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30 MONTHS-EXPERIENCE ON DENOSUMAB IN OSTEOPOROTIC HEMODIALYSED PATIENTS

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INTRODUCTION

In elderly subjects, renal insufficiency and osteoporosis often coexist with high risk of fracture and elevated socio-economic burden.
Nowadays a large number of effective anti-osteoporotic drugs are available but generally they are contraindicated in patient with chronic kidney disease (CKD) because of their progressive accumulation.
Denosumab (DN), antiRANK-L monoclonal antibody, instead does not require dose adjustments with different degrees of renal impairment so it can be a valid treatment in osteoporotic patient with CKD.
We describe our experience in use of DN in osteoporotic, hemodialysed patients; limited data of this particular setting are available in literature.

MATERIALS AND METHODS

We reviewed the charts of 12 osteoporotic, HD patients who received a single 60-mg subcutaneous dose of denosumab every 6 months for an observation period of 24 months. Serum electrolyte, markers of bone turn over and Quantitative Ultrasound (QUS) have been evaluated.
Pts have been revaluated with DXA and skeleton RX at 24 months according to the current national regulatory guidelines. At the moment, only 4 pts have been observed for 30 months.

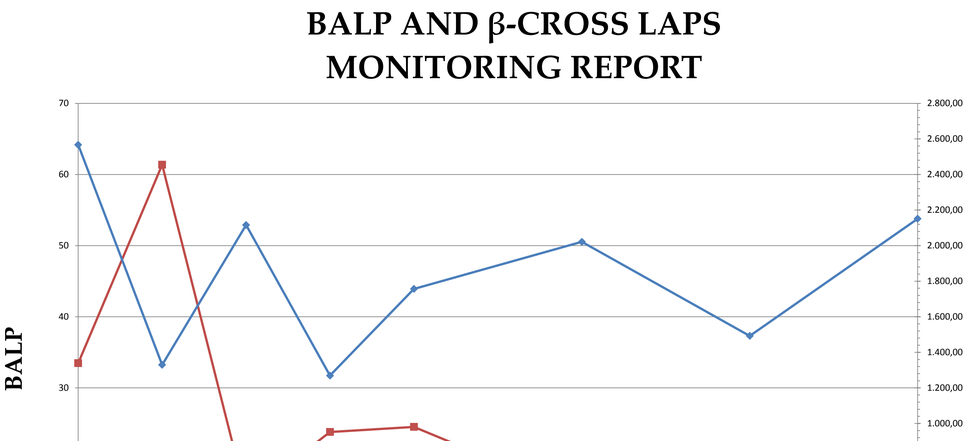
RESULTS

The mean follow-up was 24 months. We have observed a gradual improvement of bone metabolism (betacrosslaps from 2567.08 ±1264 to 1492,5±1182,5 pg/ml; bone alkaline phosphatase – BALP- from 33,48±28,77 to 11,82±3,7 mcg/l) and QUS index (T score from -5,33±1,58 to -4,84±1,2; risk of fracture from 13,88±4,7% to 11,07±5,3). During this period 1 pt died (pneumonia) and 4 pts were lost to follow up leaving 7 pts for evaluation.
Bone quality have been reassessed with DXA (and QUS) at 24 months: 2 pts were classified as having normal bone mass, 2 pts osteopenia and 3 pts osteoporosis, less severe than the prior evaluation. At the present time, follow-up of 4 pts, with the extension of treatment for up to 30 months, has highlighted how treatment induces a constant and progressive improvement of bone metabolism and bone mineral density(betacrosslaps to 1852,2±870; BALP to 11,9±2,1 mcg/l).
Skeleton RX evidenced history of prior fractures and/or intervertebral space < 4 mm in all pts. At 30 months just one pt experienced a new pathological fracture (hip).
Few cases oh hypocalcemia (Ca) have been detected, more significant in after the first and second injection, but with careful monitoring of Ca and rapid oral therapy adjustment we could easily handle Ca levels without hospitalization. Interestingly, we observed a gradual reduction of serum phosphorus (sP) (total sP reduction of 27%, not statistically significant due to the small sample). HypoCa and hypoP are probably due to an hungry bone syndrome induced by DN.

