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FREQUENCY OF A1U) AND Rh(D) BLOOD GROUPS IN MARDAN (NWFP)

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SUMMARY:

A survey of blood groups in Mardan was carried out between October, 1992 to May, 1993. A total of 3860 subjects were analyzed. The commonest blood group was B (34.9%) Blood group 0 was (32.4%). Group A was found to be 22.4% and AB 10.3%. Overall 94.7% of subjects were Rh(D) positive.

INTRODUCTION:

On the basis of blood group Antigens, human beings arc divided into four groups, A, B, O and AB. The plasma membranes of the red blood cells of most individuals contain blood group substances of type A, type B, type AB+. Individuals of type A have anti-B antibodies in their plasma and will thus agglutinate type B or type AB blood. Individuals of type B have anti-A antibody, and will agglutinate type A or type AB blood. Type AB blood has neither anti-A nor anti-B antibodies and has been designated the universal recipient. Type O blood has neither A nor B substances, and has been designated the universal donor.

The ABO substances are complex oligosaccharides present in most cells of the body and also in certain secretions, while on red blood cells the ABO substances appear to be mostly glycosphingolipids, where in secretions they are present as glycoproteins. Their presence in secretion is determined by a gene designated Se (for secretor), which codes for a specific fucosyl (fuc) transferase in secretory organs, such as the exocrine glands, but not in red blood cells. Individuals of "Se Se or Sese" "Sese" genotype do not secrete A or B substances, but their red blood cells can express the A and B antigen. The hereditary transmission of these groups depend upon the genes receive from the father and the mother.

Thus blood group antigens are not only important in relation to blood transfusion and organ transplantation but have also been utilized in genetic research, anthropology and tracing ancestral relations of human beings. The need for blood group prevalence study in a community is multipurpose, beside their importance in evolutions, their relation lo diseases and environments is increasingly sought alter in modern medicine. The data obtained from various surveys in U.S.A. and Western Europe showed that blood groups "O" and "A" are common there.[1] similar results are reported in Saudi Arabia.[2] In Indo-Pak subcontinent group "B" is the highest in the north east (20-30%) and less in south (20%). Some research workers reported that group "O" and "B" were

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dominant in Bahawalpur and Hazara Division. [3,4] from the above figures, it is concluded that the blood group distribution has a social sanction behind it. The present study was therefore, undertaken to determine the pattern of blood groups in Mardan population.

MATERIALS AND METHODS:

A total of 3860 subjects of different ages and both sexes were included in this survey. The data of 3191 eases were collected from the records of private laboratories and DHQ Hospital Mardan. While blood samples of 669 subjects were collected usually by venipuncture and some lime by finger prick (Table-1). ABO and Rh(D) grouping was done by tile technique using Anti A, Anti B and Anti D Grouping Sera.[5] Doubtful results were rechecked by tube technique as described by Landsteiner and Wiener.[5].

TABLE-1: DISTRIBUTION OF SUBJECTS

S. No.	Name of Place	Samples collected
1.	District Head Quarter Hospital Mardan.	2670
2.	Local Private Laboratories.	521
3.	Govt. College Mardan.	128
4.	Commerce College Mardan.	101
5.	Girls College Mardan.	68
6.	Bugh Data.	110
7.	Par Hoti	102
8.	Rashaki.	72
9.	Kaskoruna.	88

RESULTS:

Of 3860 subjects, 1251 had "O" group, 862 had "B" group, 1346 had "A" group and **AB** group was present in 401 eases (Table-2). Distribution of all groups was almost identical in both males and females. Of the total samples 3655 subjects (94.7%) were Rh(D) Positive and 205 subjects (5.3%) were found negative.

TABLE-2: PATTERN OF BLOOD GROUP IN MARDAN.

Blood Groups	Nos.	Percentage
O	1251	32.4
A	862	22.4
B	1346	34.9
AB	401	10.3

DISCUSSION:

The prevalence of ABO and Rh(D) blood groups in different nationalities is interesting. Its incidence varies a lot in different parts of the world with certain races, having a predominance of one blood group compared with others. Pakistani generally have a higher percentage of Group "B" as compared to Europeans and Americans (Table-3).

TABLE-3 Results of different studies (%age)

Blood Group	Mardan	Peshawar	Bahawalpur	Hazara	USA	UK
0	32.4	31	37	33	45	47
A	22.4	28	21	24	40	42
B	34.9	34	36	32	10	8
AB	10.3	7	6	11	5	3
Year of Study	1992	1984	1988	1984	1975	1975
Reference	Present study	7	3	4	8	9

In our data we also found 34.9% population of Mardan had blood group B. The second dominant group in our population was "O". Similar result was reported earlier.[7] However, in Hazara and Bahawalpur first dominant group was O and "B" was second common. Moreover, in our survey only 5.3% cases were Rh(D) negative. These findings are similar to previous study. However, other research workers found less Rh(D) negative (4.5%). While Egyptians have no Rh Negative A or AB blood groups and this may be a characteristic of Egyptians.

The differences in the frequencies of blood groups in different races could be explained as a part of evolution with a random genetic drift and natural selection. External environments may also be important as it may be favourable or unfavorable to certain blood groups e.g. association of group A to carcinoma stomach and group O duodenal ulcer.

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