

The Relationship Between Oral Lichen Planus and Blood Group Antigens

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Abstract: The aim of this study was to evaluate the relationship between oral lichen planus and ABO blood group and Rh system in patients referred to Shiraz dental school. This study was a cross sectional-descriptive study. 50 patients with oral lichen planus that knew their type of blood groups and Rh system participated in this study. The disease was diagnosed by clinical trial in Reticulo-Popular form and both clinical and histopathology exam in erythematose and atrophic forms to diagnose the lesions. Finally, the type of oral lichen planus, type of blood groups and the type of Rh system were recorded for each subject. Results revealed that there is no statistically significant relationship between ABO blood groups and oral lichen planus disease, also no significant relationship is seen between Rh system and this disease. In conclusions, according to the results, ABO blood groups and Rh system are not risk factor for oral lichen planus.

Key words: Oral Lichen Planus • ABO Blood Groups • Rh System

INTRODUCTION

Oral lichen planus (OLP) is the most common non-infectious oral mucosal disease in patients referred to oral medicine that affects predominantly buccal mucosa [1]. OLP affects 1-2 per cent of the general adult population. It is more common in middle-aged adult women [2]. Symptoms of disease may vary from mucosal sensitivity to debilitating pain. Oral lesions usually persist for many years with periods of exacerbation and quiescence [2, 3]. The aim of treatment is to eliminate mucosal erythema or ulceration and relief pain. Topical corticosteroids are the mainstay of OLP therapy [4, 5]. The exact etiology of OLP is unknown. However, T cell-mediated autoimmunity was suggested. Other factors that may have influence on disease include stress, allergy to some foods and association with hepatitis C [6, 7].

The ABO system is the most investigated erythrocyte antigen system [8]. Blood groups as a genetic marker have been used in several studies. Genetic factors such as blood group antigens may probably influence the risk, severity and development of some diseases [9].

The association between blood groups and different diseases such as various cancers, diabetes mellitus, skin disease, heart disease, genetic disorder, dental caries, infections disease, opioid addiction, had been studied [10-12]. Some of this research had been shown elevated relative risks for some diseases. But there is no uniform result [13, 14]. Since distribution of ABO genes is different among socioeconomic groups and social status is one of the risk factor of disease, we decided to evaluate blood groups in patients with OLP that could provide useful information about the risk factors of this disorder in Iranian people.

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MATERIALS AND METHODS

This case-control study was done on 50 patients with OLP referred to the oral medicine department (case group), control group was the blood donors referred to the blood transfusion center, the frequency of blood group and Rh factors was compared between these two groups.

The diagnosis of OLP was based on clinical or pathologic examination and the following information were recorded: gender, age, clinical types of OLP and blood group. We obtained ABO and Rhesus (Rh) blood group data for patients with OLP and healthy subjects (blood donors).

This study was carried out in Iran, Shiraz oral and maxillofacial medicine department, from 2011 to 2012. The ABO status of healthy people donating blood to the Shiraz blood transfusion organization during 2012 was considered to represent the ABO status of the general population and used for comparison. Continuous parameters were presented as the mean \pm standard deviation. A chi square test was used to compare the frequency of ABO blood groups in patients with OLP, with general population. P value of <0.05 was considered statistically significant.

RESULTS

The study population consisted of 32 female (64%) and 18 male (36%) with mean age of 46 years old. The most common type of lesion was keratotic form (94%) followed by atrophic (70%), erosive (16%) and ulcerative (12%) form (Diagram 1). Diagram 2 shows the distribution of ABO blood groups among cases and controls. Out of 50 OLP cases, 17(34%) had blood group A, 8 (16%) had B, 3 (6%) had AB and 22 (44%) had blood group O. The frequencies of blood types A, B, AB and O were 28, 27, 5 and 40%, respectively, among our control participants. When the cases and controls were compared, no significant relationship was found between blood group and OLP ($p=0.364$) and also between Rh and OLP ($p=0.075$).

