



ASSESSMENT OF RELATIONSHIP BETWEEN ORAL POTENTIALLY MALIGNANT DISORDERS AND BLOOD GROUPS IN JAMMU POPULATION: A STUDY OF 50 CASES

Oral Pathology

Dr Rubina Anjum	Professor & Head, Dept. Of Oral and Maxillofacial Pathology, Indira Gandhi Govt. Dental College, Jammu
*Dr Mohammad Shafi Dar	Lecturer, Dept. Of Oral and Maxillofacial Pathology, Indira Gandhi Govt. Dental College, Jammu *Corresponding Author
Dr Mandeep Kaur	Assistant Professor, Dept. Of Oral and Maxillofacial Pathology, Indira Gandhi Govt. Dental College, Jammu
Dr Heena Sadiq	Registrar, Dept. Of Oral and Maxillofacial Pathology, Indira Gandhi Govt. Dental College, Jammu
Dr Nidhi Khajuria	Registrar, Dept. Of Oral and Maxillofacial Pathology, Indira Gandhi Govt. Dental College, Jammu

ABSTRACT

Background: Term 'Oral potentially malignant disorders' is recommended by WHO in the year 2005. It includes both oral premalignant lesions and conditions. There is a high prevalence of these lesions in India, which is attributed to culture, geographic factors, low socio-economic status and varying lifestyle factors. The genetic relation of these lesions is less studied. Blood groups play an important role in the immunogenetic system. Very few studies have been done in India to see the association between blood group and potentially malignant disorders. Hence the present study was under taken to assess the relationship between ABO Rh blood group and oral potentially malignant disorders.

Materials and methods: 50 cases with oral potentially malignant disorders diagnosed based on the WHO criteria were included in the study. The patients of Jammu population were included in the study after obtaining an informed consent. Information regarding socio - demographic details was collected using proforma and blood group was assessed using blood group kit with Rapid slide test method.

Result: Out of 50 cases, 27 (54%) were males and 23 (46%) females. 26(52%) cases were with leukoplakia, 18 (36%) cases were OSMF, 5 (10%) cases were oral lichen planus , and 1 (2%) case was with erythroplakia. 18(36%) of cases belonged to A+ve blood group followed by 14(28%) belonged to B+ve blood group.

Conclusion: From our study we concluded that the cases with A +ve blood group were more susceptible for the development of oral potentially malignant disorders, followed by B+ve blood group.

KEYWORDS

ABO, OPMDs, Jammu, Leukoplakia, A+ve blood group

Introduction:

Oral cancer is one of the 10th most common cancers in the world. It is seen predominantly in both sexes accounting for one third of all the cancers in South East Asian countries. One of the highest incidences of oral cancer in the world has been documented in India, with estimated incidence of approx. 12.48 cases per 1,00,000 population in males and 5.52 per 1,00,000 populations in females.[1] There are also a number of potentially malignant disorders which constitute a detectable pre-clinical phase of oral cancer. The most important ones include leukoplakia, erythroplakia, oral submucous fibrosis etc. In India prevalence of leukoplakia varies from 0.2 to 5.2%, erythroplakia 0.02% and OSMF varies from 0.16 to 3.2. [2]

There is high risk of malignant transformation of OPMDs because of the potentially lethal nature of precancerous lesions, which are generally without pain or discomfort. A malignant transformation rate in leukoplakia varies from 0.13% to 10% and for oral submucous fibrosis varies from 4.5% to 7.6% in various Indian studies.[2]

This is the fact that this alarming increase in the rate of the prevalence of oral potentially malignant disorders in India is mainly due to the culture, geographic factors, low socio-economic status and varying lifestyle factors.[3] But not much studies has been done to find out the genetic relation of these most prevalent oral potentially malignant disorders. Blood groups play an important role in the immunogenetic system. Very few studies have been done in India to see the association between blood group and oral potentially malignant disorders.

Hence the present study was under taken to assess the relationship between ABO Rh blood group and oral potentially malignant disorders in Jammu population.

