

Further Data on the A₁A₂BO and Rh (D) Blood Groups among Caste Populations of Uttar Pradesh, India

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ABSTRACT The distribution of the A₁A₂BO and Rh (D) blood groups among five caste populations of Uttar Pradesh has been reported. Both these blood systems are in genetic equilibrium in the present sample and their gene frequencies are well within the ranges observed for other North Indian populations.

INTRODUCTION

Data on the blood genetic markers among the populations of Uttar Pradesh are meagre. In this paper incidences of the A₁A₂BO and Rh (D) blood groups among five caste populations of Uttar Pradesh viz., the Brahmin, Bania, Rajput, Yadav and Scheduled castes of Lucknow have been reported, which also confirm the results of an earlier report (Mandal, 1992).

MATERIAL AND METHODS

Blood samples from a total of 5,494 individuals belonging to five major caste groups of Lucknow (Uttar Pradesh) viz., the Brahmin, Bania, Rajput, Yadav and Scheduled castes were collected randomly. These were typed for the A₁A₂BO and Rh(D) blood groups using standard antisera with suitable controls. The genotyping of Rh (D) negatives were further confirmed using all Rh antisera (anti-C, -c, -D, -E, -e).

The gene frequencies for the A₁A₂BO and Rh (D) blood groups were calculated after Yasuda (1984) and Mourant et al. (1976), respectively.

RESULTS AND DISCUSSION

Phenotypes and gene frequencies of the A₁A₂BO and Rh (D) blood groups are presented

in tables 1-3. It is observed that the group O ranges from 24.86 to 32.33%, group A₁ from 17.79 to 36.45%, group A₂ from 0.38 to 2.80%, group B from 22.43 to 42.76%, group A₁B from 5.11 to 11.03% and group A₂B from 0.11 to 2.43%. The Rh (D) negative incidence varies from 1.44 to 7.37%.

The overall incidence of the B group (38.61%) is followed by groups O (29.74%), A₁ (21.62%), A₁B (8.12%), A₂ (1.11%) and A₂B (0.80%), and the gene frequencies ($A_1=0.163$, $A_2=0.010$, $B=0.277$ and $O=0.550$) are well within the North Indian ranges (Mourant et al., 1976; Tills et al., 1983). Same is true for the Rh(D) - group incidence (4.13%, $d=0.215$).

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Table 1: Phenotypes of the A₁A₂ BO blood groups in five caste populations of Lucknow, Uttar Pradesh

Population	Number tested(n)	A ₁ A ₂ BO Phenotypes						χ^2
		O	A ₁	A ₂	B	A ₁ B	A ₂ B	
Brahmin	1208	338 (27.98) *337.03	267(22.10) *268.18	14(1.16) *13.29	457(37.83) *460.25	123(10.18) *122.01	9(0.75) *7.25	0.5005
Bania	1843	557(30.22) *556.59	328(17.79) *329.90	7(0.38) *5.53	788(42.76) *786.96	161(8.74) *160.34	2(0.11) *3.69	1.1778
Rajput	1076	337(31.32) *354.00	249(23.14) *222.73	9(0.84) *8.61	415(38.57) *397.04	55(5.11) *88.23	11(1.02) *4.30	27.6786
Yadav	832	269(32.33) *275.39	149(17.91) *139.78	16(1.92) *16.64	341 (40.99) *332.80	48(5.77) *59.90	9(1.08) *7.49	3.6546
Scheduled castes	535	133(24.86) *133.75	195(36.45) *195.81	15(2.80) *15.52	120(22.43) *126.26	59(11.03) *57.78	13(2.43) *14.98	0.6225
Total	5494	1634 (29.74) *1664.68	1188(21.62) *1148.25	61(1.11) *60.43	2121(38.61) *2093.21	446(8.12) *494.46	44(0.80) *32.96	10.7601

Figures in parentheses are percentages

*indicates the expected numbers

Table 2: Gene frequencies for the A₁A₂BO blood groups in five caste populations of Lucknow, Uttar Pradesh

Population	Number tested (n)	A ₁ A ₂ BO Gene frequencies			
		A ₁	A ₂	B	O
Brahmin	1208	0.177	0.010	0.284	0.529
Bania	1843	0.143	0.003	0.304	0.550
Rajput	1076	0.157	0.007	0.262	0.574
Yadav	832	0.128	0.017	0.280	0.575
Scheduled castes	535	0.275	0.028	0.197	0.500
Total	5494	0.163	0.010	0.277	0.550

Table 3 : Phenotypes and gene frequencies of the Rh (D) blood groups in five caste populations of Lucknow, Uttar Pradesh

Population	Number tested (n)	Rh (D) Phenotypes		Rh(D) Gene frequencies	
		Rh(D)+	Rh(D)-	D	d
Brahmin	1208	1119(92.63)	89(7.37)	0.732	0.268
Bania	1843	1746(94.74)	97(5.26)	0.796	0.204
Rajput	1076	1058(98.33)	18(1.67)	0.821	0.179
Yadav	832	820(98.56)	12(1.44)	0.834	0.166
Scheduled castes	535	524(97.94)	11(2.06)	0.861	0.139
Total	5494	5267(95.87)	227(4.13)	0.785	0.215

Figures in parentheses are percentages.