalence of 25OHD insufficiency was found. 63% had decreased bone mass. An inverse correlation between 25OHD levels, disease activity and functionality is shown. There is a relationship between high disease activity in PsA and 25OHD metabolism and increased bone resorption.

**Disclosure:** The authors declared no competing interests.

## P333

**Determination of the Relationship between Serum Levels of Vitamin D, FSH, or Oestradiol and Fracture Risk in Postmenopausal Taiwanese**

Bi-Hua Cheng<sup>1,2</sup>, Hong-Yo Kang<sup>3,4</sup>, Ying-Chu Lin<sup>6</sup>, Ko-En Huang<sup>4,5</sup>

<sup>1</sup>Obstetrics and Gynecology, Chiayi Chang Gung Memorial Hospital, Puzi City, Chiayi County, Taiwan, <sup>2</sup>Chiayi branch, Chang Gung University of Science and Technology, Puzi City, Chiayi County, Taiwan, <sup>3</sup>Graduate Institute of Clinical Medical Science, College of Medicine, Chang Gung University, Linko, Taoyuan, Taiwan, <sup>4</sup>Center for menopause and reproductive medicine research, Kaohsiung CGMH, Kaohsiung, Taiwan, <sup>5</sup>Obs & Gyn, CGMH Kaohsiung medical center, Chang Gung University College of Medicine, Kaohsiung, Taiwan, <sup>6</sup>School of Dentistry, College of Dental Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan

**Background:** Serum levels of vitamin D, FSH, and oestradiol are associated with bone health. Vitamin D has numerous biologic effects such as enhancing calcium and phosphate absorption, production of antimicrobial peptides, anti-inflammatory activities, and development of regulatory T cells. Insufficiency and deficiency of vitamin D has been linked