METHODOLOGY:

The present study was conducted in Indira Gandhi Government Dental College and Hospital, Jammu. Patients gave their consent for the study. Convenient sampling technique was used for selecting study subjects.

Subjects clinically diagnosed as oral potentially malignant disorders like leukoplakia, erythroplakia, oral submucous fibrosis, based on WHO guidelines for diagnosis for oral mucosal lesions [3] were included in the study group. Information regarding socio - demographic details was collected using proforma and blood group was assessed using blood group kit with Rapid slide test method. Excluded subjects include those who were not willing to give their blood sample for estimation of blood group. Training and calibration for assessment of blood group was done under the guidance of the Professor, Dept of Oral Pathology. Calibration was done in order to reduce intra examiner variability. Patients rinsed their mouth thoroughly with water and were examined under an incandescent light source. During clinical examination the following elements were analyzed: features of the lesion, anatomical location, extension, etiological factors or related factors, dental status, alcohol, tobacco consumption etc. In addition, in those cases requiring further examination, biopsies were performed to establish a definitive diagnosis. Estimation of blood group was done using blood group kit which contained antiserum A, antiserum B and antiserum D. Depending upon the presence of agglutination, the blood group was detected.

Results:

A total of 50 patients with oral potentially malignant disorders were recorded during the study period. Out of which 27 (54%) were males and 23(46%) females. Majority of the cases belonged to age group of 36-55 years (48%), mean age was 45.5 years (Table 1). 26 (52%) cases were with leukoplakia, 18 (36%) cases were OSMF, 5 (10%) cases were oral lichen planus , and 1 (2%) case was with erythroplakia. Majority of males were having OSMF 13 (72.2%) followed by 12 (46.1%) leukoplakia, while in females leukoplakia 14 (53.8%) was the most common followed by OSMF 5 (27.7%). Among 5 cases of lichen planus 4 (80%) were found in females and only 1 (20%) case was found in males. 1 case of erythroplakia was seen in male subject. (Table 2)

Estimation of blood group was done using blood group kit which

contained antiserum A, antiserum B and antiserum D with Rapid slide test method. It was found that 10 (20%) of the cases belonged to O+ve blood group and 14 (28%) of cases belonged to B+ve blood group. About 05 (10%) cases belonged to AB + ve group, 18 (36%) cases belonged to A +ve blood group and B -ve, AB -ve, O -ve were having only 1 case each. Thus majority of the cases 18(36%) were belonging to A+ve blood group followed by 14(28%) belonging to B+ve blood group. None of the case was found in A-ve (Table 3)

Table 1. Distribution of cases with relation to their age

Age	15yrs -35yrs	36yrs-55yrs	56yrs -75yrs	Total
No. of cases	18	24	08	50
%age	36%	48%	16%	100%

Table 2. Distribution of cases with relation to OPMDs according to gender

OPMDs	Males (27 cases)	Females (23 cases)	Total
Leukoplakia	12	14	26
OSMF	13	05	18
Oral Lichen Planus	01	04	05
Erythroplakia	01	00	01
Others	00	00	00

Table 3. Distribution of cases with relation to their blood group

Blood group	A +ve	B +ve	AB +ve	O +ve	A ve	B -ve	AB -ve	O -ve	Total
No. of cases	18	14	05	10	0	1	1	1	50
%age	36%	28%	10%	20%	0%	2%	2%	2%	100%

Discussion:

The WHO has recommended the term 'Oral Potentially Malignant Disorders' (OPMDs) in the year 2005 which includes both oral premalignant lesions and conditions.[4] Due to deliterios habits in India, the prevalence of oral premalignant lesions and oral cancer is very high in India. The oral premalignant lesion is an intermediate clinical state with increased risk of cancer, as compared to oral cancer, the OPMDs has much better treatment modalities and prognosis. Some of the major oral potentially malignant disorders are leukoplakia, erythroplakia and oral submucous fibrosis. In the present study oral leukoplakia, erythroplakia and oral submucous fibrosis were included as cases. The present study was conducted in and around the areas of Indira Gandhi Govt Dental College Jammu.

