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Distribution of ABO and RH(D) Blood Groups in Motati Reddi of Kadapa District, Andhra Pradesh

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ABSTRACT A total of 190 unrelated Motati Reddi individuals of Kadapa district of Andhra Pradesh were studied for the phenotype and allele frequency distribution of ABO and RH(D) blood groups. In terms of allele frequencies, *ABO*B* (0.2260) was found to be higher than *ABO*A* (0.1865), and *RH*D* (0.7487) higher than *RH*d* (0.2513) in the studied population.

INTRODUCTION

During the last several decades numerous studies have been carried out on the genetic composition of various endogamous population groups in India (Bhasin et al. 1994 Bhasin and Walter 2001). In view of the importance of blood groups in population characterization, the present study was carried out to document the phenotype and allele frequency distribution of ABO and RH(D) blood groups in Motati Reddi inhabiting South Indian state of Andhra Pradesh.

MATERIALS AND METHODS

Motati Reddi, a sub-caste of a major caste Reddi of Andhra Pradesh in South India, selected for the present study is found to be distributed mainly in Rayalaseema region, particularly in Kadapa and Kurnool districts. Blood samples were drawn from a total of 190 randomly selected unrelated Motati Reddi individuals of both genders inhabiting Kadapa district of Andhra Pradesh after taking written consent. The samples were typed for blood groups after Bhasin and Chahal (1996). The allele frequencies were calculated according to the methods given in Mourant et al. (1976).

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RESULTS

The distribution of the ABO blood group phenotypes and allele frequencies among the Motati Reddi of Andhra Pradesh is shown in Table 1. The Motati Reddi showed higher frequency of O blood group, followed by B, A and AB. The allele frequency of *ABO*B* (0.2260) was found to be higher than that of *ABO*A* (0.1865).The difference between the observed and expected phenotype numbers was found to be statistically non-significant (χ^2 = 3.5501, d.f. 3, 0.50>p>0.03). Table 2 shows that the incidence of RH(D)- phenotype in the Motati Reddi was

Table 1: Distribution of ABO phenotypes and allele frequencies in the Motati Reddi of Andhra Pradesh

Phenotype	*Observed number*	*Observed frequency*	*Expected number*	*Allele frequencies*
A	43	22.63	48.26	*ABO*A* = 0.1865
B	55	28.95	60.15	*ABO*B* = 0.2260
O	70	36.84	65.57	*ABO*O* = 0.5875
AB	22	11.58	16.02	
Total	190	100.00	190.00	1.0000

χ^2 = 3.5501, d.f. 3, 0.50>p>0.03

Table 2: Distribution of Rh(D) phenotypes and allele frequencies in the Motati Reddi of Andhra Pradesh.

Phenotype	*Observed number*	*Observed percentage*	*Allele frequencies*
PRH(D)+	178	93.68	*RH*D* = 0.7487
RH(D)-	12	6.32	*RH*d* = 0.2513
Total	190	100.00	1.0000

6.32% and the frequencies of *RH*D* and *RH*d* were 0.7487 and 0.2513, respectively.

DISCUSSION

The ABO and RH(D) blood group antigens are the most frequently studied genetic markers in a large number of populations worldwide, including India. The ABO blood group distribution varies greatly in different geographical and ethnic groups of India (Bhasin et al. 1994 Bhasin and Walter, 2001). Summarizing the distribution of ABO polymorphism in Indian populations, Bhasin and Walter (2001) observed that the frequency of allele *ABO*B* is higher than that of *ABO*A* with a general frequency of 0.233 and 0.186, respectively with the exception of Eastern Himalayan region. There is cline of increasing *ABO*A* and *ABO*B* and decreasing *ABO*O* allele frequencies from South to North of India.

The pattern of the ABO blood group distribution observed in the Motati Reddi in this study was O> B> A >AB which is in line with the previous reports in different sub-castes of Reddi of Andhra Pradesh (Reddy and Sudha 2009). Studies in the Viswakarma backward caste of Karnataka reported the ABO blood groups in O>A>B>AB order (Dore Raj and Rajasekhara Reddy 2010) whereas the prevalence of A blood group was higher compared to O blood group in the Gangadikara Vakkalingas (Jai Prabhakar and Gangadhar 2009). The sharp differences in the distribution of theABO blood groups in different caste populations of Andhra Pradesh is attributable to geographical and social barriers such as practice of strict endogamy.

As for RH(D) blood groups the frequency of RH(D)- (6.32%) found in the present Motati Reddi of Kadapa district of Andhra Pradesh was comparatively lower than that recorded in the Desuri Reddies of Chittor district of the state (Reddy and Sudha 2009) but higher than that reported in the Vishwakarma of Mysore district of neighbouring Karnataka state (Dore Raj and Rajasekhara Reddy 2010).

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