

ABO and Rh (D) Blood Groups Among the Kaniyas of Karnataka

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ABSTRACT The distribution of the ABO and Rh (D) blood groups among the Kaniya population of Karnataka, India has been studied. The frequency of allele *ABO*B* is high (0.2942) as compared to *ABO*A* (0.1659), where as the frequency of allele *ABO*O* is (0.5399). The present population group show high frequency of allele *B* and low for *A* and *O* alleles when compared to the mean values of the state of Karnataka, whereas for allele *d*, the frequency observed is almost similar to that observed for the state. present study.

INTRODUCTION

Blood groups have broad applications in population and family studies, linkage analysis, chromosome mapping, forensic medicine and also important in blood transfusion. The present study has been carried out for the distribution of ABO and Rh blood groups among the Kaniyas of Karnataka.

MATERIAL AND METHODS

The Kaniyas an endogamic group in Karnataka are distributed in Bangalore, Mysore, Mandya, Hassan, and Dakshin Kannada district of Karnataka State. The name Kaniya is said to be a derivative of Ganika, which means astrology. The popular version offered by the Kaniyas of Karnataka at present is that their name has been derived from Kani, which in Kannada means fortune telling. Besides their hereditary occupation of astrology, they also practice indigenous medicine. Though the Kaniyas prefer consanguineous marriages, they avoid maternal uncle niece type. Monogamy is the widely accepted family norm, but polygamy are permitted, in case the first wife is barren. For the present study blood samples were collected randomly from unrelated 700 Kaniya individuals from Mysore, Mandya, Chamarajanagar, and Bangalore districts of Karnataka state. The samples were typed for the ABO and Rh (D) blood groups by the serological methods of Race and Sanger (1962).

RESULTS AND DISCUSSION

The results of the analysis of the ABO and Rh (D) blood groups of the present study have

been summarized in the Table 1 and 2, respectively. The blood group phenotype B predominates in distribution with the highest frequency (39.28%) followed by O (30.15%) and A (19.42%). The frequency of allele *ABO*B* is high (0.2942) as compared to *ABO*A* (0.1658), where as the frequency of allele *ABO*O* is (0.5399). The chi-square value (0.0034) as well as D/σ value (lower than ± 2) indicates that this caste is in Hardy - Weinberg equilibrium for the ABO blood groups.

In the state of Karnataka the frequency of allele *A* varies from 0.0441 to 0.4390 and the mean frequency is 0.188; for allele *B*, the range is in between 0.0550 to 0.3329 with the mean value 0.2000 and for allele *O* the mean value is 0.612 (varies from 0.447 to 0.803) (Bhasin and Walter, 2001). In the present study, it has been observed that the frequencies of *B* allele is quite high (0.2942) and *A* (0.1659) is little low and for *O* allele (0.5398) is quite low as compared to the mean values for the state of Karnataka.

Table 1: Distribution of the ABO blood groups among the Kaniya population

Pheno-types	Observed number	Expected number	Allele frequencies
O	211 (30.15)	203.98	<i>A</i> = 0.1659
A	136 (19.42)	144.76	<i>B</i> = 0.2942
B	275 (39.28)	282.94	<i>O</i> = 0.5399
AB	78 (11.15)	68.32	
Total	700 (100.00)	700.00	

$\chi^2 = 0.0034$, $D/\sigma = 1.9032$ ($< \pm 2$)

Figures in parenthesis are percentages

Table 2: Distribution of the Rh (D) blood groups among the Kaniya population

Phenotypes	Number	Percentage	Allele frequencies
Rh (D)+	673	96.14	<i>D</i> = 0.8035
Rh (d)-	27	03.86	<i>d</i> = 0.1965
Total	700	100.00	1.0000

Testing with anti-D serum revealed that 96.14 percent of the individuals were Rh positive, the allele frequency being 0.8035 for the *D* and 0.1965 for *d*. The mean value of allele *d* is reported in India is 0.197 and in the state of Karnataka (0.220) (Bhasin and Walter, 2001). The frequency of allele *d* (0.1965) observed in the present study shows similarities with the studies reported from Karnataka (Brahmin-Haviks (0.2384), Lingayaths (0.2162) Vokkaligas (1961) reported by Banerjee et al., 1988; Adikarnatakas (0.1778) Gangadhar (2001) and the with the mean value observed in India.

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