A207 ANTIBODIES TO THYROGLOBULIN AND THYROID PEROXIDASE IN RHEUMATOID ARTHRITIS: ENVIRONMENTAL AND GENETIC ASSOCIATIONS

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10.1136/ard.2010.149021.17

Recent years have seen the emergence and establishment of antibodies to citrullinated antigens as the primary diagnostic marker for rheumatoid arthritis (RA). Recent work has established the close link between genetic factors, environmental factors and the presence of these antibodies. The authors have therefore examined these relationships in another serological subgroup with RA. Autoimmune thyroid disease (AITD) is reported in up to 30% of patients with RA. Like RA, AITD

has also been associated with a combination of genetic and environmental influences.

The authors have examined the incidence of antithyroid antibodies (ATA) and anti-CCP by ELISA in a well-characterised cohort collected by the Arthritis Research Epidemiology Unit, University of Manchester. This cohort (n=754) was genotyped for shared epitope and *PTPN22* and smoking history was recorded as never smoked; past smoker or current smoker.

Antibodies to thyroid peroxidase or thyroglobulin were detected in 16% and 9% of patients, respectively. The overall frequency of ATA in this cohort was 19%. Anti-CCP was detected in 58% of patients. There was no association between the presence of ATA and anti-CCP.

There was no association between the shared epitope expression, or shared epitope copy number, and the presence of ATA. However the presence of *PTPN22 R620W* was significantly associated with the presence of ATA (p=0.034). The presence of the *R620W* allele increased the risk of ATA by 44%. This association was shown to be independent of any association between *PTPN22* and anti-CCP.

There was a negative association of ATA and smoking. ATA frequencies were higher in patients who had never smoked. A differential risk was observed between those patients who were still smoking (p=0.001; OR 0.360 (0.198–0.654)) and those who had stopped smoking in the past (p=0.013; OR 0.558 (0.352-0.885)) compared to those who had never smoked. This is in keeping with the recent reports of a protective effect of smoking in primary AITD.

The presence of ATA in patients with RA is associated with the expression of the *PTPN22 R620W* allele, independent of any association with RA or anti-CCP. Smoking, in contrast to its role as a risk factor for the development of RA, appears to have a protective effect for the presence of ATA in RA patients.