Majority of the cases belonged to age group of 36-55 years. This shows that OPMLs are more common in middle aged individuals. In a study done by Christian Scheifele et al showed a peak age of 40-49 years in males and ≥ 70 in females.[5] these findings were almost similar with our study. Majority of cases in males were having OSMF 13 (72.2%) followed by 12 (46.1%) leukoplakia, while in females leukoplakia 14 (53.8%) was the most common followed by OSMF 5 (27.7%). This dramatic increase in oral submucous fibrosis has been attributed to various etiological factors of which gutka and paan masala chewing are predominantly very common.[6] Thus for decreasing the mortality rate due to their malignant transformation, identifying and rendering treatment to these lesions at an early stage is very important.

The blood groups play a significant role in immunogenetic system and their association with various other malignancies has been studied.[7] In the present study distribution of potentially malignant disorders was more among A positive blood group (36%) followed by B positive blood group (28%), but the distribution was nil among A negative and less among B negative, AB negative and O negative blood group (2% each). In a similar study done by Vaish et al blood group A was associated with leukoplakia and oral submucous fibrosis.[8] Raghavan VMR et al studied the incidence of ABO blood group in oral cancer cases in south Kanara district, India and reported increased susceptibility of blood group A to oral cancer.[10] In a study by E Dabeisten et al reported a higher incidence of various type carcinomas in blood group A and B individuals.[11] As per our literature search many studies did not incorporate the Rh factor in association with blood group and OPMD. This could be among first reported study incorporating the association of Rh factor with oral potentially malignant disorders.

Conclusion:

From the results of present study it was concluded that cases with A +ve blood group were more susceptible for the development of oral

potentially malignant disorders, followed by B+ve blood group. But as for our review in published literature most of the studies did not incorporate the Rh factor in association with blood group and OPMD. So this could be among the first reported study incorporating the association of Rh factor with oral potentially malignant disorders.

REFERENCES

1. Park.k. Text book of preventive and social medicine. 20th edition. Jabalpur: M/S Banarsidas Bharat publisher; 2009.p.332-340.
2. Report on tobacco control in India (Online). Cited on 2010 July 15; Available from : URL :mohfw.nic.in /tobacco% 20control% 20in% 20india_(10%20dec%2004).pdf.pdf.
3. Fali S .Mehta, P.C. Gupta and J.J Pindborg. Chewing and smoking habits in relation to precancer and oral cancer. J Cancer research clinical oncology 1981; 99:35-39.
4. Isaac van der Waal. 'Potentially malignant disorders of the oral and oropharyngeal mucosa; terminology, classification and present concepts of management'. Oral Oncol 2009; 45: 317-23.
5. Christian Scheifele, Peter A.Reichert, Thomas Dietrich. Low prevalence of oral leukoplakia in a representative sample of US population. Oral oncology 2003;39:619-625.
6. Mehrotra R, Pandya S, Chaudhary AK, Kumar M, Singh M: Prevalence of oral premalignant and malignant lesions at a tertiary level hospital in Allahabad, India. Asian Pac J Cancer Prev 2008, 9(2):263-5.
7. Erik Dabelsteen,2 Poul Vedtofte, Sen-itiroh Hakomori, and William W. Young, Jr. Accumulation of a blood group antigen precursor in oral premalignant lesions. Cancer Research 1983 March; 43: 1451-1454.
8. Vaish R.P, Panigrahi R.K, Jena D.C and Rao M. Nageshwar. Incidence of blood groups in oral submucous fibrosis. J Medicine and surgery 1979; 19:15-17.
9. Vaish R.P, Panigrahi R.K, Jena D.C and Panda R.P. Association of leukoplakia with ABO groups in Southern Orissa. Journal of Indian dental association 1985; 57:459-461.
10. Raghavan VMR, Bailoor DN, Jhansi Rani P. Incidence of ABO blood groups in oral cancer in South Kanara district. J Indian Dent Assoc 1986; 58:305-308.
11. Dabelsten E, Pindborg JJ. Loss of epithelial blood group substances in oral carcinoma. Acta path microbial scand 1973; 81:435-44.