# OSTEOS NEWSLETTER

**ISSUE 2.3**
**Newsletter of the Lebanese Society for Osteoporosis and Metabolic Bone Disorders**
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## Welcome note

***Dear colleagues,***

Welcome to the fifth Newsletter of our society that coincides with several important events related to Osteoporosis at both international and national level, such the American Society for Bone and Mineral Research annual meeting, the World Osteoporosis day, the OSTEOS first annual meeting and the introduction of the Lebanese database into the Fracture Risk Calculator Frax Tool.

Despite all the awareness campaigns worldwide, the majority of patients with osteoporotic fractures are still untreated. It's the responsibility of all of us to fight osteoporosis and decrease the burden of the disease. It's our role to prevent, detect and treat. There is an emergent need that all health professionals and medical societies act on behalf of people who are at risk or suffering from osteoporosis in order to improve the life conditions of our elderly.

It's our and your responsibility, so don't stay an observer, be a participant!!

***To hear about FRAX and FRAX Lebanon please join us at our 1st Annual Meeting October 30&31, 2009 at Bristol Hotel, Beirut***

## *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.

## READ IN THIS ISSUE

# HIGHLIGHTS FROM THE 31ST ANNUAL ASBMR MEETING
# OSTEOPOROSIS TREATMENT

### Risedronate Therapy and Femoral Strength by Takakuwa et al

DXA provides software for measurement of femoral strength (AHA: Advance Hip Assessment), as well as BMD. Femur strength index (FSI) is calculated from femoral geometric properties, femur neck shaft angle, stature, and body weight. Takakuwa et al used AHA to evaluate change in FSI, BMD, and urinary NTx in 164 patients aged 68.2 ± 10 yrs treated with Risedronate for primary osteoporosis. After 4-month FSI increased by 7.5 ± 19.8% in right femur ($p< 0.005$) and 4.5 ± 18.3% in left femur ($p < 0.01$). At 12 months, FSI further increased by 10.0 ± 17.7% in right femur and 8.2 ± 22.9% in left femur. BMD increased and urinary NTX decreased (by 37.7% after 4 months). In conclusion: risedronate increased BMD, decreased urinary NTX, and improved femoral strength as early as 4 months of treatment with additional improvement after 12 months. In conclusion, risedronate might exert early fracture prevention not only through BMD but also through early enhancement of femoral strength index.

### Ibandronate in Men (STRONG Study) by Binkley et al

The STRONG is a one-year, placebo-controlled, randomized (2:1), double-blind study that investigated the efficacy and safety of 150mg monthly oral ibandronate in 132 ambulatory men aged ≥ 30 years with idiopathic, hypogonadal or primary osteoporosis. 47 men received placebo and 85 received monthly ibandronate. All men received 1000 mg calcium and 400 IU vitamin D daily. At 12 months, ibandronate group achieved larger increase in BMD than placebo at the spine (3.52% vs 0.94%), total hip (1.82% vs 0.31%), femoral neck (1.2% vs 0.23%) and trochanter (2.15% vs 0.43%) BMD ($p< 0.001$ at all sites). The 12-month decrease in median sCTX levels was greater with ibandronate than placebo ($P=0.013$). The most frequently reported adverse events in men receiving ibandronate were nasopharyngitis, arthralgia, back pain, and nausea. Clinical fractures occurred in 3 ibandronate patients and no placebo patients. New morphometric vertebral fractures occurred in one ibandronate patient and 2 placebo patients. The authors concluded that ibandronate was effective in increasing BMD at spine and hip in men with osteoporosis and was in general well tolerated.

### Cyclic Versus Daily Teriparatide in Postmenopausal Osteoporosis by Cosman et al

In this study, 139 postmenopasual women (mean age 65 years) with osteoporosis who were either treatment naïve (n=67) or on prior alendronate (n=72) were randomized into daily teriparatide 20 µg or cyclic teriparatide (daily dose of 20 µg, 3 months on/3 months off) over 2 years. BMD results on the first 69 women who have completed 15 months of the trial were presented at ASBMR. In the alendronate- treated women, spine BMD increased by 4.6% in the daily group and 6.5% in the cyclic group. In the treatment naïve women, spine BMD increased by 6.8 % in the daily and 6.7% in the cyclic group. At the hip, BMD increased by 1.8% in the daily and 2.5% in the cyclic group in alendronate treated women, and by 2.9% in the daily and 1.8% in the cyclic group in treatment naïve women. All changes were significant compared to baseline but there was no significant difference in BMD change between the cyclic and daily treatments in either alendronate or treatment naïve group. In conclusion, half the total cumulative dose of teriparatide may increase BMD similarly to the daily dose in both alendronate-treated and treatment naïve women.

