Career situation of first and presenting author Post-doctoral fellow.

Introduction RA is a heterogenous disease and there is a substantial evidence to indicate the contribution of type I interferon (IFN-I) in 20%–40% of RA patients with possibly more local IFNβ role; compared to systemic IFN-α action in SLE. Patients with RA have an increased risk of cardiovascular disease (CVD) equivalent to type 2 diabetes, predominantly driven by excess atherosclerosis (ATS). Pre-clinical and human data suggest IFN-I plays a key role in the development of ATS. IFN-I has been shown to underlie cardiovascular (CV) abnormalities in SLE.

Objectives IFN-I is important at the initiation of the pathological processes in early RA and increased IFN-I activity is associated with CVD in RA.

Methods The Vital group recently published a continuous 2-score IFN system,1 IFN scores A and B (as opposed to an often used categorical classification of IFN high/low). We applied this scoring system in a cohort of early (ERA n=75) and established RA (EstRA n=101) as well as in HC n=71. Next RA patients were stratified for CVD using multi-parametric cardiac MRI (CMR) evaluation that included aortic distensibility (vascular stiffness), LV mass/BSA (LV geometry) and Myocardial T1 (indicating myocardial fibrosis) as follows: (i) ‘ERA-no CVD’ n=37 (no abnormalities on CMR), (ii) ‘ERA-sub CVD’ n=37 (at least one of the three parameters abnormal), (iii) ‘EstRA-no CVD’, n=14 (iv) ‘EstRA-sub CVD’, n=54 (v) ‘RA-CVD’, n=32 (defined as per ‘Major Adverse Cardiovascular Event’ (MACE)).

Results We confirmed a higher IFN score B than A in RA patients, similar to the observation made in the original paper that developed the scoring system. Significantly higher IFN score A and B was observed in ERA than in EstRA and HCs. There was no association between IFN scores and markers of inflammation. Increase in expression of IFN score B was observed across a CVD continuum (i.e. from RA-no CVD to RA-sub CVD to RA-CVD) in EstRA but not in ERA.

Conclusions IFN-I may play a particularly important pathological role at time of development of disease (ERA). CVD stratification suggests that genes included in IFN Scores A and B may be implicated in the progression along a CVD continuum; and appearing to associate with a pro-atherogenic role. This observation only in EstRA may reflect CVD burden over time. If confirmed, these data imply multiple organ specificities for the IFN scores. Further work is planned to interrogate IFN status in RA-CVD, towards improved risk stratification and tailored management of CVD co-morbidity.

REFERENCE

Disclosure of Interest None declared