

## PATTERN OF ABO AND RH(D) BLOOD GROUP AMONG LEPROSY PATIENTS

Md Shahab Uddin Ahamad <sup>1</sup> Md Rashed Mirjada <sup>2</sup> Dand Pahan <sup>3</sup>

### Abstract

The ABO blood group system was discovered one hundred years ago. Since then, scientists, have searched for an association between different pathologies and the ABO blood group systems of patients. This study was carried out among the leprosy patients attending in the Danish-Bangladesh leprosy mission Hospital, Nilphamari, to see the distribution pattern of ABO and Rh(D) blood groups in leprosy patients. In this study, 100 leprosy patients were included and among them, blood group A were 30% (30), group B 32%(32), group O 30%(30) and group AB 08%(08). Overall total Rh(D) positive blood group were 95%(95) and Rh(D) negative were 05%(05). There is no apparent difference in ABO blood group pattern between general populations and leprosy patients.

**Key words:** ABO blood group; Rh(D) blood group; leprosy

### Introduction

The ABO blood group system was discovered by Karl Landsteiner at the University of Vienna in 1901, since then, scientists have speculated on an association between different pathologies and the ABO blood group system<sup>1</sup>. In 1921, an important paper published regarding the relationship of blood groups to diseases<sup>2</sup>. Recently, several investigators tried to find out the influence of blood group types on brain tumour<sup>3</sup>, myocardial infarction<sup>4</sup> and Helicobacter pylori<sup>5</sup> etc.

Leprosy, one of the oldest disease of mankind caused by Mycobacterium leprae. Gerhard Henrik Armauer Hansen(1841-1912), a Norwegian scientist discovered the microorganism Mycobacterium leprae in February 8, 1873<sup>6</sup>. Specific studies about blood group and leprosy also date back to the 1927-1928<sup>7</sup>. Since that time the relation between the

1. Assistant Professor of Pathology  
Chittagong Medical College, Chittagong
2. Assistant Professor of Medicine  
Chittagong Medical College, Chittagong
3. Program director, The leprosy mission of Bangladesh,  
Nilphamari.

**Correspondence:** Dr Md Shahab Uddin Ahamad

ABO blood groups and this disease has been tested in different countries and at different times. Most of the studies were done in Argentina, Brazil, Egypt, Ghana, India, Italy and Japan etc<sup>8</sup>. The aim of this study was to see the distribution pattern of ABO and Rh(D) blood groups in leprosy patients in Bangladesh.

### Materials and methods

This was a prospective study carried out in the Danish-Bangladesh leprosy mission(DBLM) Hospital, Nilphamari, from January 2008 to May 2008. A total number of 100 clinically and /or bacteriologically diagnosed leprosy patients, who were on treatment or completed the treatment, were included in this study. The patients were randomly selected who were attending in the Outpatient department (OPD) or admitted in Inpatient department (IPD) of DBLM Hospital. Both ABO and Rh(D) blood grouping was done. Blood group was done by slide method by mixing an individual's red blood cells with antisera containing the various agglutinins on the slide and seeing whether agglutination occurs on the same day.

### Results

A total of 100 patients were included in this study. There were 78 male and 22 female patients and male: Female ratio was 3.5:1 (Table-I).

**Table I :** Sex distribution of leprosy patients for blood grouping.

Sex	Number of patients	Percentage
Male	78	78
Female	22	22
Total	100	100

Out of 100 patients, Rh(D) positive (+ve) group was found in 95(95%) patients and Rh(D) negative(-ve) was found in 05(5%) patients, Table-II.

**Table II :** Distribution of patients of Rh(D) group.

Rh(D)	Number	Percentage
Positive(+ve)	95	95
Negative(-ve)	05	05
Total	100	100

Among the 100 patients blood group A(+ve) was found 25 and A(-ve) nil, B(+ve) was found 31 and

B(-ve) was 01, O(+ve) was 26 and O(-ve) was 04,

AB(+ve) was 08 and AB(-ve) was nil, Table-III.

**Table III** : ABO group and Rh(D) group distribution.

ABO Group	A		B		O		AB	
	+ve	-ve	+ve	-ve	+ve	-ve	+ve	-ve
Rh(D) Group	30(30%)	00(00%)	31(31%)	01(01%)	26(26%)	04(04%)	08(08%)	00(00%)
Total	30(30%)		32(32%)		30(30%)		08(08%)	

### Discussion

The present study focused mainly on the pattern of distribution of ABO and Rh(D) blood groups among the leprosy patients in Bangladesh. In this study,

Blood group A 30(30%), B group 32(32%), O group 30(30%) and AB group 08(08%), which closely corresponds to the study done among the blood donors in our country, Table-IV.

**Table IV** : Frequencies of ABO blood group among the blood donors.

Author	Blood group A	Blood group B	Blood group O	Blood group AB	Total
Ahmed et al <sup>9</sup>	24.28% (1212)	32.29% (1612)	35.50% (1772)	7.93% (396)	4992
Ahad et al <sup>10</sup>	24.17% (3088)	35.54% (4413)	33.05% (4222)	8.27% (1056)	12889
Present study	30% (30%)	32% (32%)	30% (30)	08% (08%)	100

Studies on the ABO system of blood groups in leprosy in India and this present study are nearly

consistent with them, though this study is done in a small number of cases, table V.

**Table V** : ABO blood groups in leprosy in different studies.

Author	Country	Blood group A	Blood group B	Blood group O	Blood group AB
Vogel and Chakravarti <sup>11</sup>	India	25.99% (242)	31.14% (290)	36.41% (339)	6.44% (60)
Singh and Ojha <sup>12</sup>	India	30.49% (193)	27.27% (172)	33.50% (212)	8.84% (56)
Present study	Bangladesh	30% (30)	32% (32)	30% (30)	08% (08)

In Rh(D) typing, Rh(D) -ve group is slightly higher in this study than normal population, may be due to small numbers of cases, Table-VI. But in leprosy patients, it is nearer to other studies, Table-VII.

**Table VI** : Rh(D) Negative(-ve) group in blood donor.

Authors	Number studied	Rh(D)-ve
Ahmed et al <sup>9</sup>	4992	3.31% (160%)
Ahad et al <sup>10</sup>	12779	2.90% (369)
Present study	100	05% (05)

**Table VII** : Rh(D) Negative(-ve) group in leprosy patients.

Author	Country	Number studied	Rh(D)-ve
Yankah <sup>13</sup>	Ghana	400	6.7%
Salzano et al <sup>14</sup>	Brazil	72	5.6%
Present study	Bangladesh	100	5.0%

### Conclusion

Taking the sum total of results and observations, it is apparent that there is no difference in ABO and Rh(D) blood groups pattern between members of general population and leprosy patients and also no influence on the course of leprosy.

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