



# OSTEOS NEWSLETTER

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Newsletter of the Lebanese Society for Osteoporosis and Metabolic Bone Disorders

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## *Welcome note*

### *Dear Colleagues,*

It was a tremendous pleasure to see you at the second annual meeting of OSTEOS that was held in Beirut at Movempick early December.

Besides its interesting scientific program, the meeting was an opportunity for all of us to exchange thoughts, knowledge and experience, but also to develop networks and friendships with colleagues in Lebanon and the region.

During the meeting, we were also happy to notice the great interest of our colleagues in the OSTEOS Newsletter.

Our future plan and promise is to keep updating you with the latest news on Osteoporosis through this newsletter, and to maintain an extremely high scientific level of the annual meeting.

We hope that our society evolves at all levels, so that everyone feels that OSTEOS is his "Home" scientific and friendly society.

## MISSION OF OSTEOS

To enhance state-of-the-art knowledge and expert care for osteoporosis and other metabolic bone disorders in Lebanon through education, research and service.

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## OSTEOPOROSIS MEDICATIONS AND MORTALITY

Osteoporotic fractures are associated with premature mortality. Recently, some observational studies suggested that osteoporosis treatment may reduce mortality risk. This was supported by a randomized controlled trial showing that IV zoledronic acid was associated with a 28% reduction in mortality rates after hip fractures in women and men. Whether this reduced mortality associated with anti-osteoporosis treatment is mediated by the reduction in fracture rate is still unclear. Center et al investigated the association between oral bisphosphonates (BP), hormone therapy (HT), and calcium with vitamin D (CaD) with mortality over 18 year of follow-up, with and without fracture, in a prospective cohort study of 1223 women and 819 men, aged 60 years or older. There were 325 (BP, n = 106; HT, n = 77; CaD, n = 142) women and 37 men (BP, n = 15; CaD, n = 22) on treatment. The majority of BPs prescribed were alendronate, followed by risedronate, and only few patients were on other bisphosphonates. In women, mortality rates were lower with BP 0.8/100 person-years (0.4, 1.4) and HT 1.2/100 person-years (0.7, 2.1) but not CaD 3.2/100 person-years (2.5, 4.1) compared to no treatment: 3.5/100 person-years (3.1, 3.8). Accounting for several potential confounders, BP therapy was associated with 69% reduction in mortality rates in women. In men, lower mortality rates were observed with BP but not CaD vs no treatment, but this association was not significant in the adjusted analyses. To see whether the effect was driven by fracture reduction, mortality was examined in patients without fracture. For non-fractured women on BP, mortality risk was reduced by 76% (95% CI 3–97%) compared to no treatment, after adjustment for potential confounders. For men, mortality risk was reduced, but this effect was smaller and was not significant after adjustment. The authors concluded that, after adjustment for a large number of frailty factors, oral BPs reduce mortality risk, irrespective of fracture history. These findings support and extend the results from previous studies of hip fracture and elderly subjects. *Center et al, J Clin Endocrinol Metab April 2010.*

## URIC ACID AND BONE HEALTH

Uric acid (UA) is a strong antioxidant. Studies showed that oxidative stress may induce bone loss. In a population-based study, Nabipour et al examined the association between serum UA and BMD, prevalent vertebral fractures (VF) and non-vertebral fractures (NVF), and bone markers in a cross-sectional analysis of 1705 men aged 70 years or older. After adjustment for potential confounders including age, kidney function, BMI, physical activity, and other co-morbid conditions, UA was significantly associated with BMD at the spine, hip and total body, and was negatively associated with urinary excretion of aminoterminal cross-linked telopeptide of type I collagen. Overall, serum UA accounted for 1.0-1.44% of the variances in BMD. In multiple logistic regression analyses, above-median serum UA levels were associated with a lower prevalence of VF (OR=0.62, 95%CI 0.43-0.91) & NVF (OR=0.54, 95% CI 0.31-0.95). In summary, higher serum UA was associated with higher BMD and lower prevalence of VF & NVF in elderly men. The study design however does not allow any conclusion regarding causation. Further studies assessing this relationship and the possible underlying mechanisms are needed. *Nabipour et al, J Bone Miner Res, Nov 2010.*

