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The Relationship Between ABO Blood Groups and Psoriasis Vulgaris

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Abstract

Background: Studies of associations between various cancers and the ABO blood groups have shown elevated relative risks for some categories of disease. To date, no report has evaluated the relationship between the ABO blood groups and the psoriasis.

Material and Methods: We conducted a retrospective study of psoriasis diagnosed in Turkey. All cases were clinically and histopathologically confirmed. Blood information was obtained for 129 individuals with psoriasis, and the distribution of ABO and Rh blood type for cases was compared with that of 419 healthy blood donors from the same geographic area.

Results: Patient group A and AB blood group was higher than the control group, O and B blood groups lower than the control group. There was no statistically significant differences between the two groups (p = 0.263). The patient group and control group statistically any significant differences were found between the distribution of Rh factor.

Conclusion: Our study shows some association of AB and O blood groups with psoriasis. Further studies in larger series on blood group antigens are needed to elucidate the relationship between these antigens and psoriasis.

Introduction

Psoriasis vulgaris, which is characterized by sharply demarcated erythematous scaling plaques, the reason for the unknown, a chronic inflammatory disease [**1,2**]. The etiopathogenesis of diseases, despite being one of the most studied to date, is fully unclear. Psoriasis is considered to be a genetically programmed disease of dysregulated inflammation, which is driven and maintained by multiple components of the immune system. The recent literature supports the hypothesis of multifactorial inheritance [**1,3,4,5**]. In humans, the major blood group antigens are located on the surface of red blood cells and various epithelial cells.

The relationship with blood groups had been studied in many cancers such as esophagus, cardiac, gastric, lung, laryngeal, hypopharyngeal, salivary gland, gynecologic, colorectal, pancreatic, bone, urinary bladder, ureter, renal, breast, prostate, testicular tumors and uveal melanoma [**6,7,8,9,10,11,12,13,14,15,16,17,18,19,20**]. There are publications that evaluated the relationship between blood groups and skin

diseases such as vitiligo, pemphigus vulgaris, discoid lupus eritematosus, oral lichen planus and skin tumors [**21,22,23,24,25,26,27,28,29,30,31,32**]. To date, the literature investigation the relationship between ABO blood groups and psoriasis vulgaris were found in any publication. In this study, a retrospective evaluation was performed to determine the relationship between blood groups with psoriasis vulgaris.

Materials and Methods

In our study group of patients diagnosed with psoriasis vulgaris 66 (51,2%) men and 63 (48,8%) women with a total of 129 patients, in the control group and 303 (72.3%) were male and 116 (27.7 %) women were 419 healthy blood donors. Routine blood examination was performed in all patients and controls. The control group, cardiovascular disease, cancer, chronic degenerative neurological disease, chronic obstructive pulmonary disease, hepatitis, allergic diseases, and were selected from among healthy people without a history of alcohol dependence.

Blood samples were obtained into vacuum tubes containing EDTA (vacutainer, Becton Dickinsen, Marseilles, France) from each donor's venous circulation. ABO and Rh blood typing were carried out with tube method and gel method.

Tube method: One drop of anti-A, anti-B, or anti-D (Eryclone, Tulip Diagnostics, Bambolim, India) was added to the appropriately labeled tube. A 5 percent suspension of red blood cells (RBC) was made in isotonic saline. One drop was added to tubes containing anti-A, anti-B, or anti-D. The contests of the tubes were mixed thoroughly, and the tubes were centrifuged for 20 seconds at 3400 rpm. Tubes were read macroscopically for agglutination.

Gel method: A 5 percent RBC suspension was prepared in diluent (modified bromelin solution for red cell suspensions). Gel cards (Diaclon ID, Diamed AG, Cressier, Switzerland) were used for ABO and Rh typing. 10 µL of RBC suspension was added to the gel microtubes containing anti-A, anti-B, anti-D, and control reagents, respectively. 50 µL of donor plasma were added to microtubes for reverse ABO group testing. The ID cards were centrifuged at 895 rpm 10 minutes in the centrifuges (ID-centrifuge). A positive reaction (4+) was determined by the formation of a red line on the gel surface, whereas intermediate reactions were characterized by red agglutinates distributed throughout the gel. With a negative reaction, a compact button of cells formed on the bottom of the microtube.

The findings of this study evaluated, for statistical analyzes and NCSS (Number Cruncher Statistical System) Statistical Software 2007 & PASS 2008 (Utah, USA) was used. Descriptive statistical methods for evaluating the study data, as well as Student's t test was used to compare quantitative data between groups. Qualitative comparisons of the data in the chi-square test and Fisher exact Chi-square test was used. Statistical significance at $p < 0.05$ level were evaluated.

Results

The mean age of patients was 42.24 ± 14.61. In the control group mean age was 53 ± 6.2. The mean age of patients a statistically significantly higher than the control group ($p < 0.01$). Patient group A, B, O and AB blood groups ABO, 55 (42.6%), 19 (14.7%), 47 (36.4%) and 8 (6.3%), respectively. In the control group, ABO blood groups, respectively ,147 (35.1%), 66 (15.7%), 188 (44.9%) and 18 (4.3%) were detected. Patient group A and AB blood group was higher than the control group, O and B blood group lower than the control group. There was no statistically significant differences between the two groups ($p = 0.263$). The patient group and control group statistically any significant differences were found between the distribution of Rh factor.

Discussion

Psoriasis vulgaris is one of the most common skin diseases. Although the pathogenesis of psoriasis is stil unclear, many studies suggest that immune and hereditary mechanisms may play an important role [**1,3,5**]. There are publications that evaluated the relationship between blood groups and skin diseases such as vitiligo, pemphigus vulgaris, discoid lupus erythematosus, lichen planus and malignant skin tumors [**21,22,23,24,25,26,27,28,29,30,31,32**]. Antigenic expression of genes or genetic instability due to the separation from each other and contribute to the production of antibodies because of the different types of diseases associated with blood group [**26**]. There was no publication in the literature, assessing the relationship between ABO blood groups and psoriasis vulgaris.

In this study, the rate of patient groups A and AB blood group is higher than the control group and the O and B blood group determined that the rate lower than control group. However, we did not observe any sta-

tistically significant differences between the two groups. Antigen A, more patients in this study were found in the erythrocytes of this antigen alone, but also the superficial tissues, such as leather carrying nuclear cells are also available [**26**]. A blood group B antigen in the form of people isoaglutinin cell membrane protein expression and antibody production may contribute to a hyperproliferative disease such as psoriasis can lead to the development of the phenotype.

ABO blood group genes are map at 9q in which the genetic alteration is common in many skin diseases [**26**]. Thus, ABO blood group antigen expression may be effected by the genetic change of dermatoses [**22**]. On the other hand, it is possible the observed associations are not due to the blood group antigens themselves, but to the effects of genes closely associated with them. Additionally it might have nothing to do with molecular mechanisms or genetics. It is merely the result of population history, environment, diet and customs [**22**].

As a result, with psoriasis vulgaris in our study was observed any statistically significant association between ABO blood groups. Although patients with blood group A and AB were higher than in controls, there was no statistically significant. Some authors observed that A blood type was significantly more frequent in patients with some skin diseases. To explain the relationship between blood group antigens and psoriasis, further studies are needed in larger case series.

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