

## Clinical Case Study

### Study of Relationship between Blood Groups and Ischemic Heart Disease in Patients with Coronary Artery Bypass Graft Surgery of Mazandaran Heart Center in Sari, 2012

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#### ABSTRACT

Ischemic heart disease is the most common cause of mortality in the developing countries. In Iran 15 million from 70 million people suffer from cardiovascular disease. The most important risk factors are age; male sex; family history; hyperlipidemia; hypertension; diabete mellitus; obesity and smoking. Blood group was studied as a risk factor for many diseases like peptic ulcer, carcinoma of stomach, periodontal diseases and diabetes mellitus. With the background of conflicting results, the present study was done to evaluate association of ABO blood groups and Rh with IHD in our setting.

This analytic comparative study was done at the department of Cardiology, Mazandaran Heart Center Sari .Total 1020 persons were included in the study. Statistical analysis was done using SPSS 16. ANOVA and Chi-square tests for significance were used. P-value less than 0.05 was taken as significant.

There is not any association between ABO blood groups and Rh with ischemic heart disease (IHD) in our setting. But this study, showed definite higher family history risk factor with Rh positive blood groups.

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**Key-words:** Ischemic heart disease·ABO blood groups and Rh. Major risk factors

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**INTRODUCTION**

Ischemic heart disease is the most common cause of mortality in the developing and developed countries (8). In Iran 15 million from 70 million people suffer from cardiovascular disease (10). The most important of IHD risk factors are age; male sex; family history; hyperlipidemia; hypertension; diabetes mellitus; obesity and smoking (5). Blood group was studied as a risk factor for many diseases like peptic ulcer, carcinoma of stomach, periodontal diseases and diabetes mellitus (1, 7 and 8). With the background of conflicting results, the present study was done to evaluate association of ABO blood groups and Rh with IHD in our setting.

**Material & Methods**

This analytic comparative study was done at the department of Cardiology, Mazandaran Heart Center in Sari. All medical records of patients **with Coronary Artery Bypass Graft (CABG) surgery of Mazandaran Heart Center in Sari, at 2012** were studied. In each patient information's form, age, gender, family history, diabetes mellitus, hypertension, hyperlipidemia, smoking, blood group ABO and Rh were recorded. Statistics relating to the percentage of blood groups in Mazandaran were received from Mazandaran's Blood Transfusion service (5.8). Total 1020 persons were included in the study. After Classifying information extracted from the form, Prevalence of ABO and Rh blood groups in IHD, comparing to Statistics society of Mazandaran Blood Transfusion, prevalence of risk factors in people at risk of IHD and relationship between ABO blood group and Rh to risk factors studied. Statistical analysis was done using SPSS 16. ANOVA and Chi-square tests for significance were used. P-value less than 0.05 were taken as significant.

**Results**

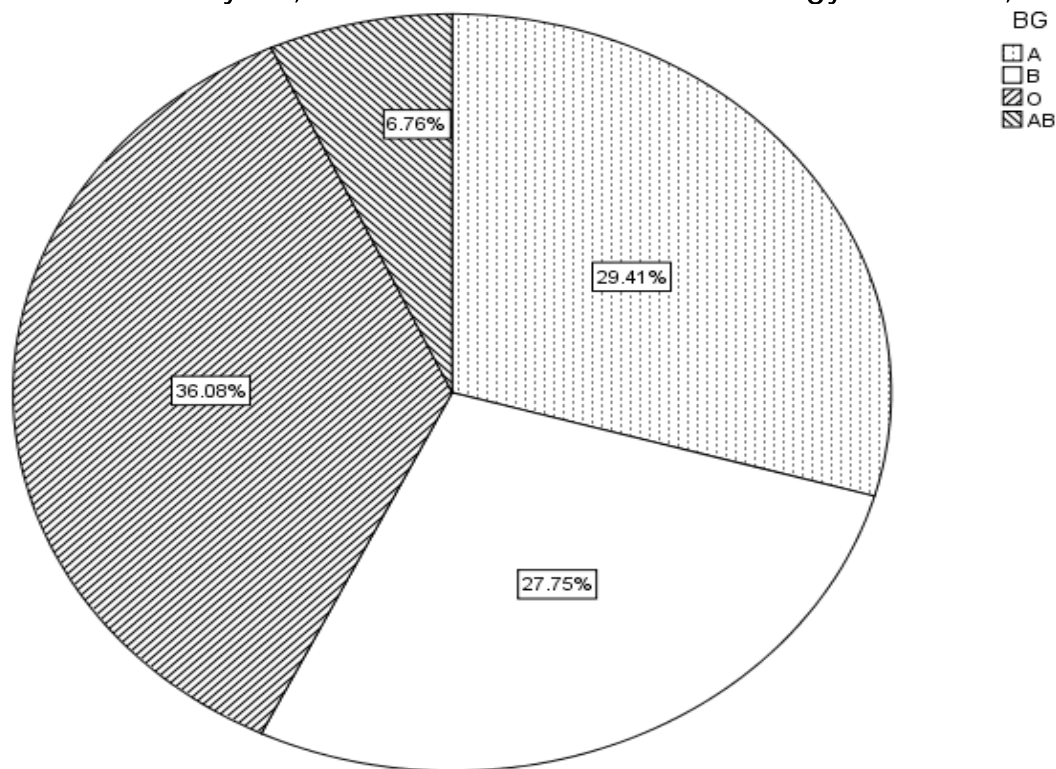
In this study of 1020 IHD patients with CABG surgery, 640 males (62.7%) and 380 females (37.3%) were. The most frequent blood *group* is "O" and "AB" blood type is the minimum frequency. Maximum number of IHD patients (49.5%) in the age group of more 65 and lowest patients (6.2%) were less than 45 years. 0.92% (938 people) of those surveyed "Rh+" and 8% (n = 82) "Rh-" were, In addition, according to Table 1, between the Rh risk factor to family history of heart disease, a significant association was found. But, there is not any association between ABO blood groups and Rh with other ischemic heart disease (IHD) risk factors in our setting. The distribution of blood groups of subjects compared with the Mazandaran province population is shown in Table 2, which According to the frequency of blood group "AB" and "O" lower than the population of Mazandaran, However, the frequency of blood group "A" and "B" was greater than the frequency of individuals Mazandaran community, but there is no significant difference.

AB	O	B	A	
%7	%40	%26	%27	Mazandaran
%6.76	%36.08	%27.75	%29.41	IHD patients

Count	FH		Total
	Pos	Neg	
Rh Pos	318	620	938
Rh Neg	17	65	82
Total	335	685	1020

**Discussion:**

In this study the relationship between blood groups ABO and Rh cannot be seen with IHD and risk factors, while the study showed a significant correlation there is between Rh and family history of heart disease, so high is the risk of IHD in "Rh+", therefore these people should be more controlled. The relationship between ABO blood groups with IHD has been investigated in many studies and this relationship has been demonstrated in a number of them. Miri's study in affiliated hospital to Tehran Shahid Beheshti University showed that blood group "A" has a role as a risk factor in the incidence of IHD (8). Abdollahi and colleagues in their study of the general population in Golestan province have reported a family history of heart disease is more people with blood group "A" (3). Another study conducted in Pakistan by the Lutfullah revealed no association between ABO blood groups and there are no major risk factors for IHD (7)



## Conclusion

By considering higher family history risk factor with Rh positive blood groups IHD patients, Further studies should be performed.

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