

A Survey: Distribution of Multiple Alleles in Different Religious Population

S.Kowsalya^{1,2*}, V.K.Ramasamy¹, S.Kalaimani² , K. Baskar^{3**}

¹Department of Zoology, Sri Vasavi College, Erode- Tamil Nadu, India

²JKKN, Nataraja Arts and Science College, Komarapalayam Namakkal Tamil Nadu, India

³Optimurz Bio & IT Solution, Shenoy Nagar, Chennai-600126, Tamil Nadu, India

Email : kowsivetre@gmail.com (S.Kowsalya); ento_baski@rediffmail.com (K. Baskar)

ABSTRACT

The present study was conducted to estimate the distribution of ABO blood groups among different religious populations (Hindu, Christian and Muslim). The O⁺ blood group was more dominant in all the three religious populations. Maximum percentage of 34% B⁺ blood group was found in Christian population, followed by Hindu (24%), and Muslim (16%). The maximum of A⁺ recorded in Muslim population and minimum in Hindu population. At 12% of AB⁺ recorded in Hindu population followed by Muslim (2%) and Christian (0%). Maximum RH negative population was found in Muslim population when compared to other religious. Maximum percent RH belongs to O positive in all the three region people.

KEY WORDS: Multiple allele, Different religion, Population, Blood group, Distribution.

Received 28/07/2018

Revised 25/08/2018

Accepted 04/09/2018

Citation of this article

S.Kowsalya, V.K.Ramasamy, S.Kalaimani, K. Baskar-A Survey: Distribution of Multiple Alleles in Different Religious Population. Int. Arch. App. Sci. Technol; Vol 9 [4] December 2018. 06-08.

INTRODUCTION

The first case of multiple alleles was demonstrated in man [1]. This system, called ABO to consist of 3 alleles of a single gene, forming four different phenotypic groups: A, B, AB, and O. The Rhesus [Rh] blood group system was first demonstrated in human red cells by the use of an antiserum prepared by immunizing rabbit with red cells from a Rhesus monkey [2]. The gene responsible for the production of the Rh antigen is the dominant 'R' [Rh] and its recessive alleles is 'r' [rh]. In homozygous condition of 'r' antigen is not produced and therefore the blood is negative to Rh - antigen. Rh-negative parents produce only Rh-negative children. The multiple allele theory was put forward by Weiner [3] according to the series of multiple alleles determine in the different blood groups. The eight alleles involved are R⁰, R¹, R², R^z, r, r, R^y, r. In fact more than 14 alleles have been discovered. Maatoghi et al. [4] stated that O blood group was higher percentage than B in different ethnicities population. Hussain et al. [5] have been recorded that O with Rh positive was higher than other blood group among 724 individuals. The blood bank require exact information about distribution of Rh factor and ABO blood group in particular area. The frequencies of ABO & Rh blood groups vary from one population to another & time to time in some region. Hence the present study was aimed to study the distribution of multiple alleles in the blood group of three different religious populations. Several studies have also been conducted to understand the distribution of ABO blood group frequency among the Indian population [6-7].

MATERIALS AND METHODS

Primary data for blood groups survey was collected from 450 individuals belongs to different religious (Hindu, Christian and Muslim) population by direct personal interview (3 x 150 person). For this purpose a questionnaires' were prepared with religious, person with their parent's blood group (father and mother). The blood group with Rh factor was collected. The study area for Hindus Rayapalayam, Chittode and LakshimiNagar, were Hindu population is dominant. The Christians blood group, from K. K. Nagar in Erode, were the Christians population is dominant. The blood groups of Muslims were collected from Akraharam in Erode was the Muslim population is dominant.