## OSTEOPOROSIS TREATMENT INITIATION BEFORE AND AFTER THE 10 YEAR RISK MODELS

Until recently, treatment decision in osteoporosis (OP) was based on BMD T-score. Several validated prediction models that calculate the 10-year fracture risk, taking into consideration other risk factors are now available. Leslie et al examined the effect introduction of a 10-year risk fracture risk model on patient's classification and treatment in Manitoba-Canada. The authors compared the proportion of subjects started on treatment, one year before and one year after the introduction of the model. The introduction of the fracture risk model resulted in more women classified into lower-risk categories (32.7%) than into higher-risk categories (10%). It was also associated with a 21% reduction in OP medications dispensed ( $P < 0.001$ ) without difference in fracture rates. The authors concluded that change from a T-score-based system to a system based on absolute 10-year fracture risk was associated with appropriate, guideline-based in prescription of OP medications. *Leslie et al, Ann Intern Med, 2010;153:580-586.*

## HIGHLIGHTS FROM THE ASBMR ANNUAL MEETING

October 15-19, 2010 Toronto-Canada

### VITAMIN D AND DEATH IN THE ELDERLY (Abstract Number: 1019)

*J*ohansson et al assessed the association between serum 25 (OH) vitamin D [25-OHD] and risk of death among a random sample of 3014 elderly men aged 70-80 years, recruited to the MrOS study. Subjects were followed up for an average of 4.5 years during which 382 deaths occurred. Low 25-OHD was associated with increased all cause mortality with a gradient risk of 1.28 (95% CI 1.15-1.43) for each SD decrease in 25-OHD. The gradient risk was 1.25 (95% CI 1.04-1.5) for cardiovascular mortality and 1.33 (95% CI 1.07-1.43) for cancer mortality. The relationship remained significant after adjustment for BMD and other comorbidities. The investigators concluded that these findings indicate that improved vitamin D nutrition has the potential to improve survival, and needs to be investigated in prospective trials.

### VITAMIN D, PTH AND MORTALITY RISK IN THE ELDERLY (Abstract Number: 1168)

*F*rost et al examined the inter-relationship between 25 (OH) vitamin D [25-OHD] and PTH levels on the risk of mortality in 413 men aged 60 years and older, recruited in the DUBBO study and followed up for 14 years. The mortality rate was 4.9/100 person-years. The overall prevalence of vitamin D deficiency (25-OHD level < 50 nmol/l) was 12.6%. The prevalence was 17.5% in the deceased and 8% in survivors. Each SD decrease in serum 25-OH D (25 nmol/l) was associated with 33% increase in the risk of mortality. The relationship between vitamin D and mortality persisted after adjustment for age and PTH. Approximately 7% of mortality risk was explained by vitamin D deficiency alone, and 4% was explained by vitamin D deficiency and high PTH.

### ORAL CONTRACEPTIVE USE AND BMD IN ADOLESCENTS (Abstract Number: 1211)

*S*choles et al compared BMD changes in oral contraceptive (OC) users and non-users in a population-based prospective cohort study enrolling 606 women (389 users and 217 non-users). The 14-18 year-olds using OC containing 30-35 mcg ethinyl estradiol had smaller 24-month BMD percent gains than non-users at the spine, hip and total body. The difference remained significant after adjustment for age, race, BMI, period regularity, smoking, calcium intake and physical activity. No similar difference was observed in the 19-30 year-old women. The investigators concluded that the long term use of 30-35 mcg of EE OC formulations is associated with reduced bone accrual in adolescent females but not in those with more complete bone accrual.

### EFFECT OF DENOSUMAB ON BMD AND FRACTURE RISK BY LEVEL OF RENAL FUNCTION (Abstract Number: 1068)

*J*amal et al examined the efficacy and safety of Denosumab according to level of kidney function among women (mean age 72±5.2) with osteoporosis participating in the 3 year randomized phase 3 FREEDOM trial. GFR was estimated using the Crockroft-Gault equation, and the stage of kidney function was determined according to the National Kidney foundation guidelines. 7808 women participated in the study (n=842 stage 1, n=1069 stage 2, n= 2817 stage 3 and n=73 stage 4). Denosumab was effective in increasing BMD and in reducing risk of vertebral fractures compared to placebo in the overall group without difference between groups. Similarly there was no significant difference in renal and non-renal adverse events between treatment and placebo in either group or between groups. The investigators concluded that, in view of the lack of difference in the efficacy and safety of Denosumab between groups, no dose adjustments need to be made to Denosumab in patients with chronic kidney disease.

