

The ABO and Rh(D) Blood Groups Among Three Different Communities of Dhar District, Madhya Pradesh, India

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ABSTRACT The distribution of the ABO and Rh(D) blood groups among three different religious communities viz. Hindu, Muslim and Sikh is reported from Dhar district of Madhya Pradesh. In Hindu and Sikh allele frequencies of *O* group is followed by *B* and then *A* group while in Muslim *O* group is followed by *A* and then *B* group. Regarding Rh(D) allele frequencies *D* is followed by *d*.

Blood grouping is a valuable tool in blood transfusion, forensic medicine and in paternity disputes. Blood groups are also extensively employed to evaluate the ethnic variation and affiliation between different populations (Bhasin et al., 1994). Thus the study of blood groups has been a source of interest to pathologists, biologist, geneticists, anthropologists, statistician and human ecologists. The present investigation was undertaken to study the distribution of ABO Rh(D) blood groups among the Hindu, Muslim and Sikh of Dhar district of Madhya Pradesh.

MATERIAL AND METHODS

Blood samples were collected randomly from individuals belonging to three different religious communities viz. Hindu, Muslim and Sikh inhabiting Dhar district of the central Indian state of Madhya Pradesh. Serological

tests were performed using standard antisera with proper controls. The calculations of allele frequencies of the ABO and Rh(D) blood groups following Yasuda (1984) and Mourant et al. (1976), respectively.

RESULTS AND DISCUSSION

Results are presented in tables 1 and 2. Table 1 shows that *B* group dominated (35%) in Hindu, while *O* group was found to be dominant in both Muslim (46.15%) and Sikh (33.33%). *AB* was the least frequent group in each of the group studied. It is also observed from the table 1 that the allele frequency of *O* group was higher than *A* and *B* groups in each of the group studied. In Hindu and Sikh the predominant allele frequency was *B*. While in Muslim the predominant allele frequency was in *A* group, which may be due to the heterogeneous distribution. The range of allele frequencies was 0.2086 to 0.2120 in *A* group, 0.1209 to 0.2450 in *B* group and 0.5430 to 0.6673 in *O* group.

The Rh(D) phenotypes and allele frequencies of the three communities studied in the present investigation (Table 2) had not shown much variation in their distribution. In all of them, group Rh(D) positive was found to be

Table 1: Phenotyps and allele frequencies of the ABO blood groups in different religious population groups of Dhar district

Population group	Number tested	ABO phenotypes				ABO allele frequencies		
		<i>O</i>	<i>A</i>	<i>B</i>	<i>AB</i>	<i>A</i>	<i>B</i>	<i>O</i>
Hindu	300	84	90	105	21	0.2120	0.2450	0.5430
Muslim	39	18	12	6	3	0.2118	0.1209	0.6673
Sikh	18	6	4	5	3	0.2086	0.2431	0.5484

Table 2: Phenotypes and allele frequencies of the Rh(D) blood groups in various religious population groups of Dhar district

Popula- tion group	Number tested	Rh(D) phenotypes		Rh(D) allele frequencies	
		Rh(D)+	Rh(D)-	D	d
Hindu	300	281	19	0.7483	0.2517
Muslim	39	33	6	0.6078	0.3922
Sikh	18	14	4	0.5286	0.4714

most frequent (range 77.78 to 93.67%); while Rh(D) negative cases ranged from as low as

6.33% in Hindu to 22.22% in Sikh.

REFERENCES

- Bhasin, M.K., Water, H. and Danker-Hopfe, H. : *People of India. An Investigation of Biological Variability in Ecological, Ethno-Economic and Linguistic Groups*. Kamla-Raj Enterprises, Delhi (1994).
- Mourant, A.E., Kopec, A.C. and Domanieswska-Sobczak, K. : *The Distribution of the Human Blood Groups and Other Polymorphisms*. Oxford University Press, London, 2nd Edition (1976).
- Yasuda, N. : A note on gene frequency estimation in the ABO and ABO like system. *Jpn. J. Hum. Genet.*, **29**: 371-380 (1984).