INFLUENCE OF SINGLE NUCLEOTIDE POLYMORPHISMS IN MTHFR GENES ON OCCURRENCE OF HAEMATOLOGICAL SIDE EFFECTS CAUSED BY MTX IN PATIENTS WITH RHEUMATOID ARTHRITIS

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Abstract:

Introduction: Rheumatoid arthritis (RA) is a chronic inflammatory autoimmune disease that leads to progressive disability, systemic complications, early death. Methotrexate (MTX) is the disease-modifying anti-rheumatic drug (DMARD) of first choice in the treatment of most patients with RA. Treatment discontinuation due to toxicity is present in approximately 30% of patients, with the most common gastrointestinal, haematological and elevated transaminase as adverse events (AEs). Polymorphisms of MTHFR that cause mild deficiencies in enzyme activity have been identified and it has been suggested that a reduced enzyme activity could lead to an increased risk for MTX-related toxicity. **Aim of the study**: to investigate influence of Single Nucleotide Polymorphisms (SNP's) in MTHFR gene on the occurrence of the haematological AE's due to MTX in patients with RA. **Material and methods**: 78 patients with active RA (according to ACR 1997 criteria) were included in the study to receive oral MTX in dose of 15mg. weakly in the period of 180 days. Median age: 56years, Female: 59 Male:19. All patients were monitored in haematological AE's. SNP's polymorphism in MTHFR were performed using PCR method: 677C>T (rs1801133) and 1298A>C (rs1801131).**Results:** AE's were present in 20 patients 20/78(25.6%). Haematological AE's: 6/78 patients (7,7%) (anaemia 2, neutropenia 2, pancytopenia 2). Discontinuation of therapy due to AE was conducted in 13 patients (16.7%). Hematologic AEs were recorded in 2 patients with the CC genotype for MTHFR C677T, 2 patients with the CT genotype for MTHFR C677T, and in 2 patients with the AC genotype for the MTHFR A1298C polymorphism. **Conclusion:** genetic predictors are an excellent tool for the selection of therapy in patients with RA. The sample in our study is small and a study with a larger number of patients is needed to confirm our initial findings.