[OP0230] MULTI DRUG RESISTANCE (MDR) PROTEIN ACTIVITY OF ACTIVATED T LYMPHOCYTES IS A PREDICTOR OF BIOLOGICAL TREATMENT RESPONSE IN RHEUMATOID ARTHRITIS

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Background: Multi-Drug Resistance (MDR) protein function is an independent prognostic marker in certain haematological malignancies. Immune activation is also linked to the expression of MDR proteins in autoimmune disorders. Furthermore, MDR protein function may predict patient response to traditional DMARD, as well as biological treatment helping the physician to tailor the therapy. Switching the patient to biologicals is often challenging due to unpredictable drug susceptibility and high cost, especially in patients with mildly elevated DAS28 scores. However, MDR protein activity values can objectively reflect the actual disease activity of RA patients.

Objectives: In this observational cohort trial, we wished to assess lymphocyte MDR protein activity in RA patients on biological therapy in comparison to healthy controls in order to predict response to treatment.

Methods: We measured the activity of three clinically relevant MDR proteins (MRP1/ABCC1, MDR/ABCB1, BCRP/ABCG2) expressed in MDR activity factor (MAF) values in CD3+, CD4+ and CD19+ cells of 23 responder and 8 primary non-responder RA patients before (at 0 week) as well as at 2, 6 and 12 weeks after patients were switched to biological therapy according to the EULAR guideline. For this purpose, a novel flow cytometry based, CE-IVD certified diagnostic kit was applied. DAS28 scores, CRP, IL-6, aCCP and RF values were also recorded on each occasion. 35 age-matched, healthy controls were included.

Results: There was an inverse correlation between MAF of BCRP/ABCG2 in CD3 and CD4 cells and DAS28 at 0 week in RA patients. Multiple correlations between MAF values and inflammatory parameters were also observed. While DAS28 and IL-6 values decreased as the treatment progressed, MAF of MRP1/ABCC1 on CD3 cells was increased at 12 weeks. A positive correlation was noted between MAF of BCRP/ABCG2 on CD3 cells at 0 week and IL-6 at 12 weeks (p=0.0274, r =0.4095) in RA patients. MAF of CD3 BCRP/ABCG2 and CD3 MRP1/ABCC1 were higher in non-responders compared to responders at 0 week.

Conclusions: Our results suggest that low BCRP/ABCG2 and MRP1/ABCC1 MAF activities on CD3 cells may predict the need to start biological therapy in RA patients whose symptoms do not improve on classical DMARD treatment. Further decrease of CD3 BCRP/ABCG2 and increase in CD3 MRP1/ABCC1 MAF upon follow-up may indicate a good therapeutic response to biological therapy.

References:

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