Physical Anthropology 327 - 329

The study of Allelic Frequency of ABO and Rh D Blood Group among the Banjara Population of Akola District, Maharashtra, India

Aravind Chavhan[1] Rajusing Jadhao[1] and Santosh Pawar[2]

Abstract

The distribution of ABO blood groups and Rh (D) factor has been studied in the Banjara population. In the present study O, A, B, and AB blood group percentages of Banjaras of Akola district of Maharashtra are recorded as 27.64%, 22.91%, 37.45% and 12% respectively and the Rh negative incidences recorded as 02.55%. The allelic frequencies of O, A, B and AB groups in the combined data of same community found to be 0.5196, 0.2880, and 0.1924 respectively and Rh (D) positive as 0.8405.

Key Words: Blood Group, Polymorphism, Banjara, Akola, Vidarbha.

Introduction

The ABO blood group distribution varies in different geographical and ethnic groups. ABO blood group genes are mapped at 9q34.2. The caste Banjara was not study before for the same.

The Banjara are a class of usually ascribed as nomadic tribe people from the Indian state of Rajasthan, North-West Gujarat, and Western Madhya Pradesh and Eastern Sindh province of pre-independence Pakistan. They claim to belong to the clan of Agnivanshi Rajputs and and are also known as Banjari, Pindari, Bangala, Banjori, Banjuri, Brinjari, Lamani, Lamadi, Lambani, Labhani, Lambara, Lavani, Lemadi, Lumadale, Labhani Muka, Goola, Gurmarti, Gormati, Kora, Sugali, Sukali, Tanda, Vanjari, Vanzara,and Wanji. They migrated to southern parts of India for trade and agriculture and settled down in the southern or central area of the country and slowly lost the contacts with their original community. Over a period of time this community got separated and they adopted the local culture, and began to be identified as the Denotified Tribe (DT) in Maharashtra state

1 Department of Zoology, Shri Shivaji Science College, Morshi Road, Amravati, India.
Email: arvind.bioinfo26@yahoo.com/ arvind.bioinfo26@gmail.com
2 Department of Zoology, Government Institute of Science and Humanities, Amravati, India. Corresponding author email: mrp_zoo@yahoo.in

(Kamat, 2007). During last five decades, numerous studies have been carried out on the distribution of blood groups and genetic composition of various endogamous population groups in India (Bhasin et al. 1992).

In present work, an attempt is made to study the distribution of ABO and Rh (D) blood group systems among the Banjara population of Akola district.

Materials and Methods

Blood Samples from 275 unrelated individuals of both sex were drawn from the Banjara population. Samples were taken from finger pricks, and the usual open slide method was used for testing for ABO blood groups and Rh (D) factors, following Bhasin and Chahal 1996. Gene frequencies are calculated by Hardy-Weinberg principle using the WinBug program (Spiegelhalter, et al. 2003)

Table 1: Distribution of the ABO blood group and their allele frequencies among the Banjara Caste population of Akola District, Maharashtra. (Number of samples analyzed= 275)

Phenotype	Observed number	Phenotypic frequency in %	Expected Number	Allelic Frequency
A	63	22.91	65.19	A= 0.1924 B= 0.2880 O= 0.5196
B	103	37.45	105.08	
O	76	27.64	74.26	
AB	33	12	30.47	
TOTAL	275	100	275	1.0000

Table 2: Distribution of the Rh (D) blood group and their allele frequencies among Banjara Caste population of Akola District, Maharashtra.

Phenotype	Observed number	Phenotypic frequency in %	Allelic Frequency
Rh (D)-positive	268	97.45	D= 0.8405
Rh (D)-negative	7	02.55	d= 0.1595
Total	275	100	1.000

Result and Discussion

The frequency distribution of ABO phenotypes with gene frequencies are presented in table 1. It is clear from the table that B phenotype has the highest frequency (37.45%) followed by O (27.64%), A (22.91%) and AB (12%). The overall picture of phenotypic frequencies of ABO blood groups is B> O>A>AB. The decreasing order of allele frequency in Banjaras is O (0.4979)> A (0.2809) and B (0.2208). The table also shows the distribution of observed and expected percentage frequencies of ABO Phenotypes. In case of Rh (D) blood groups 97.45% were positive and 2.55% were negative. The allele frequencies were recorded 0.8405 for D and

0.1595 for d (Table 2)

Rh – D distribution also varies worldwide. Rh-D negative blood group is documented as 5.5% in south India, 5% in Nairobi, 4.8% in Nigeria, 7.3% in Lahore, 7.7% in Rawalpindi (Bhatti and Amin,1996; Mwangi, 1999; Omotade et al.,1999). About 95% of African – Americans are Rh-positive whereas indigenous Africans are virtually 100% Rh-positive.

The distribution of allele frequencies of ABO and Rh(D) blood groups of Banjara population of Akola district are found to be similar to Kshatriya (Rajput) population of Uttar Pradesh (Pradeep Kumar *et al.*, 2009) and is significantly correlated with the Asian communities (Lyko, J. *et al.*,1992)

Conclusion

From this study, we conclude that the distribution of allele frequencies of ABO and Rh(D) blood groups of Banjara population of Akola district are found to be similar to Kshatriya (Rajput) population of Uttar Pradesh and is also significantly correlated with the Asian communities. The data generated in the present study may be useful for health planners, while making efforts to face the future health challenges in this region. In short, generation of a simple database of blood groups, not only provides data about the availability of human blood in case of regional calamities, but also serves to enable insight into possibilities of future burden of diseases.

Rerfences

Bhalti F.A., Amin. 1996. Spectrum of ABO and D blood groups of donors at Rawalpindi/Islamabad. Pakistan J. Pathol. 7(2):26 – 28.

Bhasin M.K., Chahal S.M.S. 1996. A Laboratory Manualfor Human Blood Analysis. Delhi: Kamla-Raj Enterprise.

Bhasin M.K., Walter H., Danker-Hopfe H. 1992. The Distribution of Genetical Morphological and Behavioural Traits among the Peoples of Indian Region. Delhi: Kamla-Raj Enterprises.

Kamat , 2007, "*Lambanis or Gypsies*". http://www.kamat.com/kalranga/people/lambani.htm. Retrieved : 10-03.

Kumar P., Singh V., and Vandana Rai ., 2009.Study of ABO and Rh(D) Blood Groups in Kshatriya (Rajput) of Jaunpur District, Uttar Pradesh. Anthropologist, 11(4): 303-304.

Lyko J., Gaertner H., Kaviti J.N., Karithi M.W. and Akoto B. 1992. The blood groups antigens ABO and Rh in Kenyans. *Hamdard Medicus* 35:59-67.

Spiegelhalter D.J., Thomas A., Best N.G., Lunn D. (2003). WinBug program version 1.4. Biostatistics Unit, Cambridge.