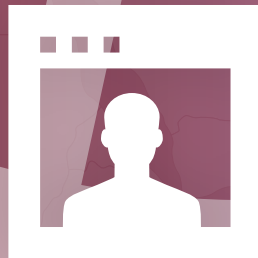


WORLD CONGRESS  
ON OSTEOPOROSIS,  
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DISEASES

# VIRTUAL CONGRESS

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AbstractBook

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### BONE TURNOVER AND SERUM LEVELS OF FETUIN-A IN PATIENTS WITH RHEUMATOID ARTHRITIS

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**Objective:** Secondary osteoporosis is one of the most common complications of rheumatoid arthritis (RA). It was shown, that tissue cytokines play an important role in its progression and bone turnover rate [1]. Fetuin-A (FA) is a hepatokine, which regulates bone tissue calcification and turnover rate [2], as well as associates with inflammatory diseases, such as RA. We aimed to study the association between FA serum levels and bone remodeling markers in patients with RA.

**Methods:** We enrolled 110 patients with RA and 30 healthy controls in our study. We measured FA and BMD in both groups. 25-hydroxycholecalciferol (25-(OH)D), N-terminal propeptide of type 1 procollagen (P1NP), C-terminal telopeptides of type I collagen (CTX-1), serum calcium and alkaline phosphatase levels were measured among patients with RA.

**Results:** We observed relevant difference in serum FA levels between patients with RA and healthy controls (765.67±120.66 ug/ml vs. 812.95±76.21 ug/ml; p=0.047). FA mean concentration was lower in patients with secondary osteoporosis (n=52) 733.65±135.84 ug/ml, than that with normal BMD or osteopenia (n=58) 794.37±97.7 ug/ml (p=0.0044). Serum FA levels in patients with osteoporotic fractures in anamnesis (n=24) were lower than that of the patients without them (n=86) (694.78±110.47 ug/ml vs. 785.45±116.43 ug/ml; p=0.00091). Positive correlation was observed between serum FA and 25-(OH)D levels (r=0.259; p=0.006). Negative correlation was observed between serum FA and CTX-1 levels (r=-0.203; p=0.033). There was no association between serum FA and P1NP, calcium and alkaline phosphatase levels.

**Conclusion:** FA low levels associate with higher rates of osteoporosis and osteoporotic fractures. Serum FA levels correlate positive with 25-(OH)D and negative with CTX-1 in patients with RA.

#### References:

1. Seewordova L et al. Ann Rheum Dis 2016;75(Suppl 2):970.
2. Demetriou M et al. J Biol Chem 1996;271:12755.

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### EXTREMELY LOW FREQUENCY MAGNETIC FIELDS ACCELERATE BONE HEALING PROCESS AND HELP FIGHT OSTEOPOROSIS

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**Objective:** Evaluation of the efficacy of extremely low frequency (ELF) magnetic fields for the improvement of bone remodeling through a clinical case. Currently a new arrow has been added for the treatment of osteoporosis, an electromedical device that generates information and transmits it to cellular receptors in order to activate and accelerate the endogenous processes of cell healing, repair and regeneration, produced by Limfa Technologies srl. Limfa therapy® uses multifrequency complex magnetic fields at very low frequency (1-80 Hz), with field strength from 1-100 µT, comparable to the endogenous electromagnetic forces generated by cellular activity. Unlike traditional magnetotherapy, which uses one or two pulsating signals with the same wave geometry, Limfa therapy uses up to 30 different wave geometries at different frequencies in combined sequences, able to transfer specific reparative information to the tissues that continue even after the end of the application cycle.

**Methods:** A patient suffering from a tarsal-metatarsal fracture following a scooter accident, came to the attention of Rehabilitation institute Centro Giusti of Florence, in order to begin a cautious and gradual recovery of mobility and load, however complaining of pain and swelling of the foot due to a delay in consolidation. Before starting the rehabilitation, she was asked to undergo a cycle of 6 sessions (2 times a week) of ELF magnetic fields treatments, setting anti-inflammatory, pain relieving and bone regeneration programs.

**Results:** After the first 2 sessions, she started to report a rapid and lasting benefit, with a reduction of pain both at rest and during mobilization. Over the following 4 sessions, the rehabilitation process could be undertaken, and the patient was able to support the load without pain within only 3 weeks of Limfa therapy. The radiological control of the foot performed one month after the removal of the plaster, i.e., 1 week after the end of the path with ELF, showed the complete consolidation of the fracture.

**Conclusion:** The clinical case, in addition to the data from clinical studies reporting an efficacy of ELF magnetic fields in the treatment of osteoporosis [1], suggests that Limfa therapy helps modulate bone remodeling in the direction of bone formation, and can be very useful as a nonpharmacological adjuvant in osteoporosis therapy and fracture healing.

**Reference:** 1.Elsisi HFEM et al. Clin Interv Aging 2015;10 539.