

ANTINEUTROPHIL CYTOPLASMIC AUTOANTIBODIES IN UVEITIS

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Abstract - Antineutrophil cytoplasmic autoantibodies were detected in patients with some autoimmune and vascular diseases such as Wegner's granulomatosis, polyarthritis nodosa and systemic lupus erythematosus. Indirect immunofluorescence technique was employed to detect these autoantibodies. By this method, two general patterns of antineutrophil cytoplasmic autoantibodies were seen: a cytoplasmic (C-ANCA) and a perinuclear form (P-ANCA). These antibodies also were observed in uveitis. In this study the presence of antineutrophil cytoplasmic autoantibodies in 25 patients with uveitis and its relationship with anatomical location of the disease is evaluated. According to the results antineutrophil cytoplasmic autoantibodies was detected in 16% (4 out of 25) of the patients all of them being C-ANCA type. The results also showed that there was not any significant correlation between the presence of antineutrophil cytoplasmic autoantibodies and anatomical location of the disease ($p=0.65$). *Acta Medica Iranica* 38 (4): 211-213; 2000

Key Words: Antineutrophil cytoplasmic autoantibodies, uveitis

INTRODUCTION

Antineutrophil cytoplasmic antibodies (ANCA) are autoantibodies directed against endosomal enzymes of human neutrophils and monocytes. These autoantibodies have been detected in various forms of vasculitis, including segmental necrotizing glomerulonephritis, Wegener's granulomatosis (WG), and microscopic polyarteritis (1,2). Two major staining patterns can be distinguished on indirect immunofluorescence (IIF), a cytoplasmic pattern (C-ANCA), and a perinuclear one (P-ANCA) (3). The C-ANCA staining pattern is considered sensitive for Wegener's disease. This type of ANCA can even be used for monitoring disease activity in Wegener's granulomatosis (4,5). The perinuclear staining pattern has been detected in patients with necrotizing and crescentic glomerulonephritis, microscopic polyangitis, and Churge- Strauss syndrome (6). The main target antigen associated with C-ANCA is proteinase 3 and for P-ANCA is myeloperoxidase (7,8). ANCA has also been found in sera of some patients with autoimmune diseases such as systemic lupus erythematosus (9,10),

rheumatoid arthritis, ulcerative colitis and uveitis (11,12,13). Uveitis is a clinically heterogeneous group of diseases characterized by intraocular inflammation that may lead to severe immune-mediated ocular damage (12). Most studies showed that the majority of uveitis patients (over 75%) were ANCA negative and the remaining (<25%) had ANCA, most of them being C-ANCA type (13,14,15). In this study, the prevalence and kind of ANCA in 25 uveitis patients were evaluated.

MATERIALS AND METHODS

Twenty five uveitis patients (14 females and 11 males) between 14 and 64 years old referred from different provinces to Labbafinejad Hospital, Tehran, Iran, were selected. The patients had uveitis caused by Behçet syndrome (N=7), toxoplasmosis (N=2), rheumatoid arthritis (N=1), sarcoidosis (N=1), pars planitis (N=1), and unknown etiology (N=13). Anatomical locations of uveitis were as follows: 36% Pan-uveitis, 60% anterior and 4% posterior chambers. 30 adult volunteers (8 females and 22 males) between 20 to 30 years were selected as the control group. The sera of subjects were screened for antineutrophil cytoplasmic antibody (ANCA) and antinuclear antibody (ANA) by indirect immunofluorescence technique (IIF). Presence of ANCA in undiluted serum and detecting of ANA in dilution more than 1:40 of serum were considered as positive. P-ANCA positive subjects who were ANA positive also, were considered as ANCA negative. Statistical Fisher test was used to evaluate the correlation between ANCA and anatomical location of the disease.

RESULTS

ANCA was detected by IIF on ethanol fixed granulocytes in the 4 uveitis sera (16%), but was not detected in the control group (Fig. 1). Three out of 4 ANCA positive subjects had anterior uveitis and one had posterior uveitis due to toxoplasmosis. The presence of ANCA even in undiluted serum was

