ABO blood groups and pemphigus vulgaris: no relationship

H. Shahkar, M. K. Fallahzadeh, and M. R. Namazi

KEY WORDS

pemphigus, blood group, disease, dermatosis, autoimmunity

Associations between blood groups and numerous diseases are documented in the medical literature. The early statistical associations with diseases that are of the most interest are those with malignancies, peptic ulcer, coagulation, and infection. Many of these now have some associated scientific findings suggesting a rationale for the statistical associations (1, 2). Many studies have shown association of ABO blood groups with malignancies of various organs such as the stomach, colon and rectum, ovary, uterus, cervix, and salivary glands; in all of these malignancies the blood group A has been demonstrated to be significantly more prevalent compared with blood group O (1, 2). Furthermore, several studies have demonstrated that hypercholesterolemia, thrombosis, and myocardial infarction are more common in blood group A than O (1, 2). On the other hand, duodenal ulcer has been reported to be more frequent in group O than A (2, 3). During the last two decades, there have been increasing reports suggesting that blood group antigens may act as receptors for bacteria, viruses, and parasites (1, 2), and several reports associated various infections with particular ABO groups (1, 2). For example, tuberculoid leprosy is associated with group O, lepromatous leprosy with A and B, gonorrhea with B, and smallpox with A and AB (1). Patients with blood group O have been reported to be more susceptible to *Escherichia coli* O157 infection (4). Patients with blood type A are somewhat more prone to chronic fungal infections (5). The higher prevalence of osteoporosis in post-menopausal women with blood type AB than those with blood type O is another interesting finding (6).

Pemphigus vulgaris (PV) is a rare but serious autoimmune disease that is characterized by blistering of the skin and mucous membranes (7, 8). Autoantibodies play a central role in the pathogenesis of PV; the binding of the autoantibodies to desmogleins spawns a plethora of biological effects that lead to the loss of intercellular adhesions and separation of keratinocytes from one other. This process results in the formation of intraepidermal clefts, which then enlarge into bullae (7, 8). PV is diagnosed based on three distinct sets of criteria: clinical features, histology, and immunological tests. Multiple flaccid blisters arising from healthy skin, multiple chronic oral ulcers, and a positive Nikolsky sign are the characteristic clinical findings of PV (8). Intraepidermal blisters found immediately above the basement membrane accompanied by acantholytic cells are the cardinal histologic findings of PV (8). Immunologically, PV is associated with tissue-fixed intercellular and

Table 1. Distribution of various blood groups among patients and controls.

Blood group	Patients	Controls
O	25 (44.6%)	3802 (40.9%)
A	15 (26.8%)	2652 (28.6%)
B	11 (19.6%)	2276 (24.5%)
AB	5 (8.9%)	558 (6.0%)
Total	56	9288

$p = 0.66$

circulating antibodies against keratinocyte surface antigens. Tissue-fixed intercellular antibodies are detected by direct immunofluorescence assays on skin biopsies and circulating intercellular antibodies by indirect immunofluorescence assays or ELISA on serum (8). PV, which if left untreated is potentially fatal, is mainly treated with systemic, topical, and intralesional corticosteroids. Alternative therapeutic options include cytotoxic drugs, plasmapheresis, IVIG, and immunosuppressant and anti-inflammatory drugs. PV usually demands a lengthy period of treatment to attain remission or cure (8).

In a 1969 paper on the relationship between blood groups and various dermatoses, Altobella (9) found that 60% of pemphigus vulgaris patients had blood group O, but the author did not compare his finding with any from a control group or the general population. In a 1967 paper, Grob and Inderbitzin (10) claimed that pemphigus vulgaris is seen in individuals with blood group O. We thus sought to explore the possible relationship between ABO blood groups and pemphigus vulgaris.

This study was carried out at Faghihi Hospital, the sole tertiary care center providing specialized dermatology services in southwestern Iran. The blood groups of all patients with pemphigus vulgaris hospitalized during 2006 and 2007, which comprised 56 patients, were identified. The diagnosis of pemphigus was based on the clinical, histopathologic, and direct immunofluorescence patterns diagnostic of pemphigus. The ABO status of healthy people donating blood to the Shiraz Blood Transfusion Organization during March 2008, which comprised 9,288 individuals, was considered to represent the ABO status of the general population and used for comparison. The data are summarized in Table 1. As can be seen from the table, we could not demonstrate any significant association between the ABO blood groups with pemphigus vulgaris. ($p = 0.66$).

In summary, in contrast to some previous papers, our results do not show any relationship between ABO blood groups and pemphigus vulgaris.

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A U T H O R S ' A D D R E S S E S

Hooman Shahkar, MD, General Practitioner, Medicinal and Natural Products Chemistry Research Center and Dermatology Department, Shiraz University of Medical Sciences, Shiraz, Iran

Mohammad Kazem Fallahzadeh, Medical Student, same address

Mohammad Reza Namazi, MD, Asst. Prof. of Dermatology, Dermatology Department, Faghihi Hospital, Shiraz, Iran, corresponding author, Tel./Fax: +98 711 231 9049, E-mail: namazi_mr@yahoo.com