

Survey of blood group among 100 girl's according to caste and category wise

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ARTICLE INFO :

Received : 17.07.2015
Revised : 24.10.2015
Accepted : 05.11.2015

KEY WORDS :

Blood type sera :- anti-A, anti-B, Microscope, Blood lancet, Spirit, Rh typing serum (anti-D)

HOW TO CITE THIS ARTICLE :

Thakare, K.K. (2015). Survey of blood group among 100 girl's according to caste and category wise. *Adv. Res. J. Soc. Sci.*, 6 (2) : 181-185.

ABSTRACT

The average adult has about five liters of blood living inside of their body, coursing through their vessels, delivering essential elements, removing harmful wastes. Without blood, the human body would stop working. The survey of blood group of 100 girls of different age group between 20-24 of different caste was carried out maximum number of girls were of kunbi caste. All the girls are lived in a different places. After determining caste and category wise percentage of ABO and Rh blood grouping shows variations as different 24 number of caste and category (NT, SC, OBC, OPEN) girls were included amongst 100 girls. Rh factor determination survey showed 89 per cent girls were Rh+ve while 11 per cent girls were Rh-ve. In OBC category O+ve and B +ve blood type percentage was more as compared to other category *i.e.* 14 per cent. Also we find 1 per cent O-ve blood group was observed in Kunbi, Mali and Rajput girls. Amongst all 24 castes studied AB -ve blood group was not found in the 100 girls and it can not be concluded that which blood group was more in number in specific caste. But overall observations was that B+ve blood group type girls were found more in number amongst 100 girls.

INTRODUCTION

A total of 29 human blood group systems are recognized by the international society of blood transfusion (ISBT) including of (ABO and Rh system). Each blood group is represented by a substance on the surface of red blood cells (RBCs), are important because they contain specific sequences of amino acid and carbohydrate which are antigenic. As well as being on the surface of RBCs, some of these antigens are also present on the cells of other tissues. A complete blood type describes the set of 29 substance on the surface of RBCs, and an individual's blood type is one of the many possible combinations of blood group antigens; usually only the ABO blood group system and the presence or

absence of the Rhesus D antigen are determined and used to describe the blood type. Overall 400 different blood group antigens have been found, many of these being very rare. If an individual can become sensitized to that antigen: the immune system makes specific antibodies which binds makes specifically to a particular blood group antigen and an immunological memory against that particular antigen is formed. These antibodies can bind to antigens on the surface of transfused red blood cells (or other tissue cells) often leading to destruction of the cells by recruitment of other components of the immune system. Several different RBC surface antigens stemming from one allele (or very closely linked genes) are collectively labeled as a blood group system (or blood group)

Human blood type is determined by co-dominant alleles. An allele is one of several different forms of genetic information that is present in our DNA at a specific location on a specific chromosome. In some ways, every person's blood is the same. But, when analyzed under a microscope, distinct differences are visible. In the early 20th century, an Austrian scientist Karl Landsteiner in 1900, classified blood according to those differences. He was awarded the Noble prize for this achievements.

Landsteiner observed two distinct chemical molecules present on the surface of the red blood cells. He labeled one molecule "A" and the other molecule "B" if the red blood cell had only A molecules on it that blood was called type "A" If the red blood cells had only "B" molecules on it, that blood was called type "B" If red blood cell had a mixture of both molecules, that blood was called type "AB" If red blood cell had neither molecule, that blood was called type "O" Development of the Coombs test in 1945 and the advent of transfusion medicine led to discovery of more blood groups. The Coombs test is used routinely in the screening of blood for blood group antibodies

MATERIAL AND METHODS

The various types of materials were used. First divided a microscope slide in half by drawing a line in the middle of it and marked one side A and other side B wiped the middle finger with 70 per cent alconal picked the disinfected area of the finger with a sterile lancet squeezed the finger and allow a drop or two of blood to fall on each side of the slide. Placed one drop of antiserum into approximately labeled A and B, respectively mix sera and blood drops rocked the slide back placed one drop of anti-D typing serum on a clen glass slide. Added four drops of blood to fall on the slide where anti-D was placed. Mixed the blood with serum thoroughly. Rocked the slide back and forth for two minutes.

