

## ABO AND RH BLOOD GROUPS DISTRIBUTION IN HEMOPHILIA AND ANTI HIV POSITIVE INDIVIDUALS

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### ABSTRACT

A group of Iranian patients suffering from Factor VIII deficiency (Hemophilia A) and treated with contaminated coagulation factor (imported), became seropositive as determined by ELISA method. Sixty of these individuals, which were available, were studied for ABO distribution.

The B blood group in anti HIV pos. individuals (13.33%) shows a significant decrease in comparison with the total (1504) of Factor VIII hemophilia (21.87%) and the control group (23.48%).

Statistical analysis of ABO distribution in anti HIV + compared with hemophilia A and the control group showed  $X^2$  values of 6.86(0.10 > P>0.05) and 10.21(0.02 > P >0.01) respectively.

### INTRODUCTION

Association between blood groups and various diseases has been studied for more than 35 years, which was reviewed extensively in 1978 (3).

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Investigations regarding ABO distribution in HIV pos. (Human Immunodeficiency Virus) individuals have not yet been reported.

## MATERIALS AND METHODS

The study was performed on patients suffering from coagulopathias with different etiologies who are registered in the Hemophilia Center of Tehran Medical Sc. University. Exact final diagnosis was confirmed by clinical as well as Laboratory findings in the same center.

The informations of a total of 2438 individual were taken from the data available from the records in the above-mentioned center. The control group for ABO and Rh were taken from previous study (1).

Male-Female-Ratio and relative percentage were estimated on the whole data (2438). ABO blood group were determined only on individuals with Factor VIII deficiency (1504), IX(265), von Wille brand disease (286) and platelet (203) deficiencies. Rh blood group was given only in Factor VIII deficient (1504). A group of 60 individuals from Factor VIII deficient with HIV positive reaction, was tested for ABO distribution.

Statistical analysis were performed by use of  $\chi^2$  method.

## RESULTS AND DISCUSSION

Table 1 shows the number of the individuals in each

deficient group as well as sex distribution and Male / Female Ratio and relative incidence of each deficiency in this sampling.

Both VIII and IX deficiencies (Hemophilia A and B) as X-Chromosomal disorder, show a M/F Ratio of 1/0.

It is notable that most of the autosomal inherited coagulopathias, as demonstrated in Table 1, Presents a M/F= 2/1.

Table 2 shows the ABO distribution in four deficient groups which had a higher sample size.

Statistical analysis by use of  $X^2$  test confirmed significant differences of ABO distribution in Hemophilia B and Willebrand, which are presented in the same table.

Rh(D+and D-) distribution shows significant differences in A and O blood groups as well as in total, of Factor VIII deficient in comparison to the control (Table 3).

A group of 60 individuals from Factor VIII deficient who were treated with contaminated coagulation Factor(imported from an European country),shows anti HIV positive reaction (Table 4). The ABO distribution in this group shows a significant decrease of B(13.35%) in comparison with the whole Factor VIII deficient (21.87%) and the control (23.48%) as presented in the same table.

The results from this investigation shows close agreement with a similar study concerning a group of German HIV + individuals where the frequency of B Blood group was found to be approximately 10% compared with 15% in the control (2).

It seems that individuals with B blood group have somewhat more natural resistance (advantage) against HIV contamination. Nevertheless more extensive studies on larger samples are required to substantiate this hypothesis.

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ABO and Rh blood...

Table I: Ethiology, Male / Female Ratio and relative incidence on 2438 Individuals with coagulopathias.

Factor	n	M	F	M/F	%
VIII Deficiency(A)	1504	1504	-	1/0	61.69
IX Deficiency (Christmas)(B)	268	265	3	1/0	10.99
Von Willebrand	286	156	130	1/1	11.73
Platelets Def.	203	112	91	1/1	8.33
XIII Def.	35	24	11	2/1	1.43
XI Def.	7	5	2	2/1	0.29
X Def.	16	10	6	2/1	0.66
VII Def.	36	26	13	2/1	1.48
V Def.	25	16	9	2/1	1.02
V, VIII Def.	20	13	7	2/1	0.82
Fibrinogen Def.	33	16	17	1/1	1.35
Protrombin VII,II, X,IX	3	-	-	-	0.12
Protrombin II	2	-	-	-	0.08
Total	2438				99.99

Table II: ABO distribution in four deficient groups (VIII, IX, Willebrand Platelets).

Factor	Total	Sex	n	A		B		AB		O		$\chi^2$ d.f.3 P	
				n	%	n	%	n	%	n	%		
VIII	1504	M		490	32.58	329	21.87	140	9.31	545	36.23	4.01	
IX	265	M		81	30.56	82	30.94	22	8.30	80	30.19	8.96	0.05>P>0.02
		F	156	50	32.05	26	16.66	9	5.77	71	45.51	8.21	0.05>P>0.02
Willebrand	286	F	130	26	20.00	34	26.15	14	10.77	56	43.07	9.52	0.02>P>0.01
		F	286	76	26.57	60	20.98	23	8.04	127	44.40	9.55	0.02>P>0.01
Platelets	203	M	112	37	33.03	28	25.00	5	4.46	42	37.50	2.09	
		F	91	28	30.77	23	25.27	7	7.69	33	36.26	0.23	
Control	126332			40986	32.44	29665	23.48	10333	8.18	45348	35.90		
		Willebrand		ABO M/F		ABO M/F		$\chi^2=9.22$		0.05>P>0.02			
Platelets		ABO M/F		ABO M/F		$\chi^2=0.99$							

Table III: Rh(D+ and D-) distribution in A,B,AB and O blood groups among Factor VIII individuals

ABO	N	D+		D-		$\chi^2$	P
		n	%	n	%		
A	490	453	92.45	37	7.55	4.32	0.05 > P > 0.02
B	329	295	89.66	34	10.33	0.00	
AB	140	124	88.57	16	11.43	0.15	
O	545	504	92.48	41	7.52	4.89	0.05 > P > 0.02
Total	1504	1376	91.49	128	8.51	5.83	0.02 > P > 0.01
Control	126332	113164	89.58	13168	10.42		

Table IV: ABO distribution in HIV + and Factor VIII patients

	N	A		B		AB		O	
		n	%	n	%	n	%	n	%
HIV +	60	20	33.33	8	13.33	11	18.33	21	35.00
F. VIII	1504	490	32.58	329	21.87	140	9.31	545	36.23
Control	126332	40986	32.44	29665	23.48	10333	8.18	45348	35.90

HIV + / VIII       $\chi^2=6.86$        $0.10 > P > 0.05$   
HIV + / Cont.       $\chi^2=10.21$        $0.02 > P > 0.01$