

Lack of Association between Anti-Ribosomal-P Antibody and Chemokines in Neuropsychiatric Syndromes of Systemic Lupus Erythematosus

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Abstract: Anti-ribosomal P protein antibody (anti-P) in cerebral spinal fluids (CSF) has been reported to associate with NPSLE and IgG anti-P in CSF was suggested to be a useful marker for the diagnosis of neuropsychiatric syndromes of systemic lupus erythematosus (NPSLE). There is growing evidence that chemokines, such as MCP-1/CCL2 and IP-10/CXCL10 are involved in the pathogenesis of NPSLE. To study the relationship between these markers in CSF from patients with NPSLE, we measured the levels of IgG anti-P, MCP-1/CCL2 and IP-10/CXCL10 in the same samples. We found no correlations between the titer of IgG anti-P antibody and IP-10/CXCL10 or MCP-1/CCL2, suggesting that IgG anti-P antibody and chemokine levels might discriminate the different subset of NPSLE symptoms.

INTRODUCTION

Anti-ribosomal P protein antibody (anti-P) was originally identified as a specific serum marker of lupus psychosis, one type of neuropsychiatric syndromes of systemic lupus erythematosus (NPSLE) [1]. Although the contribution of this marker in the diagnosis of NPSLE is still controversial, most of the reports have shown that NPSLE is associated with the serum levels of anti-P [2,3]. Some reports have shown that anti-P in cerebral spinal fluids (CSF) is associated with NPSLE and IgG anti-P in CSF was suggested to be a useful marker for the diagnosis of NPSLE [4,5].

Chemokines are low molecular weight (6-14 kDa) proteins that have been demonstrated to play an important role in autoimmunity. There is growing evidence that chemokines are involved in the pathogenesis of NPSLE [6-9]. We have reported that MCP-1/CCL2 and IP-10/CXCL10 levels in cerebral spinal fluids (CSF) were higher in NPSLE patients and suggested that these chemokines play a role in the pathogenesis of NPSLE [8,9].

RESULTS AND DISCUSSION

To study the relationship between these markers in CSF from patients with NPSLE, we measured the levels of IgG anti-P, MCP-1/CCL2 and IP-10/CXCL10 in the same samples. A total of 61 patients fulfilling the criteria of the American College of Rheumatology (ACR) for the classification of SLE were selected. The patients (55 females and 6 males, aged 19-52 years; average: 30.2 years) were admitted to our hospitals. NPSLE was diagnosed under the ACR criteria for neuropsychiatric lupus syndromes [10]. Diagnosis of neuropsychiatric symptoms were made by experienced clinicians with specific tests (MRI, EEG etc.). CSF samples were collected from these patients and the levels of MCP-1/CCL2 and IP-10/CXCL10 in CSF were determined using enzyme

linked immuno assay (ELISA) (Quantikine human MCP-1 or IP-10 immunoassay, R&D Systems, Minneapolis, MN, USA). IgG anti-P was measured with ELISA as described [7]. The statistical analyses were performed with Pearson's correlation coefficients.

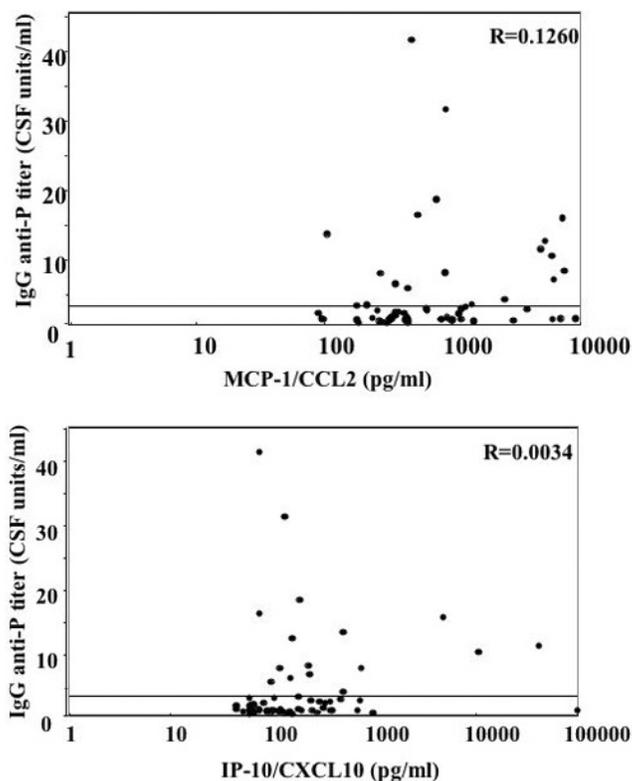


Fig. (1). Relationship between IP-10/CXCL10 or MCP-1/CCL2 and IgG anti-P antibody levels in CSF from NPSLE patients. Horizontal bars represent the mean titers +3 SD of CSF anti-P in healthy control studied previously [5].

As shown in Fig. (1), there were no correlations between the titer of IgG anti-P antibody and IP-10/CXCL10 ($R=$

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0.0034, $P=0.979$) or MCP-1/CCL2 ($R=0.1260$, $P=0.333$). In case of MCP-1/CCL2, we previously reported that we were unable to conclude which type of symptom was associated with the increase of MCP-1/CCL2 in CSF from the data presented, as some groups have very few cases [8]. Among 17 cases with psychosis, only one case had very high levels of MCP-1/CCL2 (24593 pg/ml) and the average level was 2010 pg/ml. The average of MCP-1/CCL2 excluding this case was 598 pg/ml, which is less than average of MCP-1/CCL2 in CSF from non-NPSLE patients [8]. Although, the conclusive data showing which symptoms of NPSLE is associated with the levels of IgG anti-P antibody has not been reported thus far, this antibody has been reported to be associated with psychosis [1,2]. Therefore, our presented data suggested that IgG anti-P antibody and chemokine levels might discriminate the different subset of NPSLE symptoms. Further studies with large cohort are needed to draw a clear picture how IgG anti-P antibody, MCP-1/CCL2 and IP-10/CXCL10 differentially work in the development of NPSLE.

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