270 Patients with Early Incomplete Lupus Have Elevated Type 1 Interferon Activity

Md Yuzaiful Md Yusof1,2, Alaa A. Mohamed1, Yasser M. El-Sherbiny1,2, Antonios Psarras1, Huma Cassamoali1, Miriam Wittmann1,2, Edward M. Vital1,2 and Paul Emery1,2

1Rheumatic and Musculoskeletal Medicine, University of Leeds and 2NIHR Leeds Musculoskeletal Biomedical Research Unit, Leeds Teaching Hospitals NHS Trust, Leeds, UK

Background: Autoantibodies can be present several years before the onset of clinical diseases such as SLE. Therefore, identifying biomarkers that may predict progression is needed and will allow early intervention to prevent organ damage. Type 1 IFN plays a key role in the pathogenesis of SLE; however, its role in pre-clinical disease has not been fully elucidated. The aim of this study was to compare the expression of IFN-stimulated genes (ISGs) in patients with early incomplete lupus erythematosus (E-ILE) and undifferentiated CTD (UCTD) with established SLE, RA and healthy controls.

Methods: We conducted a cross-sectional study of patients with established SLE, E-ILE and UCTD at a single centre. SLE was defined by ACR/SLICC 2012 criteria (n = 163). E-ILE was defined by the presence of ANA and one or two ACR/SLICC clinical criteria with <12 months from onset. UCTD was defined as for E-ILE, but >12 months from onset. Healthy (n = 20) and disease controls [RA (n = 32)] were used for comparison. Thirty-three ISGs were measured from whole blood using TaqMan quantitative PCR. Relative expressions were log transformed and expressed as S.D.s from the mean of healthy controls. The overall IFN signature score was derived by adding these values. Kruskal–Wallis and Bonferroni-corrected Mann–Whitney U tests were used for statistical analysis.

Results: As expected, most SLE patients had elevated IFN scores (median 21.8 [interquartile range (IQR) 4.1–31.0]). RA patients had elevated IFN scores, but significantly lower than SLE (P < 0.05). In E-ILE, the IFN score was lower than SLE, but significantly higher than in healthy controls [mean 14.5 (IQR 1.1–24.4), P < 0.05]. In UCTD, the IFN score was lower than in E-ILE and SLE, but not significantly different from healthy controls [mean 3.1 (IQR 15.7 to 5.7)]. However, a subset of UCTD patients had elevated IFN scores.

Conclusion: We found an intermediate level of IFN expression in early incomplete SLE. The level was higher after SLE progression, but lower in persistently undifferentiated disease. IFN expression at the onset of symptoms may predict progression, or IFN response may worsen after the first year. Longitudinal analysis will investigate these explanations further. These results indicate that IFN dysregulation is apparent early in the disease and support the notion of early intervention studies.

Disclosure statement: M.Y.M.Y. has received research funding from the National Institute for Health Research (NIHR). E.M.V. has received honoraria from Roche and GSK and research funding from the NIHR, Roche and GSK. P.E. has received honoraria from BMS, Abbott, Pfizer, MSD, Roche and UCB and research funding from BMS, Abbott, Pfizer, MSD, Roche and UCB. All other authors have declared no conflicts of interest.