16 IFN SIGNATURE IS ASSOCIATED WITH AUTOANTIBODY PROFILES IN PATIENTS WITH MYOSITIS

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Background and objectives The interferon (IFN) signature has been described to be present in many autoimmune diseases, including myositis. The extent of this signature appears to be related to disease activity, however, the underlying mechanism resulting in such a signature has not been revealed yet. Detailed insight into such a mechanism would increase the understanding of role of the IFN systems in myositis and autoimmunity. In this study, the authors investigated the association between (the extent of) the IFN signature and autoantibody profiles in myositis.

Materials and methods RNA samples, obtained from whole blood from 94 patients with polymyositis, dermatomyositis, and inclusion body myositis recruited from the Karolinska University Hospital and Prague University, were assessed for expression levels of 9 IFN related genes using BioMark Dynamic Arrays. IFN score was determined as the average gene expression level of these genes. Median IFN score (4.38) was used to define patients as IFN^{high} or IFN^{low}. ANA positivity was determined by indirect immunofluorescence test and myositis specific autoantibodies against Jo-1 and SRP, and myositis associated autoantibodies PM-Scl, Ro52, Ro60 (SSA), La and U1RNP were detected by a line blot and in-house immunoblot assay.

Results IFN signature in peripheral blood was present in a subgroup of patients with myositis. In order to determine the relevance of the differential expression of IFN type I activity in myositis the authors studied the association between IFN score and the presence of ANA or specific autoantibodies. No significant difference in the extent of the IFN score was observed between ANA negative (n=44) and ANA positive (n=50) nor in the number of IFN^{high} or IFN^{low} patients.

Comparison of IFN score in patients positive for myositis associated or specific autoantibodies revealed that the highest IFN score was found in U1RNP positive patients (mean IFN score=23.66, 7/9 were IFN^{high}), followed by La positive patients (mean IFN score=11.94, all were IFN^{high} n=4). In addition, a majority of Jo-1(16 out of 23), Ro-52 (15 out of 22), Ro-60 (8 out of 10) positive patients were characterised by an IFN^{high} expression profile. Detailed analysis revealed that IFN^{high} patients were characterised by multi-autoantibody specificity, that is, 17 out of 23 patients positive for 2 or more autoantibodies were IFN^{high} (70%) versus 30 out of 71 of the patients positive for 1 or none of the specific autoantibodies (45%) (Pearson Chi square p=0.008).

Conclusions An IFN score in myositis patients is associated with the presence of myositis specific or associated autoantibodies Jo-1, U1RNP, Ro-52, Ro-60 or La and the association was stronger when 2 or more autoantibodies were present. Based on these data and on previous studies the authors hypothesise that these autoantibodies could act as an endogenous trigger of the type I IFN pathway and contribute to the chronicity of these diseases.