DISCUSSION

The etiology and possible risk factors of OLP is unclear. Since the genetic factors such as blood group antigens may affect the risk or severity of disease, this study was conducted to investigate this possible association.

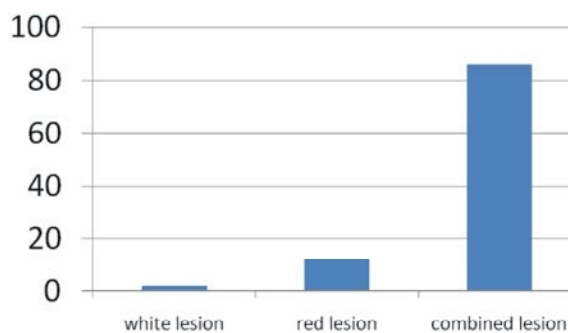


Diagram 1: Type of lesion of oral lichen planus in cases

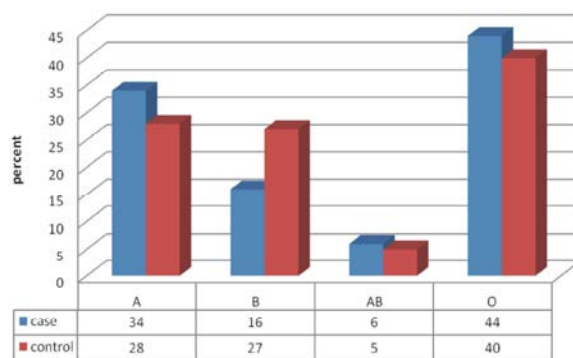


Diagram 2: Prevalence of ABO blood groups among cases and controls

We observed no significant differences in frequency of different ABO and Rh blood groups between the patients with OLP and normal population ($p=0.364$ and $p=0.075$ respectively). Although blood group O was more frequent in patients than controls.

Some investigations have shown that a blood type is significantly more frequent in patients with laryngeal, breast and bone cancers [15- 17]. In contrast, there was no significant relationship between blood groups and different skin cancers [10]. Valikhani *et al.* [8] and Shahker *et al.* [18] also did not find any association between ABO blood groups and pemphigus variants in Iranian populations. Another study in Iran, didn't show relation between esophageal cancers and blood groups [13]. However such association has been clarified the etiology and pathophysiological aspects of some disorders, the explanation for the relationship between ABO blood groups and special disease is still unclear [8]. In this study, we also mentioned epidemiological factors such as sex, age because of their possible effect on this disease.

It appears that most of investigations in Iran have not found any significant association between blood groups and different diseases. It may be due to higher frequency of O blood groups in Iranian populations.

On the other hand, it is possible that small sample size affected the result of study. We know that the best control group is the healthy populations with the same sex, ethnic group and native place. So the selection of control group was one of the limitations of our study. We gathered samples of control group from Shiraz blood transformation, Shiraz, Iran. For comparison this is not ideal but the only possible control samples that may affect the results of this study. Therefore interpretation of our results needs caution.

Another explanation of our results might be due to the possible effect of biological behavior of OLP patients on ABO blood group distribution. Then further controlled clinical trials in other socioeconomic groups are required to clarify association between OLP and various blood groups. In addition, researches with large number of examinees and best control group are needed.

In conclusion, our study did not show any significant association between ABO blood group and OLP among Iranian patients. Based on this study we cannot suggest a relationship between ABO blood group and OLP.

