

Co-Relation Between Various Types of Molar Relationship and Blood Group: A Comparative Study

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ABSTRACT

Aim: The main aim of the present study is to find any existing relationship between various types of molar relationship and blood groups.

Material and Method: A total of 467 patients was included in the present study. Molar relationship of every patient was recorded. The blood sample was taken for blood group analysis.

Result: The prevalence of Blood group B was highest, followed by Blood group O then blood group A, while blood group AB has the least prevalence. The most common molar relationship seen in both males and females is Class 1 molar relationship followed by Class 2 and Class 3 molar relationship

Conclusion: As we know that various molar relationship and blood groups are related to genetic traits/components, it can be assumed that a strong relationship will exist between them. In the present study, it has been observed that there is a strong relationship exist between various types of molar relationship and blood groups.

Keywords: Molar relationship, Blood Group, Co-relation.

INTRODUCTION

In the year 1899, the classification of the molar relationship was given by Angle. After dental caries and periodontal diseases, the World Health Organization considered malocclusion as third most common oral health problem¹. Various etiological factors like genetic, environmental, ethnic are known to be a major contributing factor. Class 3 molar relationship, which is seen running in families, provides a firm affiliation between malocclusion and genetics^{2,3}.

Malocclusion possesses a serious negative impingement on child's as well as their family's lifestyle. Malocclusion leads to various conditions like speech as well as chewing problems, bruxism, temporomandibular joint diseases, periodontal diseases etc^{4,5,6,7,8,9,10}. ABO blood group system was first defined by Karl Landsteiner. He identified that RBC's shows the presence of antigens on their surfaces, as well as blood plasma encompasses the antibodies which are aimed at distinct antigens¹¹. In

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various epidemiological researches, blood groups are frequently used in studies as they are well known genetic traits. Various blood groups possess receptors for parasites, toxins and bacteria^{12,13}. On the basis of absence or presence of these antigens, blood group is classified into four types, i.e. A, B, AB and O¹⁴. We know that certain diseases are specifically related to blood group. So keeping this fact in mind, we are trying to find out in our study that is there any correlation exists between blood group and molar relationship or not.

MATERIALS AND METHODS

A total of 467 patients was included in this study. Out of these, 178 are male, and 289 are female patient. All the patients are told about the study design and written informed consent were taken from all the patient. All the information regarding patient age, gender, malocclusion and blood group was recorded.

Inclusion criteria

1. All permanent teeth present in each arch
2. Teeth which are completely erupted

Exclusion criteria

1. Any systemic illness/diseases
2. Any craniofacial syndrome or anomalies
3. Any missing molars
4. Patient already underwent orthodontic treatment.
5. Deciduous teeth
6. Carious teeth.

For the evaluation of molar relationship, two operators were assigned. The patient was asked to swallow and then bite so that centric occlusion can be achieved and correct occlusion can be established and recorded. All three types of molar relationship are recorded (Figure-1, Figure-2, Figure-3).

Collection of a blood sample and blood grouping

In order to know the patient's blood group, blood is withdrawn and blood is subjected to examination. Antisera are used for blood group examination (Figure-4). On glass slide, the blood is mixed with the antisera which contain known agglutinins. The slide is then seen by the naked eye to check the



Fig 1: Class I Molar Relationship.



Fig 2: Class II Molar Relationship.



Fig 3: Class III Molar Relationship.

absence or presence of clump formation and red cells hemolysis which occurs because of antigen-antibody reaction. (Figure-5) The data of malocclusion and blood group of each and every individual is recorded and subjected to further analysis.

Table 1: Prevalence of Different Blood Group with Molar Relationship.

BLOOD GROUP	CLASS 1 MOLAR RELATIONSHIP	CLASS 2 MOLAR RELATIONSHIP	CLASS 3 MOLAR RELATIONSHIP
A	102	04	03
B	139	09	09
AB	48	13	07
O	119	08	06

Table 2: Prevalence of Molar Relationship in Males and Females.

GENDER	CLASS 1 MOLAR RELATIONSHIP	CLASS 2 MOLAR RELATIONSHIP	CLASS 3 MOLAR RELATIONSHIP
MALE	159	11	08
FEMALE	249	23	17



Fig 4: Anti Sera Used for Blood Group Determination.

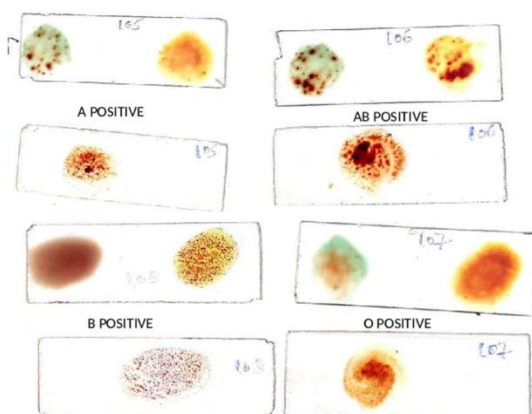


Fig 5: Different Types Of Blood Group.

RESULTS

A total of 467 patients are included out of which 178 (38.1 %) are males, and 289 (61.9%) are females. In the present study, the prevalence of Blood group B was highest, followed by Blood

group O then blood group A, while blood group AB has the least prevalence (table-3). The most common blood group in males is Blood group B followed by Blood group A, Blood group AB and Blood group O (table-3).

The most common Blood group in females is Blood group O followed by Blood group B, Blood group A and Blood group AB (table-3).

The most common molar relationship seen in both males and females is Class 1 molar relationship followed by Class 2 and Class 3 molar relationship (table-2). The most common class 1 molar relationship was shown by Blood group B, which is followed by Blood group O, Blood group A and Blood group AB (table-1).

The most common class 2 molar relationship was shown by Blood group AB which is followed by Blood group B, Blood group O and Blood group A (table-1).

The most common class 3 molar relationship was shown by Blood group B, which is followed by Blood group AB, Blood group O and Blood group A (table-1).

DISCUSSION

The present study gives major facts and figures regarding the relationship between molar relationship and blood group. All the patients were clinically examined by two well-trained operators for checking the molar relationship and blood

groups. The purpose of the present study is to check whether there is any significant co-relation exist between molar relationship and blood group or not. Blood groups are a very crucial and important factor for blood transfusion. Also, various researches suggested a strong correlation between blood groups and various diseases. Various studies had been done in order to establish a relationship between blood groups and various diseases/disorder. It has been observed in the study done by Glass et al. that person having Blood group O has increased chances of cholera infection¹⁵. Some studies show that person having Blood group A and Blood group O have increased chances of diabetes mellitus¹⁶.

Hence, it is observed that a greater number of researches have been done in order to establish a link between blood group and various diseases, but very few or less in number in finding the link between blood groups and oral diseases. According to the study done by Gheisari et al., a person having Blood group B have more chances of occurring of maxillofacial deformities, while blood group A had least chances¹⁷. In another study done by Vivek et al. have found that person having blood group O have more chances of periodontitis¹⁸.

In our study, it has been observed that person having Blood group B has increased chances of having a Class 1 molar relationship, while Blood group AB has the least chance. Also, a person having Blood group AB have increased chances of having class 2 molar relationship, while Blood group A have least chances. Similarly, Blood group B have increased chances of having class 3 molar relationship, while Blood group A has the least chances of having class 3 molar relationship.

As per the result, in our study, we have found a strong correlation between ABO Blood groups and molar relationship.

CONCLUSION

In the present study, the results show that there exists a strong relationship between the various molar relationships and blood groups. So, it can be assumed that a strong relationship will exist between them. Further study with more number of samples should be done.

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

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