## A5 REDUCED IL-7 SERUM TITRES ARE ASSOCIATED WITH PROGRESSION TOWARDS RHEUMATOID ARTHRITIS IN LESS THAN 6 MONTHS INFLAMMATORY ARTHRITIS

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**Background** Interleukin (IL-7) is a pleiotropic cytokine that plays a central role in the development and maintenance of T cells, and has been associated with rheumatoid arthritis (RA). Although IL-7 is highly expressed in the joint, we showed that in the serum, levels of IL-7 are reduced in early and established RA patients. We hypothesised that this reduction may have predictive diagnostic value.

**Objectives** To determine whether IL-7 titres in serum will identify patients that will evolve towards RA from onset of <6 months.

**Methods** 250 patients with inflammatory joint symptoms of <6 months were recruited. Evolution towards RA was monitored over 5 years. 80 healthy controls. IL-7 levels were measured by ELISA.

**Results** Expert rheumatologist diagnostic was established over 5 years follow-up: 108 patients developed RA, 20 undifferentiated arthritis (UA), 20 Spondyloarthropathies, 76 other form of rheumatism (including osteoarthritis, CTD, reactive arthritis, gout) and 26 showed no persistence of inflammation. IL-7 at recruitment was reduced significantly only in RA ($p<0.009$). There was no correlation with any demographic or clinical parameters (age, sex, DAS, CRP, HAQ RF, ACPA, erosion, SE). IL-7 was categorised using the lower limit of the healthy control distribution (10 pg/ml). Using univariate analysis, predictors of RA diagnostic were: ACPA+ ($p=0.003$), IL-7 <10 pg/ml ($p=0.012$), CRP ($p=0.029$), HAQ (0.012), SJC ($p=0.021$), SE ($p=0.031$), RF+ ($p=0.068$). IL-7 levels were however inversely correlated with symptom duration in RA ($R= -0.513$, $p<0.001$) but with no other parameter. In multivariate analysis, predictors of RA were: ACPA+ ($p=0.001$), IL-7<10 pg/ml ($p=0.003$), SJC ($p=0.050$). The latest analysis was repeated in the ACPA- only patient (n=193). Predictors were: IL-7<10 pg/ml ($p=0.010$), DAS ($p=0.001$), erosion ($p=0.050$). Remission (DAS<1.6) at 1 year following treatment (HCQ, followed by MTX if required) was only predicted by IL-7>17 pg/ml (upper quartile of IL-7 distribution) at recruitment ($p=0.001$). A validation cohort is currently being recruited and pilot analysis (n=51) with 12 months follow-up only. Using the American College of Rheumatology-1987 RA criteria, IL-7<10 pg/ml was associated with RA diagnostic ($p=0.048$, UA=37 and RA=14). Using 2010 EULAR RA criteria, higher IL-7>10 pg/ml was associated with persisting UA ($p=0.055$, UA_, RA6).

**Conclusion** These data demonstrate that a reduction of IL-7 in patient with very recent onset of symptoms has potential as diagnostic biomarkers for evolution towards RA, particularly in ACPA- disease