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REFERENCES

1. Roopashree, M.R., R.V. Gondhalekar, M.C. Shashikanth, J. George, S.H. Thippeswamy and A. Shukla, 2010. Pathogenesis of oral lichen planus-a review. *J Oral Pathol. Med.*, 39: 729-734.
2. Usatine, R.P. and M. Tinitigan, 2011. Diagnosis and Treatment of Lichen Planus. *Am. Fam. Physician*, 84: 53-60. Make references like this style.
3. Carrozzo M. and R. Thorpe, 2009. Oral lichen planus: a review. *Minerva Stomatol.* Oct; 58(10): 519-37.
4. Lodi, G., M. Carrozzo, S. Furness and K. Thongprasom, 2012. Interventions for treating oral lichen planus: a systematic review. *British Association of Dermatologists*; 166: 938-947.
5. Boorghani1, M., N. Gholizadeh, A. Taghavi Zenouz, M. Vatankhah and M. Mehdipour, 2010. Oral Lichen Planus: Clinical Features, Etiology, Treatment and Management; A Review of Literature. *J Dent Res Dent Clin Dent Prospect*; 4(1): 3-9.
6. Srinivas, K., K. Aravinda, P. Ratnakar, N. Nigam and S. Gupta, 2011. Oral lichen planus-Review on etiopathogenesis. *Natl J Maxillofac Surg*; 2: 15-6.
7. Lavanya, N., P. Jayanthi, U.K. Rao and K. Ranganathan, 2011. Oral lichen planus: An update on pathogenesis and treatment. *J Oral Maxillofac Pathol*; 15: 127-32.
8. Valikhani, M., S. Kavand, S. Toosi, G. Kavand and M. Ghiasi, 2007. ABO blood groups, rhesus factor and pemphigus. *Indian J Dermatol*; 52: 176-8.
9. Cerović R., M. Juretić, S. Balen, M. Belusić, L. Caser and M. Rogić, 2008. Examining the presence of ABO (H) antigens of blood types in the saliva of patients with oral cancer. *Coll Antropol*, 32(2): 509-12.
10. Tursen U., E.N. Tiftik, S. Unal, O. Gunduz, T.I. Kaya, H. Camdeviren and G. Ikizoglu, 2005. Relationship between ABO blood groups and skin cancers. *Dermatol Online J.* Dec 1; 11(3): 44.
11. Tirado-Sánchez, A. and R.M. Ponce-Olivera, 2012. Lack of relationship between blood groups and clinical outcome (body surface area affected) in patients with pemphigus vulgaris. *Indian J Dermatol*; 57: 411-2.
12. Aflatoonian, M.R., M.S. Meymandi, K. Divsalar, M. Mahmoudi and G. Heravi, 2011. Possible association between human blood types and opioid addiction. *J Am Addict.* Nov-Dec; 20(6): 581-4.
13. Aminian, A, R. Mirsharifi, A. Alibakhshi, Z. Khorgami, H. Dashti and S.M. Hasani, 2010. Relationship Between Esophageal Cancer and Blood Groups. *World Appl. Sci. J.*; 8(4): 503-508.
14. You, W.C., J.L. Ma and W. Liu, 2000. Blood type and family cancer history in relation to precancerous gastric lesions. *Int. J. Epidemiol.*, 29: 405-7.
15. Su, M., S.M. Lu, D.P. Tian, H. Zhao, X.Y. Li, D.R. Li and Z.C. Zheng, 2001. Relationship between ABO blood groups and carcinoma of esophagus and cardia in Chaosan inhabitants of China. *World J Gastroenterol*; 7: 657-661.
16. Pyd, M., I. Rzewnicki and U. Suwayach, 1995. ABO blood groups in patients with laryngeal and hypopharyngeal cancer. *Otolaryngol Pol*; 49: 396-8.
17. Jia D.X., 1984. Bone tumor and ABO blood type. *Zhonghua Zhong Liu Za Zhia* 1991; 13: 220-2.
18. Anderson DE, Haas C. Blood type A and familial breast cancer. *Cancer*; 54: 1845-9.
19. Shahkar H., M.K. Fallahzadeh and M.R. Namazi, 2010. ABO blood groups and pemphigus vulgaris: no relationship. *Acta Dermatoven APA* ; 19: 49-51.