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"INCIDENCE OF CATARACT IN ABO AND RHESUS BLOOD GROUP SYSTEM"

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ABSTRACT

Objective: To evaluate the relationship of blood groups with Age Related cataract & Rhesus systems. And find out if there is any genetic relationship. Methods: A prospective randomized trial was done in 193 individuals from 12 th jan 2013 to 25 th 2014.out of this 123 were cataracts and 70 normal controls and their ABO and Rhesus blood group were determined by standard method in the Department of Transfusion Medicine & Ophthalmology Department of **L.N. Medical College and Research Centre, Bhopal** . Incidence of Cataract was analysed in different blood group system. Result: Among the 123 patients, blood group A was found in 22.7%, B in 26.01% ,O in 36.58%, AB in 14.63% and 82.93 % patients were Rhesus positive and 17.07 % Rhesus negative . The number of cataract patients in blood group A was increased by 4.19% and decreased by 3.92% in blood group AB and there was no statistical difference between the control and patients in blood group B and blood group O. It was observed that the occurrence of cataract was increased by 4.36% in Rhesus positive patients where as it is decreased by 4.35 % in Rhesus negative patients as compared to the

controls. Conclusion: In this study, since the increase in number of cataract patients in blood group A & RH positive is nearer to significant value it is concluded that the assessment may be carried out in larger number of population.

KEYWORDS: Blood group, Rhesus, age related cataract.

INTRODUCTION

Blood transfusion is a fascinating subject. Before the origin of medicine itself ancient civilization recognized that blood was the source of life[1] Blood transfusion is one of the newest and most important branches of medical science. Blood group was discovered approximately hundred years ago and most of them have only been recognized during last fourty years. Karl Land Steiner, father of Transfusion Medicine, discovered ABO blood group in 1900 and Rhesus blood group in 1940.[2] Transfusion therapies was used successfully after the discovery of ABO and. Rhesus blood groups. Blood group antigens have some relationship with diseases. The association between disease and blood group frequency is still at an empirical stage. Several studies have been made in order to determine the possible association between blood groups and diseases. Such studies are cancer of the stomach, several types of anemia, peptic ulceration, diabetes mellitus, malignant neoplasm.[4] Rheumatic fever and E.coli based urinary tract infection.[5] It is desirable that the relationship between blood groups and various diseases should be explored in the large number of population and in many parts of the world. For examples, blood group 'A' has relationship with pernicious anemia and stomach cancer, non-secretor with Rheumatic fever, secretor with duodenal ulcer disease. Blood group' O' has relationship with peptic ulcer disease.[6] E.coli has affinity to 'P' blood group system. Specific sialoglycoprotein (SGP) serve as a receptor by which certain pyelonephritogenic strains of E.Coli gain entry to the urinary tract.[7] P-1 blood group is more common in pregnant 'and non pregnant women suffering from upper recurrent urinary tract infection caused by E.coli.[8] Similarly Daffy Blood group has relationship with malaria. Daffy negative individual which is common in blacks are resistant to malaria.[9] Fya and Fyb acts as receptors on red cell membrane for invasion by vivax and knowlesi merozoites. Theplasmodium knowlesi and plasmodium vivax parasites bind to We red cell close to the Daffy antigen and the parasite enter the red cell at the "antigen site causing malaria.[10] There is no comment about the relationship of blood group and age related cataract in available texts or publication. The aim of this prospective type of study is

to see the relationship of the two major blood groups in patients with age related cataract and to compare them with that of our normal population.

