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CYTOKINE AND AUTOANTIBODY PROFILES DURING TREATMENT WITH BELIMUMAB IN PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS

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Background Belimumab is approved for the treatment of systemic lupus erythematosus (SLE) since 2011. We investigated whether belimumab treatment impacts on levels of cytokines and autoantibodies of interest in SLE, as well as circulating immune complexes (ICs).

Methods Longitudinally collected serum samples from 78 belimumab-treated SLE patients from the Karolinska, Skåne and Linköping University Hospitals were analysed. Serum cytokine levels and nuclear antigen autoantibody specificities were determined using addressable laser bead immunoassay, and circulating C1q-binding ICs were measured using enzyme-linked immunosorbent assay.

Results In patients with detectable levels at baseline, serum IFN- α 2 levels were lower at month 6 (median: 8.9; IQR: 1.5–54.9 pg/mL) versus baseline (median: 28.4; IQR: 20.9–

100.3 pg/mL; $P=0.043$). IL-6 levels decreased from baseline (median: 7.1; IQR: 2.9–16.1 pg/mL) to month 6 (median: 0.5; IQR: 0.5–6.3 pg/mL; $P=0.018$) and throughout the 24-month follow-up. Levels of IL-10 (baseline median: 12.6; IQR: 2.8–29.7 pg/mL) showed more rapid decreases from month 3 (median: 1.8; IQR: 0.6–9.1 pg/mL; $P=0.003$). Levels of anti-dsDNA ($P<0.001$), anti-Sm ($P=0.002$), anti-SmRNP ($P=0.028$), anti-U1-RNP ($P<0.001$) and anti-ribosomal P ($P=0.012$) antibodies decreased from month 3 and remained decreased over the follow-up. IC levels showed decreases at month 3 ($P=0.028$), 6 ($P=0.009$) and 12 ($P=0.021$). Anti-Sm antibody positivity was associated with higher probability and/or shorter time to achieve sustained SLE Responder Index-4 (HR: 2.52; 95% CI: 1.20–5.29; $P=0.015$), independently of disease activity and other potential confounding factors (figure 1).

Conclusions In our cohort, belimumab treatment lowered IFN- α 2, IL-6, IL-10 and circulating IC levels, as well as levels of multiple autoantibodies against nuclear components. Interestingly, anti-Sm antibody positivity was associated with favourable treatment response.

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URINARY PROTEOMICS IN LUPUS NEPHRITIS – PROSPECTIVE STUDY IN A TERTIARY CARE CENTER

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Background Currently, major efforts have been undertaken to identify biomarkers that can predict impending lupus renal flare, development of chronic kidney disease or reflect renal histology at the time of the flare. So, this study aims to assess the correlation of urinary biomarkers MCP1 and NGAL with the disease activity in lupus nephritis (LN).

Materials and Methods This prospective study was conducted in a tertiary care center, for a period of 9 months. 60 patients with SLE were recruited. They were divided into 3 groups, 1st group with Active Lupus Nephritis (n=22), 2nd group with Inactive Lupus Nephritis (n=20) and 3rd group consisted of SLE patients with no renal involvement (n=18). For comparison another group of age and sex matched controls was taken (n=20). Disease activity was correlated with disease activity indices, baseline characteristics and biopsy. Urinary MCP1 (UMCP1) and NGAL (UNGAL) were measured. Statistical analysis using SPSS11.5 was done to find the correlation between levels of urinary biomarkers and disease activity.

Results In patients with active LN, both UMCP1/Cr and UNGAL/Cr were significantly elevated (92.78, 76.11pg/ml, $p<0.001$). In both, control group and SLE without renal involvement the values of UMCP1/Cr and UNGAL/Cr were normal (24.44, 22.22pg/ml in control and 24.3, 22.80pg/ml in SLE without renal involvement). In patients with inactive LN the values of UMCP1/Cr and UNGAL/Cr were observed to be significantly higher than control (44.18, 38.45pg/ml, $p<0.005$) and lower than those of active LN. Values of UMCP1/Cr and UNGAL/Cr were found to be in close correlation with mean rSLEDAI scores of active LN (10) and inactive LN (3.6).

Conclusions Levels of urinary biomarkers UMCP1 and UNGAL were significantly elevated in active lupus nephritis

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