### Combination Therapy and BMD by Cosman et al

Data suggest that combining bisphosphonates with teriparatide (hrPTH) may blunt hrPTH effect when administered simultaneously. In contrast, zoledronic acid (ZOL) does not blunt the hrPTH anabolic effect in rodent models. In this partial double-blinded, multicenter study, Cosman et al assessed the 1-year effects of combination therapy of annual IV infusion of 5 mg ZOL and daily sc hrPTH 20µg vs either agent alone in postmenopausal women with osteoporosis. 412 women aged 65 ±9 yrs with osteoporosis were randomized to receive either ZOL or hrPTH (n=137), ZOL alone (n=137) or hrPTH alone (n=138). At week 52, the % changes in spine BMD were 7.51% in the combination arm, 7.05% in the hrPTH arm and 4.37% in the ZOL arm (NS for combination vs PTH, $p<0.001$ for combination vs ZOL).The combination therapy significantly increased hip BMD vs hrPTH alone ($p<0.005$). In conclusion, concomitant administration of ZOL and hrPTH did not blunt the hrPTH effect on spine BMD and resulted in a greater increment in hip BMD than hrPTH alone. Combination therapy could be considered in patients at high risk for hip fracture or those with very low hip BMD.

# HIGHLIGHTS FROM THE 31ST ANNUAL ASBMR MEETING
# PEDIATRIC BONE DISEASE

### All and Vertebral Fracture in Children by Siminoski et al

Explored the relationships of back pain and low BMD to Vertebral fractures (VF) in 186 children (median age 5.3 years) newly diagnosed to have ALL. Back pain was present in 25.3% of the patients. One or more VF was present in 29 patients (16%) with 71% of fractures in the thoracic spine and 29% in the lumbar spine. 11% of the fractures were severe. Subjects with VF had lower lumbar spine BMD Z-scores compared to those without VF (-2.1±1.5 vs -1.1±1.2, $p<0.001$). Odds Ratio (OR) for VF increased 1.8-fold for every 1 SD reductions in BMD Z-score. The presence of back pain had an OR for VF of 4.7 (1.5-14.5, $p<0.01$). The authors concluded that VF may be present at the time of diagnosis of ALL. Performing spine X-Rays in ALL patients with either back pain or BMD Z-score <-2.0 would detect 69% of fractures.

### IBD and Vertebral Fracture in Children by Viswanathan et al

Children with chronic inflammatory bowel diseases (IBD) often have decreased bone mass at diagnosis and a small case series reported symptomatic VF in children with IBD and low bone mass. However, it is not known whether asymptomatic vertebral deformity or fracture occurs in pediatric IBD. Viswanathan et al screened 18 adolescents aged 16-20 years with Crohn's disease. At the time of study the disease was quiescent in all patients. 16/18 patients were receiving maintenance anti-tumor necrosis factor α therapy (infliximab or adalimumab). The mean DXA Z score was -0.6 ± 0.8 for the total body and -0.87 ± 1.1 for the lumbar spine. Vertebral Fracture Assessment by DXA revealed the presence of vertebral deformities in 5 patients, only two of these vertebral deformities/ fracture were confirmed by spine X ray. In conclusion, asymptomatic vertebral fractures and deformities may occur in children with IBD.

### Alendronate in Glucocorticoid Induced Osteoporosis in Children by Seino et al

Glucocorticoid therapy is a common cause of bone loss in children. The efficacy and safety of oral bisphosphonates in children is still unclear. In this study, Seino et al evaluated the effect of alendronate on bone mass in 56 children aged 5-18 years on long-term glucocorticoid treatment. 30 children were treated with alfacalcidol (0.5 mg/day) and alendronate (5 mg/day), and 26 children were treated with only alfacalcidol for 2 years. At 24 month, the Z-scores of spine BMD in the alendronate group were significantly greater than those in alfacalcidol group (-0.1 vs -1.8 SD). One patient in the alendronate group and one in the alfacalcidol group developed new vertebral fractures during the study. No severe adverse events were observed. In conclusion, alendronate therapy at a dose of 5 mg/day effectively and safely keeps or increase bone loss in GIOP in children but its effect on fracture prevention in this age group is still unclear.

### Vitamin D Supplementation in Breastfed Infants by Ponnapakkam et al

There are concerns if breast milk has sufficient vitamin D to prevent rickets. The American Academy of Pediatrics has recommended supplementation of breastfed infants with 200 IU vitamin D starting from 2 months of age, that was recently increased to 400 IU/day since birth. In this clinical trial, Ponnapakkam et al compared vitamin D supplementation to placebo in adequately breastfed babies. Healthy newborns were randomized into three groups: no vitamin D, 200 IU per day from 2 months, and 200 IU per day from birth. Blood samples were collected at birth, two, four, and six months of age. 65 subjects were recruited so far and 17 subjects completed the study. No baby in the study developed rickets so far. Significant differences in 25-vitamin D levels were observed at 4 month but by 6 months the 25-vitamin D levels in the placebo group were similar to those of the treatment groups. Serum calcium did not differ between groups, phosphate rose and PTH fell in the treatment groups. In conclusion, analysis of this preliminary data, showed little benefit of vitamin D supplementation in adequately breastfed infants.

