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MARKERS OF OSTEOPOROSIS (OPG AND RANKL) IN RHEUMATOID ARTHRITIS IN DIFFERENT BIOLOGIC THERAPIES

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Introduction: Osteoprotegerin (OPG) is a soluble decoy receptor which blocks osteoclast differentiation and activation by neutralizing the receptor activator of NF-κB ligand (RANKL). The balance between RANKL, which stimulates osteoclast genesis and osteoplastic activation, and its physiological antagonist OPG plays a critical role in the regulation of bone resorption in rheumatoid arthritis (RA).

Objectives: The aim of the study was to examine the impact of various drug therapies in RA on the bone turnover activity markers, i.e. sRANKL and OPG.

Material: A group of 125 patients (pts) with RA and a control group of 42 healthy people have been qualified to the study. All patients fulfilled the American College of Rheumatology (ACR 2010) criteria for RA. RA group was divided into several subgroups. First group included 39 RA pts on Leflunomide. Second group included 49 RA pts on Methotrexate (MTX) and Etanercept (First line biologic therapy). Third group included 16 RA pts on MTX and Adalibumab, Golibumab, Infliksimab (Second line biologic therapy). Fourth group included 16 RA pts on MTX and antiCD20 or anti IL6 (Third line biologic therapy). Fifth group included 44 RA pts on Disease-modifying Antirheumatic drugs (DMARD's), 39 of them were included into Leflunomide therapy, also with intolerable toxicity to MTX. Estimate research period was 12 months. Average age of participants was 54 (22-79 years). All pts have been examined based on DAS28 before and after 90 days of therapy. The blood samples for bone markers RANKL and OPG levels were measured by ELISA after 90 days therapy. Bone erosions in hands and feet were evaluated by Larsen methods. Dexa scan of femoral neck was performed.

Results: All subgroups of RA pts were compared in respect of markers of osteoporosis. The individual groups of pts do not differ from each other in the following parameters: The radiological destructions of the disease, organ damage, presence of anti-CCP and RF, the average use of GKS, and co-occurrence with osteoporosis and osteopenia. The above-mentioned groups of pts were relatively homogeneous. In all groups of RA pts treated with various therapies decreased level of sRANKL/OPG has been observed compared to DMARD therapy (Leflunomide to DMARD's-p- 0, 06, first line biologic therapy to DMARD's- p-0,05, second line biologic therapy to DMARD's- p-0,04, third line biologic therapy to DMARD's p- 0, 001. Additionally in the RA group treated with anti CD20 and anti IL6 therapy serum OPG level was significantly higher than in other group (p-0,003). Furthermore, serum sRANKL level was reduced in the third-line therapy compared to DMARD's (p- 0,003) (Figure 1).

Conclusions: In conclusion our findings indicate that both OPG as well as sRANKL help with evaluation of treatment effectiveness in RA and are useful parameters in daily clinical practice.

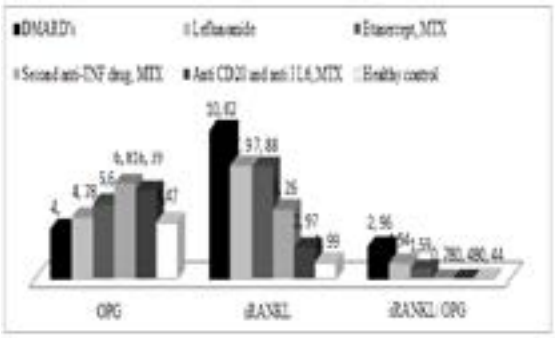

Figure 1 Comparison of serum level of OPG and RANKL in RA pts on different therapies.

BIOGRAPHY

Katarzyna Romanowska-Próchnicka has completed her specialization in Rheumatology and Internal Medicine from National Institute of Geriatrics, Rheumatology and Rehabilitation, Department of Connective Tissue Disease and awarded the PhD and MD in Medicine at Warsaw Medical University, Poland. Currently, she is an Assistant Professor at Warsaw Medical University in Pathology Department, where she has completed her Young Assistant- Internship at Military Institute of Medicine at Warsaw, Poland.

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