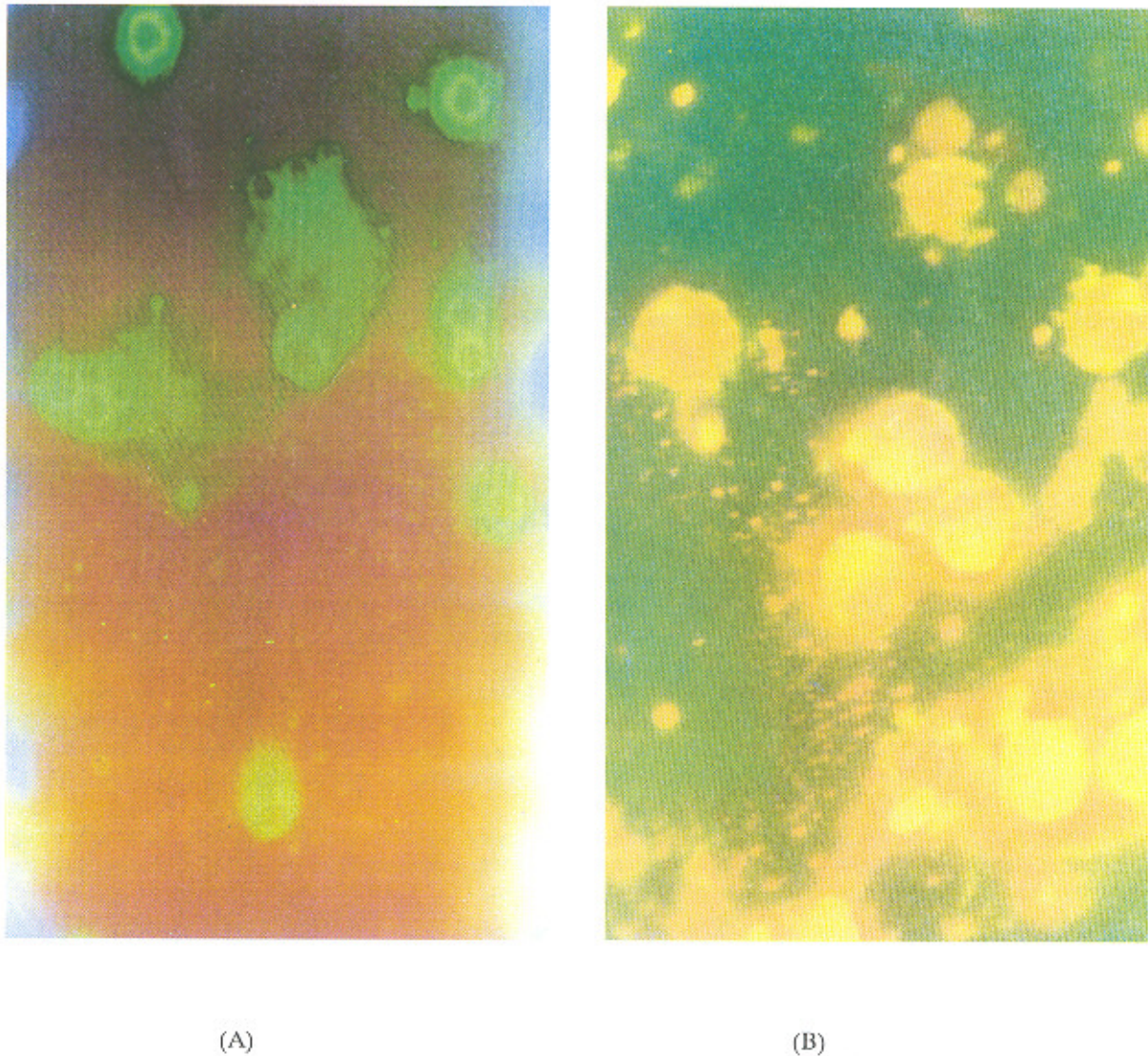


Fig. 1. A: C-ANCA pattern of ethanol fixed neutrophil in ANCA+ uveitis cases. B: ANCA negative ethanol fixed neutrophil treated by control serum.

evaluated as positive. ANA was also screened by IIF on frozen section of guinea pig kidney tissue and only 4 patients (ANCA negative) were ANA positive, but all normal subjects were negative. All of the ANCA positive patients had C-ANCA pattern. Statistical analysis (Fisher test) revealed that there was no correlation between ANCA presence and anatomical location of the disease ($P=0.65$).

DISCUSSION

In this study, 4 out of 25 subjects (16%) were ANCA positive. The frequency of ANCA in this study is similar to the results of other investigations (13,14,15). Three ANCA positive cases had anterior uveitis and the remaining one had toxoplasmal posterior uveitis. Uveitis is a clinically heterogeneous group of diseases characterized by intraocular inflammation that

may lead to severe immune-mediated ocular damage. Study on ANCA in uveitis has been started since early 1980. In a study performed in the Netherland on 485 patients including 260 female with mean age of 44.7 years (8-87) and 225 male with mean age of 38 years (3-87), 19 cases (4%) were ANCA positive by IIF technique. In this group 17 cases (90%) had C-ANCA and the remaining (10%) had P-ANCA (15). Yang in a study showed that 14 of 63 uveitis cases were ANCA positive and all of them were in acute phase of the disease (16). Acute uveitis is a non-pyogenic inflammation that is characterized by edema and vascular dilatation and pyogenic exudate (PMN) (12). The presence of neutrophils in these inflammatory sites and their activation by unknown factors may be due to proteinase production and vascular injury that causes the disease and results in ANCA positivity.

Some studies indicated that ANCA are more frequent in anterior uveitis (16). Our results showed that 3 out of 4 ANCA⁺ cases had anterior uveitis too. This study revealed that there was no correlation between ANCA and anatomic location of uveitis (P=0.65). All ANCA⁺ cases in our study were C-ANCA type. None of C-ANCA positive samples were ANA positive, while 4 cases of ANCA negative patients were ANA positive. This study revealed that ANCA and ANA do not have diagnostic value in uveitis, and none of them have any advantage to others. The next goal in such studies, is the defining of ANCA target antigen. Although proteinase was defined as a major target antigen in C-ANCA, but some studies showed that none of uveitis ANCA sera react with proteinase-3. It seems that studies must be focused on defining other target antigens in uveitis (16). One of the 25 subjects with posterior uveitis also was ANCA positive. Further studies are needed to reveal the prevalence of ANCA in this group of disease.

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