## HIGHLIGHTS FROM THE 31ST ANNUAL ASBMR MEETING
## OSTEOPOROSIS EPIDEMIOLOGY

### Medroxyprogesterone Acetate and Fracture Risk by C. Meier, et al

The use of MPA is associated with impaired bone mineral acquisition during adolescence and accelerated bone loss later in life. In this case-control analysis, Meier et al assessed the relationship between long-term use of MPA and the risk of fractures in UK. After adjustment for smoking, BMI, and additional potential confounders current use of MPA yielded OR between 1.24 and 1.54 compared to non-use. The fracture risk was decreased when MPA was used in combination with estrogens. ORs for current long-term use of MPA alone was 1.69 (95% CI 1.46-1.96) for women aged <50 yrs and 0.82 (95% CI 0.55-1.21) for those aged >50 yrs. In conclusion, longer-term use of MPA alone is associated with increased risk of fracture in women below 50 yrs of age.

### Decreased Serum Level of Vitamin B12 and Fall Risk in Women by McLean et al

Low vitamin B12 and high homocysteine levels are associated with increased fracture risk in elderly. B12 and folate deficiencies lead to proprioceptive impairment which increases the propensity for falling. McLean et al assessed the associations between folate, B12, methylmalonic acid (MMA) and homocysteine concentrations and the risk of falling among 657 disabled women aged 77 years at baseline, and followed-up for a median duration of 3.1 years. Women in the first and second quartile of vitamin B12 had a 40 to 57% increased rate of falls compared to the highest quartile. Women in the highest quartile of homocysteine tended to have a 25% increased rate of falls (RR=1.25; 95% CI 0.92, 1.70) versus the lowest quartile, Neither folate nor MMA were associated with the rate of falls. In conclusion, low B12 may increase risk of falls in older, disabled women. This may be a mechanism by which B12 deficiency and elevated homocysteine increase fracture risk.

### Statin and Fracture Risk by Gudnason et al

Using data from a population based study Gudnason et al assessed the relationship between incident fractures and statin use. 1806 men & 2513 women (76.1±5.5 yrs) were followed for a mean of 4.2 years. A total of 439 incident fractures were recorded. Longer duration of statin use lowered the risk of fracture relative to never use, even when adjusted for age, sex, previous fracture and other established risk factors for fracture such as BMD, previous fall, parental history of fracture, smoking, alcohol and BMI. The estimated risk reduction was 50% in those taking statins ≥10 yrs.

## DENSITOMETRY CORNER

Vertebral fractures (VF) are associated with increased morbidity and mortality. Although a preexisting VF predicts new fractures independent of BMD, these VF remain largely under-diagnosed.
Traditionally, vertebral fractures are diagnosed by X-Ray of the spine with significant radiation exposure.
Vertebral fracture assessment (VFA) is a densitometric spine imaging performed by DXA for the purpose of detecting VF. This technique can potentially be used as a screening tool to evaluate silent VF in asymptomatic patients. It has the advantages of being obtained at the same time of measuring BMD and the low radiation exposure rate.
It is recommended to consider VFA imaging in men and women with osteoporosis by BMD if the presence of VF will alter clinical management, in subjects on chronic glucocorticoid therapy or in subjects with osteopenia by BMD with height loss or with chronic systemic diseases associated with increased risk of VF.
Reporting Fractures on VFA should be similar to standard radiological approaches. VF diagnosis should be based on semi-quantitative visual assessment using Genant method, classifying fractures as mild, moderate or severe according to the degree of vertebral height loss [from ISCD Position Statement, 2007]

## MARK YOUR CALENDAR

| Date | Conference | Location |
|---|---|---|
| **October 30-31, 2009** | **First Annual Meeting of OSTEOS** | **Bristol, Beirut Lebanon** |
| **November 6-7, 2009** | Lebanese Society of Rheumatology Meeting | Metropolitan, Beirut Lebanon |
| **November 5-7, 2009** | The Annual Congress of Obstetrics, Gynecology & Women's Health | Movenpick, Beirut Lebanon |
| **May 5-8, 2010** | IOF World Congress on Osteoporosis & 10th European Congress on Clinical & Economic Aspects of Osteoporosis and Osteoarthritis | Florence, Italy |
| **June 19-22, 2010** | 92nd Annual Meeting of Endocrinology Society | San Diego, California |
| **June 26-30, 2010** | 37th European Symposium on Calcified Tissues | Glasgow, Scotland |

## WORLD OSTEOPOROSIS DAY, OCTOBER 20, 2009