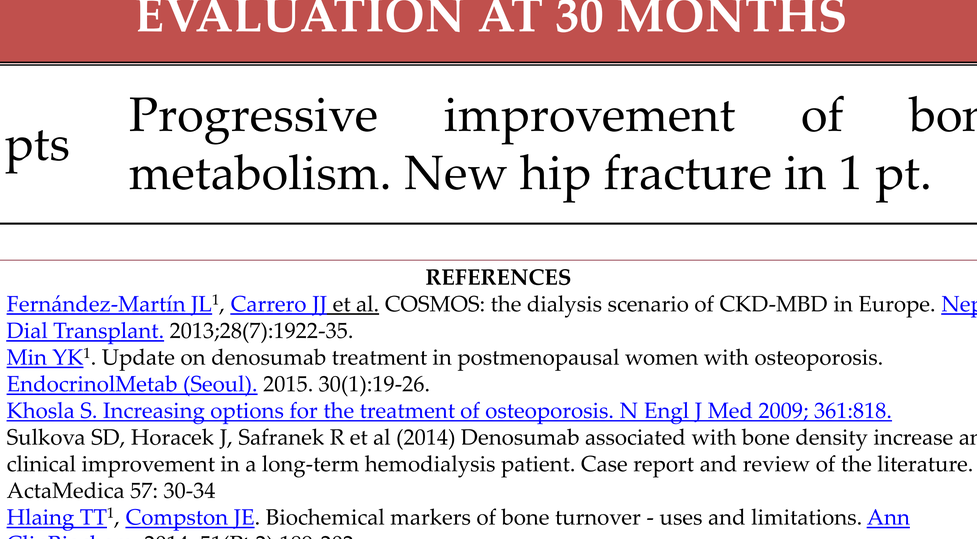
DISCUSSION AND CONCLUSION

Bone fractures are relatively frequent among HD patients with a great socioeconomic burden, so treatment of osteoporosis and fracture prevention are the focal point where most efforts converge.
Our experience revealed a marked improvement of biochemical and radiological indicators of osteoporosis. Furthermore, all pts reported an improvement in bone pain.
Our results underline the safety and efficacy of DN in the treatment of osteoporosis in hemodialysed pts. Nephrologist plays a key role for pt monitoring and variations in treatment practice. Indeed, it is our belief that hypoCa could be easily avoidable with a carefully medical surveillance.

CALCIUM, PHOSPHORUS AND PTH MONTHLY MONITORING REPORT



BALP AND β-CROSS LAPS MONITORING REPORT



EVALUATION AT 24 MONTHS	
2 pts	Normal bone mineralization
2 pts	From osteoporosis to osteopenia
3 pts	Less severe osteoporosis

EVALUATION AT 30 MONTHS	
4 pts	Progressive improvement of bone metabolism. New hip fracture in 1 pt.

REFERENCES

1. Fernández-Martín JL[1], Carrero JJ et al. COSMOS: the dialysis scenario of CKD-MBD in Europe. Nephrol Dial Transplant. 2013;28(7):1922-35.
2. Min YK[1]. Update on denosumab treatment in postmenopausal women with osteoporosis. EndocrinolMetab (Seoul). 2015. 30(1):19-26.
3. Khosla S. Increasing options for the treatment of osteoporosis. N Engl J Med 2009; 361:818.
4. Sulkova SD, Horacek J, Safranek R et al (2014) Denosumab associated with bone density increase and clinical improvement in a long-term hemodialysis patient. Case report and review of the literature. ActaMedica 57: 30-34
5. Hlaing TT[1], Compston JE. Biochemical markers of bone turnover - uses and limitations. Ann ClinBiochem. 2014. 51(Pt 2):189-202.
6. Vasikaran S, Eastell R et al. Markers of bone turnover for the prediction of fracture risk and monitoring of osteoporosis treatment: a need forinternational reference standards. Osteoporos Int. 2011. 22(2):391-420.
7. Ketteler M[1], Elder GJ[2] et al. Revisiting KDIGO clinical practice guideline on chronic kidney disease-mineral and bone disorder: a commentary from a Kidney Disease: Improving Global Outcomes controversies conference. Kidney Int. 2015. 87(3):502-28.
8. Delanaye P[1], Souberbielle JC et al. Can we use circulating biomarkers to monitor bone turnover in CKD haemodialysis patients? Hypotheses and facts. Nephrol Dial Transplant. 2014 29(5):997-1004.
9. Eastell R[1], Christiansen C. et al. Effects of denosumab on bone turnover markers in postmenopausal osteoporosis. Bone Miner Res. 2011;26(3):530-7.

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Dialysis - Bone disease
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