

A₁A₂BO and Rh(D) Blood Groups Among Some Andhra Populations

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ABSTRACT The present paper reports the distribution of A₁A₂BO and Rh(D) blood groups among five castes and a tribal population from Andhra Pradesh, India. The Madiga, a Scheduled Caste registers the highest frequency of group B (41%) followed by other three castes recording relatively higher frequencies of group B than group A. The Brahmin caste and Koya Dora tribe exhibit higher incidence of group A compared to group B. All the caste populations recorded very low incidence of Rh(D) negative phenotype while Koya Dora registered a total absence of the *d* allele.

INTRODUCTION

The distribution of A₁A₂BO and Rh(D) blood groups among five castes namely, the Brahmin, Kapu, Madiga, Relli and Yadava; and Koya Dora tribe from Andhra Pradesh is reported in the present paper. The caste people live in plains of this state while Koya Dora tribe chiefly inhabit the hill tracks of East Godavari, West Godavari and Khammam Districts. Among caste populations, the Brahmin is a priestly caste Kapu is a peasant caste; Yadavas are cattle breeders, while Madigas (cobblers) and Rellis are scheduled castes in Andhra Pradesh.

MATERIAL AND METHODS

Finger prick blood samples from 395 unrelated adults from five different castes and 100 Koya Dora tribals were collected and tested for A₁A₂BO and Rh(D) blood groups following standard techniques. The subjects from the Brahmin, Kapu, Relli and Yadava castes were drawn from Visakhapatnam District and those from the Madiga caste and Koya Dora tribe were obtained from East Godavari District,

Andhra Pradesh. The gene frequencies were computed following Mourant et al. (1976). The interpopulation comparisons are evaluated by computing chi-squares.

RESULTS AND DISCUSSION

Blood group O recorded the highest incidence among all the populations as usual, except the Madiga caste, which exhibits the highest frequency of the B group (Table 1). The blood group A registered higher frequencies than group B among the Brahmin and Koya Dora, while a reverse trend was observed in the remaining populations. Accordingly, the allele *O* recorded the highest frequency among all the populations ranging between 0.6036 (Madiga) and 0.7077 (Yadava). Except the Brahmin caste and the Koya Dora tribe, the remaining populations reported higher frequencies of the allele *B* than *A*. The Koya Dora recorded rather high frequency of the allele *A* compared to all other populations. The general trend of lower frequencies of the allele *A*₂ than *A*₁ was recorded among all the present populations. However, the allele *A*₂ recorded relatively higher frequencies among the Brahmin, Kapu, Madiga and Yadava compared

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Table 1 : Distribution of the A₁A₂BO blood groups among the Andhra populations

Population	A ₁ A ₂ BO phenotypes					A ₁ A ₂ BO allele frequencies						
	n	O	A ₁	A ₂	B	A ₁ B	A ₂ B	A ₁	A ₂	B	O	D/s
Brahmin	65	28	14	4	16	1	2	0.1234	0.0545	0.1594	0.6627	0.4298
Kapu	81	36	10	6	22	6	1	0.1032	0.0491	0.1969	0.6507	-1.1654
Madiga	100	35	13	6	41	3	2	0.0841	0.0451	0.2671	0.6036	0.9134
Relli	56	24	6	1	20	4	1	0.0925	0.0197	0.2529	0.6348	-1.2400
Yadava	93	50	9	5	21	6	2	0.0829	0.0414	0.1680	0.7077	-2.4092
Koya Dora	100	39	29	3	22	5	2	0.1875	0.0314	0.1573	0.6238	-0.0532

Table 2 : Distribution of the Rh(D) blood groups among the Andhra populations

Population	n	Rh(D) phenotype	Rh(D) allele frequencies	
		Rh(D)-ve	D	d
Brahmin	65	2	0.8246	0.1754
Kapu	81	3	0.8075	0.1925
Madiga	100	5	0.7764	0.2236
Relli	56	2	0.8110	0.1890
Yadava	93	2	0.8534	0.1466
Koya Dora	100	0	1.0000	0.0000

to several other Andhra caste populations reported earlier. All the populations except the Yadava are in Hardy-Weinberg equilibrium for the distribution of the ABO blood groups. The slight deviation from genetic equilibrium in Yadava may be due to chance factors. The intergroup chi-square values for the distribution of ABO blood groups indicate that the differences between majority of populations were marginal and statistically not significant. However, the Koya Dora tribe differs significantly with the Madiga, Relli and Yadava castes and also the Yadava caste differs with the Madiga caste at 5% level of probability.

Majority of populations show lower incidences of the Rh(D) negative phenotypes *i.e.*, less than 5% (Table 2). The Koya Dora tribe recorded total absence of Rh negative group. The frequency of the allele *d* among caste populations ranged between 0.1406 (Yadava) and 0.2236 (Madiga). Naidu and

Veerraju (1982) reported a prevalence of 9.4% Rh(D) negative individuals in the Brahmin drawn from the Coastal Andhra Pradesh, while the Brahmin studied from Visakhapatnam recorded an incidence of only 2.33% (Naidu et al., 1985). Total absence of Rh(D) negative group was also reported by Veerraju et al. (1982) in the Koya Dora tribe studied from Mareduilli and Rampa Chodavaram areas similar to the present study Koya Dora of Gokavaram area from the same East Godavari district. Thus the present results fall well within the ranges reported earlier for the Andhra Caste and tribal populations (Naidu et al., 1990).

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