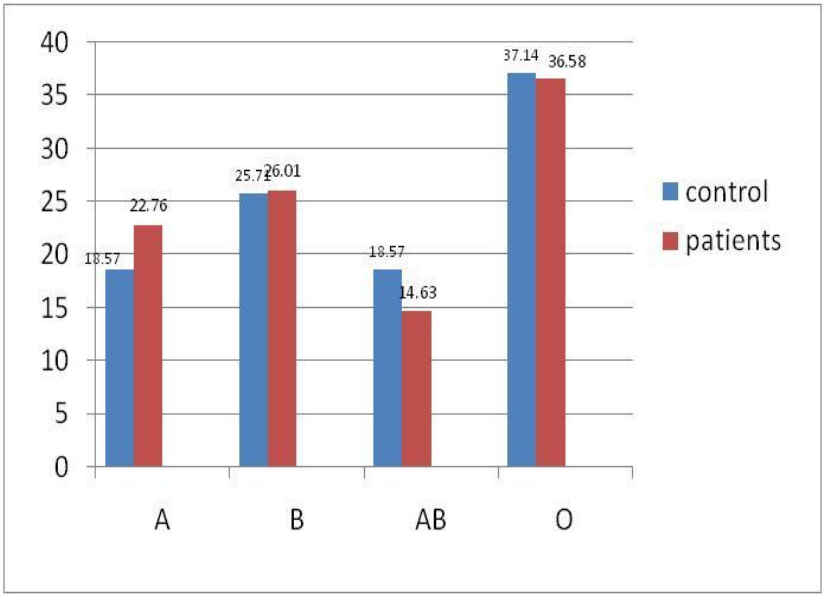
MATERIALS AND METHODS

Blood samples from 193 patients diagnosed as age related cataract were studied admitted in the Department of Ophthalmology, **L.N. Medical College and Research Centre, Bhopal**,routine surgery and tested for ABO and Rhesus (D) grouping by standard methods in the Department of Transfusion Medicine, **L.N. Medical College and Research Centre, Bhopal**. The diagnosis of age related cataract was based on history taking, clinical examination, laboratory investigations and fundoscopic examination. Before surgery pre-anesthetic check-up and fitness for surgery done by an anesthesiologist who has post graduate degree or diploma in anesthesiology. preanesthetic check-up and fitness done on the basis of routine and special laboratory investigation, radiological finding and physical examination specially heart-lung, liver, spleen etc. About 5 ml of venous blood was drawn by sterile syringe from each patient and was collected into a dry sterile test tube. (4 ml in plain test tube and 1 ml in citrate phosphate dextrose (CPD) solution containing tube). ABO blood grouping were determined by standard method with auto control. 12 Both cell and serum typing were done for each sample. Standard antisera (anti-A, anti-B and anti-AB) was used for cell typing/ forward grouping and standard grouping A cell, B cell and 0 screening cell prepared by ourselves for serum typing/reverse grouping. Rhesus D typing was done by using two commercial monoclonal. Anti D reagents of different origin with anti D titer at least 1:32. Due to less Rh(D) antigenic expression of few individual IgG and IgM type of anti D reagents even enzyme (bromelin) were also used. 5% red cell suspension was made by 4 times washing in isotonic saline. All tests were performed in accordance with the instruction of reagents manufacturer. Appropriate control was incorporated in all the test procedure. Meticulous attention was given to all the test procedures in minimizing typing problem or to avoid error.

RESULTS

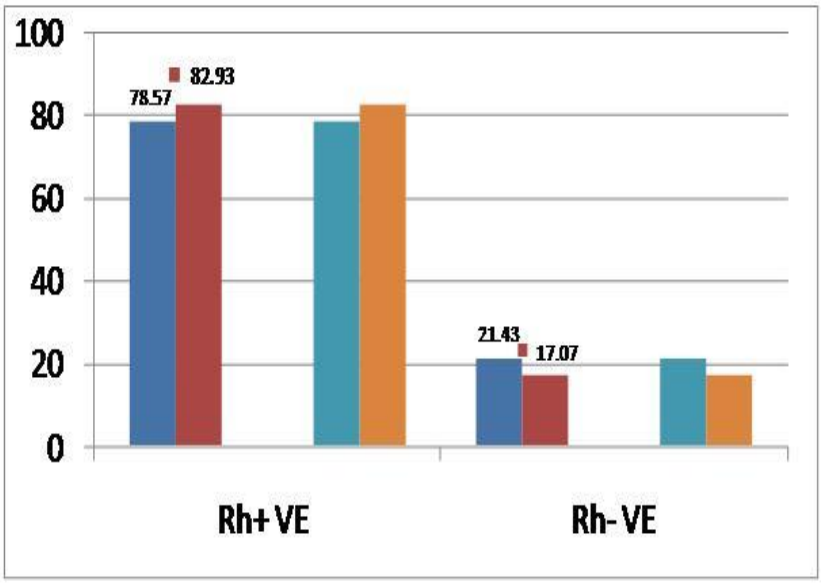
Please refer table -1, Histogram-1. It is observed that the number of cataract patients in blood group A is increased by 4.19 % and decreased by 3.92% in blood group AB. And there is hardly any difference between the controls and patients in blood group B and blood 0.

On statistical analysis, the P value varies between 0.95 and 0.05 (0.95>p>0.05). And therefore,the difference of number of patients observed in blood group A and B is not statistically significant.



2) Refer table -2 ,Histogram -2 .it is observed that the occurrence of cataract is increased by 4.36% in Rhesus positive patients , where as it is decreased by 4.36% in Rhesus negative cataract patients as compared to the controls.

On statistical analysis, the p value varies between 0.95 and 0.05 observed in Rhesus positive individuals are not statistically significant.



DISCUSSION

There is a few numbers of papers available in our country regarding relationship between ABO, Rh-D blood group and diseases. The frequency distributions of ABO and RhD blood of 193 age related cataract patients waiting for surgery have been studied. This frequency distribution of ABO and Rh-D blood group of 193 age related cataract patients compare with ABO and Rh-D blood group of our general population. It appears that the numbers of cataract patients has increased in blood group A by 4.19 % % decreased by 3.92% in blood group. And it appears that blood A individuals are more prone to develop cataract; on the other hand, blood group AB provide resistance to develop cataract. However, the p value varies between 0.95 and 0.05 ($0.095>p>0.05$) and therefore, the observed difference is statistically not significant.

So, it appears that inheritance of ABO genes are not related to occurrence of cataract. In other words, cataract words, cataract is not genetically inherited .it may be an ageing process. From the results, it is observed that histogram-2, it appears that the numbers of cataract individuals have increased in Rhesus positive by 4.36% and decreased by 4.36% in Rhesus negative individuals as compared to controls. The difference observed between controls and cataract patients is statistically not significant. Therefore, it appears that inheritance of Rh gene is not related to cataract. In other words, cataract is not genetically inherited, but it may be an ageing process. The studied sample size was as only 193. So the data found cannot be considered rigid. However no confirmation comment done between ABO and Rhesus D blood group with age related cataract patients because of small sample size. It is a limitation of the study. So further Study with large samples is essential. Which should be done nationwide and among other blood groups also other rare blood groups.

CONCLUSION

In our study, there is a non significant rise in number of cataract patients in blood group A & Rh positive individuals. Since, the increase in number of cataract patients in blood group A& Rh positive is nearer to significant value at 5% levels, and it is concluded that the assessment may be carried out in larger number of population.

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