

A STUDY OF ABO BLOOD GROUP AND SECRETOR STATUS IN ISCHAEMIC HEART DISEASE PATIENTS IN AND AROUND DAVANGERE

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ABSTRACT

Ischemic Heart Disease (IHD) has emerged as the number one killer disease over the world including India. The association between ABO blood group, secretor status and IHD in India is recognized as an important void to be filled. In our study, compared to controls, there was an overall excess of blood group 'A' with ischemic heart disease but the difference was not statistically significant we have not found any significant difference in the secretor status between the IHD and control group. However the IHD patients showed a preponderance of secretors.

KEY WORDS

Ischemic Heart disease, blood group.

INTRODUCTION

Blood groups form a comparatively small field of study but they have an important place in genetics, immunology, anthropology and clinical medicine. Since blood groups are not alterable in healthy people, they have assumed considerable importance in forensic medicine in the analysis of genetic variability, human genetics & anthropology [1].

The property of individuals to secrete these antigenic substances in body fluids such as saliva, gastric juice, seminal fluid etc. is termed as the secretor status. A pair of alleles Se and se determines the secretor status. The knowledge of secretor status can be applied for tissue transplantation among other applications [2].

Various studies have been done trying to co-relate the ABO blood groups with diseases eg. Peptic ulcer, duodenal ulcer, pernicious anemia, gallstones, carcinoma of the stomach and Ischemic Heart Disease (IHD) etc. But, very few studies have been done in

India, to relate IHD with ABO blood group and secretor status [3].

Ischemic Heart Disease has emerged as the number one killer disease over the world including India [4]. The association between ABO blood group, secretor status and IHD in India is recognized as an important void to be filled. Hence the need for such a study, which may helps to take precautionary measures like exercise, dietary habits and lifestyle modifications in ABO blood group individuals who are susceptible for IHD.

OBJECTIVES

To determine ABO blood group and secretor status in IHD population in and around Davangere and whether there is any relationship between the incidence of IHD, blood group and secretor status.

METHODOLOGY

The study was conducted in a tertiary referral hospital, in IHD patients. A total 50 patients

diagnosed with IHD and 50 controls were selected randomly. Each subject gave an informed written consent and the protocol of the study was explained in detail in vernacular language. The study was approved by the Institutional Ethical Committee.

Cases: A total number of 50 patients with IHD were selected at random after admission to the Intensive Cardiac Care Unit (ICCU), pre-operative and post-operative wards of tertiary referral hospital. Patients of both sexes were selected in the age group of 35-70 years who were diagnosed as IHD on the basis of clinical profile (history, electrocardiographic changes etc). IHD patients with other systemic disorders like cerebrovascular accidents, chronic obstructive pulmonary disease except Diabetes Mellitus and Hypertension were excluded from the study.

Controls: A total number of 50 age and gender matched controls with no evidence of any major diseases attending the outpatient department were included in our study. The control group was examined to observe the frequency of ABO blood group in the general population.

ABO blood group was determined using the slide agglutination technique by doing index figure puncture of the left hand. Determination of Secretor status was done in saliva by using the agglutination inhibition technique.

The statistical analysis was done using student 't' test for quantitative analysis.

RESULTS AND DISCUSSION

Our study was done to determine is any relationship between ABO blood group, secretor status and the incidence of IHD in population in and around Davangere.

Table 1 shows the distribution of ABO blood group among IHD patients and controls

The controls in our study showed a proportionate frequency of the ABO blood groups as follows: the maximum number belonged to the O blood group (42%), followed by B blood group (24%), A blood group (22%) and AB blood group (12%) (**Table 1**). These findings were similar to the findings of K.R.C Naidu [5].

Table 1: Distribution of ABO blood group among IHD patients and controls

Blood group	Controls (%)	Cases (%)
A	11(22)	17(34)
B	12(24)	10(20)
AB	6(12)	5(10)
O	21(42)	18(36)

p=0.61 NS

In IHD group, the overall frequency of O blood group (36%) was higher, followed by A blood group (34%), B blood group (20%) and AB blood group (10%). As compared to controls, there was an overall excess of 'A' blood group and an overall deficit in the 'O' blood group (**Table 1**). These findings are in accordance with the studies done by Beg M et al [4], Stewart B et al. [6] and Srivastava D K et al [7].

Among the controls, blood group 'O' is the commonest followed by B, A and AB. In IHD patients, overall the number of patients with blood group 'O' were highest. Compared to controls, there was an overall excess of blood group 'A' but the difference was not statistically significant.

Table 2 represents the secretor and non secretor status of IHD patients and controls among different ABO blood groups.

Out of 18 blood group 'A' cases, 15 were secretors and 3 non-secretors, out of 17 'A' blood group cases, 12 were secretors and 5 were non secretors, out of 10 'B' blood group cases, 7 were secretors and 3 were non secretors and out of 5 'AB' blood group cases, 3 were secretors and 2 were non secretors.

In 50 controls, 9 were secretors and 12 were non secretors of 'O' blood group, 7 were secretors and 4 were non secretors of 'A' blood group, 8 were secretors and 4 were non secretors of 'B' blood group and 3 were secretors and 4 were non secretors of 'AB' blood group.

Table 2: The secretor and non secretor status of IHD patients and controls among different ABO blood groups.

Blood Group	IHD Patients		Controls	
	Secretors	Non secretors	Secretors	Non secretors
A	12	5	7	4
B	7	3	8	4
AB	3	2	3	3
O	15	3	19	2

In our study, in the IHD patients 74% were secretors and 26% were non secretors. This was similar to the findings in other studies [8]

Small intestinal alkaline phosphatase is known to play an important role in handling of fat. The occurrence of small intestinal alkaline phosphatase activity in serum has been found to depend on the ABO blood group and ABH secretor status of individuals [9]. Human serum alkaline phosphatase can be separated into two components by starch gel electrophoresis. The faster moving zone has the electrophoretic characteristics of liver and bone alkaline phosphatase. The slower moving zone has the electrophoretic characteristics of small intestinal alkaline phosphatase. The slower zone is rarely found in serum of those who are non-secretors whatever their ABO blood group status may be [9].

In secretors, serum alkaline phosphatase activity is seldom found in those of blood group 'A', more often in those of blood group 'AB' and frequently in those of group 'O' and 'B'. Thus group 'A' non- secretors might be more prone to atherosclerosis because serum alkaline phosphatase activity is altered and hence fat metabolism will also be altered in these individuals [9].

In our study we have not found any significant difference in the secretor status between the IHD and control group. However the IHD patients showed a preponderance of secretors. This result is similar to the findings of Hall et al [10].

CONCLUSION

In conclusion, the incidence of Ischaemic Heart Disease is more common in blood group 'A' individuals as compared to other ABO blood

group individuals, but the association is not statistically significant. The results of our study failed to show any significant association of ABO blood group with IHD. The frequency of secretor status was similar in cases and control series indicating no influence of secretor status in IHD. Limitation of the study: This study involved a small number of subjects and hence a larger case – control study is indicated. However, a larger sample could conclusively establish the possible relationship between ABO blood group, secretor status and IHD.

CONFLICT OF INTEREST

Conflict of interest declared none.

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