OBSERVATIONS AND ANALYSIS

The results obtained from the present investigation are presented below:

Determination of ABO blood group :

After observing the mixtures on ends of the slide marked A and B for agglutination blood groups were recorded after addition of antiserum A and antiserum B

The agglutination takes place on side A of the slide (Fig. 1) confirming 'A' blood group was of 29 per cent girls. Agglutination on the 'B' side of the slide takes place in 33 per cent girls confirming 'B' blood group (Fig. 2) and also observed on both A and B sides resulted into 'AB' blood group *i.e.* 8 per cent (Fig. 3 and 4) and there is no agglutination or clumping on both side resulting in O Blood Group *i.e.* 30 per cent.

Table 1 : Distribution of ABO Blood group amongst 100 girls

Blood group	Percentage
O	30%
A	29%
B	33%
AB	8%

Determination of ABO blood group and Rh blood type in the overall 100 girls :

After addition of anti-Rh antibodies (anti-serum) to a drop of blood on a slide. The Rh positive right side showed clumping while Rh negative (left side) observed no clumping (Fig. 5) After observing overall distribution of ABO blood group and Rh blood type amongst 100 girls, 89 per cent girls were Rh positive, B+ve girls were maximum *i.e.* 29 per cent and amongst 11 per cent Rh negative girls A-ve and B-ve girls were 4 per cent each (Table 2). observations also shows 29 per cent girls were B+ve, 27 per cent girls were O+ve, 25 per cent girls were A+ve and 8 per cent girls were AB+ve where A-ve and B-ve girls were 4 per cent each and O-ve girls were 3 per cent and AB -ve girls were not found (Fig. 7).

Table 2 : Distribution of ABO blood group and Rh blood type in the overall 100 girls

89% girls were Rh +ve		11% girls were Rh -ve	
O Rh - positive	27%	O Rh-negative	3%
A Rh-positive	25%	A Rh-negative	4%
B Rh-positive	29%	B Rh-negative	4%
AB Rh-positive	8%	AB Rh-negative	0%

Distribution of ABO blood group and Rh blood types according to various castes amongst 100 girls :

In the present blood group survey total 24 castes were observed amongst these castes maximum number of girls were of kunbi caste. The percentage distribution of caste was kunbi > Baudha > Mali > Teli and rest of the castes were in less percentage *i.e.* 1 per cent to 5 per cent Amongst these castes the maximum 8 per cent

girls were of O+ve group was observed in kunbi caste, A+ve blood group was found in kunbi and Baudha caste *i.e.* 6 per cent each. Also maximum 7 per cent B+ve blood group and 2 per cent AB +ve blood group was observed in kunbi caste. Similarly 1 per cent O-ve blood group was observed in Kunbi, Mali, Rajput. In rest of the castes O-ve blood group was not observed 1 per cent A-

ve blood group was observed in vanjari, Teli sutar and in the rest of castes A-ve C-ve blood group was not found. Similarly 1 per cent B-ve blood group was observed in Vanjari, Kirat, Baudha and Mali and AB-ve blood group does not observed in castes mentioned in the Table 3. observation of all castes shows maximum percentage of B+ve blood group in 100 girls also percentage of specific

Table 3 : Distribution of ABO blood group and Rh blood type according to various castes amongst 100 girls (Value in percentage)

