



Evaluation of Blood Groups in Patients with Oral Lichen Planus

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Abstract

Background: Oral lichen planus (OLP) is a chronic mucocutaneous disease with unknown etiology. Several studies reported conflicting results of blood group antigens in patients with OLP. The current study aimed at evaluating the prevalence of blood group antigens in patient with OLP compared with the healthy persons.

Methods: The current case-control study included 55 patients with OLP and 55 healthy individuals. Subjects in the case and control groups were matched by age and gender. Blood group of the study participants was determined by the laboratory cooperated with the project and accordingly, the results were recorded. The data were analyzed with SPSS version 19 using chi-square test.

Results: People participating in the study included 55 patients with OLP (including 41 females and 14 males) and 55 healthy volunteers (43 females and 12 males) with the age range of 19 to 66 years. Based on statistical analysis, there was no significant difference between the case and control groups.

Conclusions: Based on the obtained results of the current study, the frequency of ABO and Rh (Rhesus) blood groups was not different between the study groups.

Keywords: Oral Lichen Planus, Blood Group Antigens, Oral Cavity

1. Background

Oral lichen planus (OLP) is the most common, noninfectious oral disease that is usually observed in buccal mucosa. Oral lesions usually persist for many years with periods of exacerbation and quiescence. The exact etiology of OLP is unknown (1).

OLP manifests as white striations, white plaques, erosions, erythema, white papules, or blisters (2).

The explanation of the different clinical manifestation of OLP is related to the magnitude of subepithelial inflammation. A mild degree of inflammation may provoke the epithelium to produce hyperkeratosis, whereas more intense inflammation leads to partial or complete deterioration of the epithelium, perceived as atrophy, erosion, or ulceration (2).

The ABO system is the most investigated erythrocyte antigen system. In humans, the major blood group antigens are located on the surface of red blood cells and various epithelial cells (3). There are more than 600 types of different antigens on RBC that are classified in 22 classes. ABO and Rhesus (Rh) blood groups are the most important ones (4).

Genetic factors such as blood group antigens may influence the severity and development of some diseases. The relationship between different diseases and blood groups are studied in many cancers such as esophagus, cardiac, gastric, lung, laryngeal, and ischemic heart disease (5).

2. Methods

The current case-control study was conducted on 110 individuals (according to Moshaverinia et al. (6)), 55 patients and 55 healthy subjects, referred to the oral medicine department.

The diagnosis of OLP was based on clinical or pathological examinations and the following information was recorded: gender, age, clinical type of OLP, and blood group. ABO and Rh blood group data were determined for all participants.

Inclusion criteria for the case group were as follows:

1- Confirmation of OLP according to clinical features or histopathologic examination (ulcerative type that involves gingival)

Inclusion criteria for the control group:

1- Healthy persons without OLP and willing to participate in the study.

Exclusion criteria for both groups:

- 1- Systemic diseases and taking medicine
- 2- Oral pathologic lesion in clinical examination
- 3- Xerostomia
- 4- Addiction to alcohol and cigarettes
- 5- Unwillingness to participate in the study

The current study was conducted in Iran, Zahedan oral and maxillofacial medicine department from 2015 to 2016. Ethical clearance was taken from the ethical committee of the institute.

A chi-square test and independent t test were used to compare the frequency of ABO blood groups in patients with OLP with those of the healthy individuals. P value of < 0.05 was considered statically significant; SPSS version 19 was used.

3. Results

The study population consisted of 85 females and 26 males with the mean age of 45 years.

The most common type of lesions was reticular form (69%).

Table 1 shows the distribution of ABO blood groups and RH among cases and controls. Out of 55 cases with OLP, 19 (34.5%) had blood group A, 9 (16.4%) blood group B, 7 (12.7%) blood group AB, and 20 (36.4%) had blood group O. The frequencies of blood group types A, B, AB, and O were 32.7%, 27.3%, 12.7% and 27.3%, respectively among the subjects in the control group. No significant relationship was observed between the blood groups and incidence of OLP ($P = 0.524$) as well as RH and OLP incidence ($P = 1$).

Table 2 shows distribution of age and gender. Most of the participants were female, similar to other investigations. There was no significant difference between the groups ($P = 0.654$).

4. Discussion

The current study was conducted on 55 patients and 55 healthy individuals. There was no significant association between OLP incidence and blood group antigens.

The etiology of OLP is unknown suggesting that the immune system has a primary role in the development of the disease. Other factors that may influence the disease include stress, allergy to some foods, and hepatitis (7).

The association between blood groups and different diseases such as various cancers, diabetes mellitus, skin disease, heart disease are studied (3).

Some of these researches showed elevated relative risk for some diseases. But, there is no uniform result. Since

the distribution of ABO genes is different among socioeconomic groups and social status is one of the risk factor of the disease, it was decided to evaluate blood groups in patients with OLP.

Studies conducted to evaluate ABO blood groups in patients with OLP:

A cross sectional, descriptive study was conducted by Moshaverinia et al., in Shiraz, Iran in 2010, on 50 patients with OLP referred to Shiraz Dental School. In this study, there was no relationship between OLP and ABO and Rh blood groups (6).

In the clinical study entitled "evaluation of mucocutaneous lesions and associated disease with OLP" in 2005 by Torkaman et al., 50 patients with OLP were evaluated. Most of them were 30 - 44 years old and the most common blood type was O one (8).

The results of the mentioned studies were similar to those of the current study.

But, Choudhury et al., conducted a study in India and found the relationship between ABO blood group and incidence of OLP. According to the study by Ahmadi, B blood group was the most common in patients with OLP (9).

Kumar et al., in India reported that A blood group was 1.28 times more common in the patients with OLP (10).

The difference between these studies and the current one might be that some blood group antigens were more common in some societies, and may be O blood group was more common in Zahedan, Iran.

Campi et al., reported that blood groups antigens are highly expressed in malignant tumors (related with OLP and leukoplakia) (11).

Their results were different from those of the current study, maybe because OLP is multifactorial and many factors can interfere in the disease. The role of immune system to prevent and restrain the disease is confirmed. Since OLP is an autoimmune disease, it can be observed more in diseases that involve native immune system.

Another explanation of the current study results might be due to the possible effect of biological behavior of patients with OLP or ABO blood group distribution. Then, further controlled clinical trials in other socioeconomic groups are required to clarify the association between OLP and various blood groups. In addition, further researches with larger sample sizes are needed.

In conclusion, the current study did not show any significant association between ABO blood group and OLP among Iranian patients. The results of the current study cannot suggest the association between ABO blood group and incidence of OLP.

Table 1. Distribution of ABO Blood Groups and RH in the Two Groups

	Blood Group Antigens				RH	
	A	B	AB	O	+	-
Control						
No.	18	15	17	15	49	6
%	32.7	27.3	12.7	27.3	89.1	10.9
Case						
No.	19	9	7	20	49	6
%	34.5	16.4		36.4	89.1	10.9

Table 2. Distribution of Age and Gender in the Two Groups^a

	Female	Male
Control	43 (78.2)	12 (21.8)
Case	41 (74.5)	14 (25.5)

^aValues are expressed as No. (%).

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