Background

- Polyautoimmunity (PolyA) is defined as the presence of more than one autoimmune disease (AD) in a single patient.
- When three or more ADs coexist, this extreme phenotype is called multiple autoimmune syndrome (MAS).
- The study of the same AD in nuclear families, also referred to as familial AD, has been extensively evaluated.
- However, the study of familial autoimmunity (FAI) i.e., diverse ADs in a nuclear family has been overlooked.

Methods

- This was a single-centre cohort study in which 955 consecutive patients (1987 ACR criteria) and their nuclear families were included.
- The history of 23 ADs was investigated. A comprehensive screening of autoantibodies (by IFI and ELISA) and an evaluation of affected tissue biopsies were done to validate classification criteria for each AD.
- The mixedcluster methodology, based on multivariate descriptive methods (i.e., principal component and multiple correspondence analyses), was done to summarize sets of related variables with strong associations and common clinical context.
- Then, for each set of related variables, new cluster variables (NCV) were derived for each patient. The X2 and Fisher’s exact tests were done to establish differences between categorical variables (original and NCV) and disease (PolyA and FAI).
- Differences in continuous variables were evaluated by the Kruskall-Wallis test. The validity of associations was assessed by logistic regression adjusting by confounding variables.

Results

- There were 130 (13.6%) patients who met the classification criteria for at least one other AD.
- A total of 161 ADs were observed in patients.
- The most frequent were autoimmune thyroid disease (AITD), Sjögren’s syndrome (SS), and systemic lupus erythematosus (SLE), which were present in 76 (8%), 50 (5.2%), and 24 (2.5%) cases respectively.
- Twenty-three patients (2.4%) presented with MAS.
- FAI was present in 82 (8.6%) cases in which the most frequent ADs were AITD (47%), SLE (19.5%), and SS (17.7%).

Objective

- To evaluate factors influencing PolyA and FAI in patients with rheumatoid arthritis (RA).

Conclusions

- PolyA and FAI are not uncommon in RA.
- Both inheritable and environmental factors have an impact on PolyA.
- Interaction between gender and FAI was found to influence the prevalence of PolyA while FAI and PolyA, in turn, influence the severity of RA.
- These results may be useful in the study of gene-environment interaction.