Caste	O+	A+	B+	AB+	O-ve	A-ve	B-ve	AB-ve	Total No. of girls (100)	Caste %
Vanjari	-	-	-	-	-	1(50)	1(50)	-	2(100)	2%
Baddar	-	-	1(100)	-	-	-	-	-	1(100)	1%
Kirat	-	-	-	-	-	-	1(100)	-	1(100)	1%
Dhanger	-	-	-	1(100)	-	-	-	-	1(100)	1%
Boudha	5(26.31)	6(31.57)	6(31.57)	1(5.26)	-	-	1(5.26)	-	19(100)	19%
Mahar	1(20)	1(20)	3(60)	-	-	-	-	-	5(100)	5%
Chambhar	-	-	-	1(100)	-	-	-	-	1(100)	1%
Kunbi	8(32)	6(24)	7(28)	2(8)	1(4)	1(4)	-	-	25(100)	25%
Mali	3(30)	3(30)	1(10)	1(10)	1(10)	-	1(10)	-	10(100)	10%
Teli	1(14.28)	3(42.85)	2(28.57)	-	-	1(14.28)	-	-	7(100)	7%
Bari	1(50)	-	1(50)	-	-	-	-	-	2(100)	2%
Kumbhar	1(100)	-	-	-	-	-	-	-	1(100)	1%
Bhavsar	-	-	1(100)	-	-	-	-	-	1(100)	1%
Sali	1(100)	-	-	-	-	-	-	-	1(100)	1%
Sutar	-	-	-	-	-	1(100)	-	-	1(100)	1%
Koli	1(50)	-	1(50)	-	-	-	-	-	2(100)	2%
Jain	-	1(50)	1(50)	-	-	-	-	-	2(100)	2%
Sonar	-	-	-	1(100)	-	-	-	-	1(100)	1%
Brahman	1(20)	2(40)	2(40)	-	-	-	-	-	5(100)	5%
Marwadi	2(40)	1(20)	2(40)	-	-	-	-	-	5(100)	5%
Rajput	1(33.33)	1(33.33)	-	-	1(33.33)	-	-	-	3(100)	3%
Wani	-	1(50)	1(50)	-	-	-	-	-	2(100)	2%
Muslim	-	-	-	1(100)	-	-	-	-	1(100)	1%
Sindhi	1(100)	-	-	-	-	-	-	-	1(100)	1%
Total	27	25	29	8	3	4	4	0		100%

Figures in parenthesis indicates percentage of specific caste, according to number of girls present in that caste.

Table 4 : Distribution of ABO blood group and Rh blood types according to various categories amongst 100 girls (Value in percentage)

Category	O+	A+	B+	AB+	O-ve	A-ve	B-ve	AB-ve	Total No. of girls (100)	Caste %
NT	-	-	1(20)	1(20)	-	1(20)	2(40)	-	5(100)	5%
SC	6(24)	7(28)	9(36)	2(8)	-	-	1(4)	-	25(100)	25%
OBC	14(27.45)	13(25.49)	14(27.45)	4(7.84)	2(3.92)	3(5.88)	1(1.96)	-	51(100)	51%
OPEN	7(36.84)	5(26.31)	5(26.31)	1(5.26)	1(5.26)	-	-	-	19(100)	19%
Total	27	25	29	8	3	4	4	-		100%

Figures in parenthesis indicates percentage of specific categories, according to number of girls present in that category.

castes according to number of girls present in that caste was calculated and mentioned in parenthesis (Table 3).

Distribution of ABO blood group and Rh blood types according to various categories amongst 100 girls:

After grouping above mentioned castes (Table 3) in different categories these castes fits in the four categories (NT, SC, OBC, OPEN) Maximum 14 per cent O+ve and B+ve blood group was observed in OBC category as number of girls were also more. Overall observations

shows maximum 29 per cent B+ve blood group and 13 per cent A+ve blood group was observed in OBC category. According to number of girls present in specific category percentage of blood group was calculated as mentioned in parenthesis (Table 4).

In the present survey of 100 girls, Observed higher frequency of blood group 'B' Over 'O'

Our results were found in accordance with the findings of Sengupta and Dutta (1991) also in Nazi, Germany research was done to associate B- Type blood