### VERTEBROPLASTY AND QUALITY OF LIFE (Abstract Number: FR 0413)

*M*artinez-Ferrer et al compared the effects of vertebroplasty to conservative approach on the quality of life and pain in a randomized controlled trial of 121 patients with acute painful vertebral fractures (VF). Vertebroplasty resulted in better improvement in the visual analogue scale and in the quality of life at 2 and 12 months of treatment. However, patients treated with vertebroplasty had higher incidence of VF compared to those treated by conservative management (20.3% vs 4.8%, p=0.008)

## OSTEOS NEWS

The Second Annual Meeting of the Lebanese Society for Osteoporosis and Metabolic Disorders, OSTEOS was held on Dec 3-4, 2010 at the Movenpick Hotel, recording over 130 registrants, with excellent feedback. Attendants benefitted from topics related to FRAX ISCD International Initiative with Dr Sanford Baim who participated in the meeting held in Bucharest from November 11-14, 2010, and including guidelines for the use of FRAX, an endeavor under the sponsorship of the International Osteoporosis Foundation and a session that was chaired by his Excellency the Minister of Public Health, Dr. Mohammad Khalifeh. Other topics included inflammatory joint diseases and osteoporosis, update on SERMs and SARMS, osteoporosis in elderly nursing home population, nutritional interventions and the calcium paradox, bone loss with pregnancy, lactation and perimenopausal bone loss, and case studies. Dr. John Kanis concluded with an overview of the International Osteoporosis Foundation Middle East Osteoporosis Audit.

This educational event, much like the first meeting, was endorsed and supported by the Ministry of Public Health, the Lebanese Order of Physicians and the World Health Organization.

## DENSITOMETRY CORNER

Since its introduction in 1987, Dual Energy X-Ray Absorptiometry (DXA) has become the mostly used method of measuring bone mineral density (BMD). Although BMD measured by DXA is an important predictor of osteoporotic fracture risk, bone strength depends not just on BMD but also on bone quality. Other imaging techniques that enable assessment of bone quality and strength beyond BMD are being developed. Among these techniques are the high-resolution computed tomography and the magnetic resonance. With the introduction of advanced analytical software, these techniques can provide noninvasive, three-dimensional, volumetric analysis, similar to histologic analyses, thus a prediction of bone strength and fracture risk beyond bone density. These techniques are still in the experimental phase, but it is expected that they will be incorporated into clinical practice, leading to a better assessment of fracture risk and treatment decision for patients with osteoporosis in the future. In the meantime, BMD measurement by DXA remains the gold standard method for diagnosis of osteoporosis using the World Health Organization diagnostic criteria, as well as for monitoring of treatment.

## Mark Your Calendar

Date	Event	Location
<i>March 22-23, 2011</i>	<b>IOF World Congress on Osteoporosis</b>	<b>Valencia, Spain</b>
<i>March 22-26, 2011</i>	<b>European Congress on Clinical and Economic Aspects of Osteoporosis &amp; Osteoarthritis</b>	<b>Valencia, Spain</b>
<i>March 28-29, 2011</i>	<b>First Regional Nutrition Conference: Nutritional Challenges in the Eastern Mediterranean Region". In collaboration with Qatar University.</b>	<b>Doha, Qatar</b>
<i>April 6-9, 2011</i>	<b>International Society for Clinical Densitometry Meeting</b>	<b>Miami, FL</b>
<i>May 7-11, 2011</i>	<b>European Calcified Tissue Society Symposium</b>	<b>Athens, Greece</b>
<i>May 18-21, 2011</i>	<b>9th NOF International Symposium on Osteoporosis</b>	<b>Las Vegas, Nevada</b>
<i>June 4-7, 2011</i>	<b>The Endocrine Society Meeting</b>	<b>Boston, MA</b>
<i>June 8-12, 2011</i>	<b>International Menopause Society 13th World Congress on the Menopause</b>	<b>Rome, Italy</b>
<i>September 15-17, 2011</i>	<b>American Gynecological &amp; Obstetrical Society Meeting</b>	<b>Chicago, IL</b>
<i>September 16-20, 2011</i>	<b>American Society for Bone and Mineral Research Meeting</b>	<b>San Diego-California</b>