For the determination of A-B-O blood group



Fig. 1 : Blood group A : Type A (29%) Agglutination in antiserum A and not in B



Fig. 2 : Blood group B : Type B (33%) Agglutination in antiserum B and not in A



Fig. 3 : Blood group AB : Type AB (08%) Agglutination in A and B

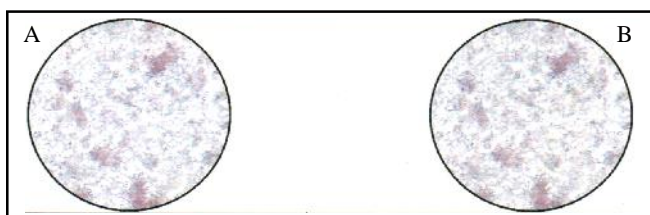


Fig. 4 : Blood group O : Type O (30%) Agglutination or clumping in both

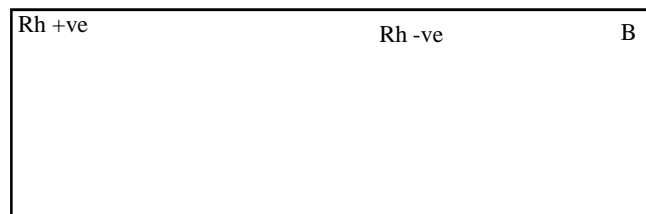


Fig. 5 : After adding a drop of anti-Rh antibodies (anti-D serum) to a drop of blood on a slide. The Rh positive (right side) will show clumping while the Rh negative blood (Left side) will not clump

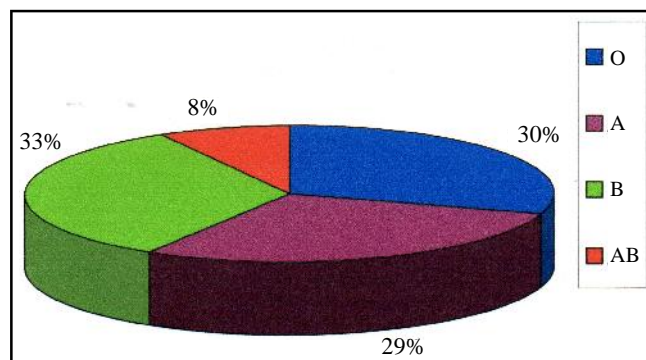


Fig. 6 : Distribution of ABO blood group amongst 100 girls

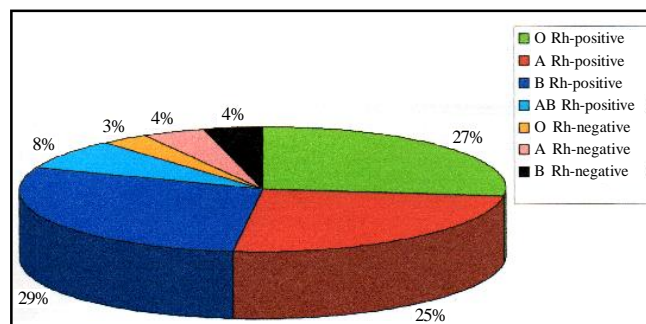


Fig. 7 : Distribution of ABO blood group and Rh blood type in overall 100 girls

with inferior one

Also Snivel *et al.* (1997). postulated that blood group 'B' may have been the only blood group. With the capabilities to survive in harsh environment which was found in Cro-Magnon Hunter who migrated to colder, drier, mountaineers area of the subcontinent and barren endless plain of the Central Asian steppes.

Vijayalakshmi *et al.* (1994) observed increase of blood group B along the silk route of North Western China.

Klys *et al.* (1999) histological and serological studies found that African in general (independent of any racial categorization) has higher incidence of group 'B' than Europe or the middle east.

According to concept of "Eat right 4 yours type" blood types diet of 'D' Adamo *et al.* (1996) advised the diet according to blood type. 'A' should stick to fruit and vegetable (high carbs/low fat). They have thicker blood sensitive immune system and should not consume dairy product, animal fats and meat and have risk of cardiovascular disease, Diabetes and Cancer. Blood gp. 'B' should be consume balanced diet (fruits, vegetable, grains, fish, dairy but avoid chicken). They have vast chance of by-passing or overcoming everyday types of diseases, including heart disease and cancer. Type 'AB' should consume vegetable diet and only on a rare occasions, some fish meat (no chicken) and dairy. Type 'O' basically stick to a high protein diet, low carbs enriched with foods and vegetables. They should limit the intake of wheat, whole meat products, corn and avoid dairy products and most nuts. Types 'O' types are commonly affected with Hypothyroidism and high stomach acidity (leading to ulcer) and thinner blood with greater resistance to blood clotting.

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