RESULT AND DISCUSSION

The present study showed the blood group data collected from three different religious such as Hindu, Christian and Muslim in 450 people each religious 150 persons. Among the three different population maximum of 12% AB⁺ was recorded in Hindu population, followed by Muslim (2%) and Christian (0%) where AB⁻ were 0% among the 450 people. The A⁺ blood group was high in Muslim population, followed by Christian and Hindu population. Only 2% A⁻ blood group was recorded in Muslim population, other 2 religious population recorded 0%. The Maximum B⁺ population of 34% was recorded in Christian followed by Hindu (24%) and Muslim (16%). While Muslim population recorded 10%. In the present results in all different religious population, blood group O was found to be more predominant. In Hindu population recorded 48% followed by Christianity and Muslim recorded 44% of O⁺ blood group, in case of O⁻ Muslim population recorded 6% followed by Hindu and Christian populations. Similarly, Agrawal et al. [8] stated that maximum population pertaining O blood group followed by B when compared to other blood group. Baishya et al. [9] reported that O⁺ blood group was recorded maximum followed by B⁺ and A⁺, who also recorded positive Rh factor than negative Rh factor. Srikant et al. [10] who stated that B⁺ blood group have been recorded in maximum population than O⁺ in Karnataka state of the India, but percentage wise there was not much difference between two blood group (35.48% B⁺ and 34.33% O⁺). The blood group A and O positive were recorded in maximum population of Sikkim India [11]. Rajshree and Raj [12], Singh and Arora [13] stated that maximum population having positive Rh factor with B & O blood group was dominated, among the populations. Yadav et al. [14] stated that Rh positive factor was dominated blood group in his study. In the present study was opposite with Nadakumar et al. [15] who stated that A⁺ Rh factor was higher than o⁺ percentage; but he recorded positive Rh factor which is support to our results.

Table 1 Different blood group with Rh factor (Number and %) of the different religious person

Blood Group	Religious					
	Hindu		Christian		Muslim	
	Number of the person	Blood group (%)	Number of the person	Blood group (%)	Number of the person	Blood group (%)
AB ⁺	18	12	0	0	3	2
AB ⁻	0	0	0	0	0	0
A ⁺	18	12	24	16	30	20
A ⁻	0	0	0	0	3	2
B ⁺	36	24	51	34	24	16
B ⁻	0	0	6	4	15	10
O ⁺	72	48	66	44	66	44
O ⁻	6	4	3	2	9	6
Total number of the person	150		150		150	

CONCLUSION

In the present study clearly indicated that, O⁺ is dominating blood group followed by B⁺ in Erode District of the Tamil Nadu. All the 3 religious people O⁺ was dominated blood group,

there was no difference between Hindu, Muslim and Christian population in O⁺ blood group.

REFERENCES

1. Landsteiner, K., (1900). further observations on individual differences of human blood. *Proc. Soc. Exp. Biol. Med.*, 24: 941-942.
2. Cartron, J.P., Agre, P. (1993). Rh blood antigens; Protein & Gene structure. *Seminars in Haematology* 30: 193.
3. Weiner, A.S. (1940). An agglutinable factor in human blood recognized by immune sera for rhesus blood. *Proc. Soc. Exp. Biol. Med.*, 43: 223.
4. Maatoghi, J.T, Paridar, M., Shoushtari, M.M., Kiani, B., Nori, B., Shahjahani, M., Khosravi, A., Kelarijani, N.A., Ghalesardi, O.K., Far, M.A.J. (2016). Distribution of ABO blood groups and rhesus factor in a largescale study of different cities and ethnicities in Khuzestan province, Iran. *Egyptian Journal of Medical Human Genetics* 17(1): 105-109.
5. Hussain, R., Fareed, M., Shah, A., Afzal, M. (2013). Prevalence and gene frequencies of A₁A₂BO and Rh(D) blood group alleles among some Muslim populations of North India. *Egyptian Journal of Medical Human Genetics* 14(1): 69-76.
6. Rao, C., Shetty, J. (2014). Frequency of ABO & rhesus(D) blood groups in Dakshinakannada district of Karnataka. A study from rural tertiary care teaching hospital in south India. *Nitte University Journal of Health Science* 4(3): 57-60.
7. Saha, A.K., Sahadalal, B. (2016). Frequency & distribution of blood groups in the donors of a rural hospitals, Barasat, 24 parganas, West Bengal, India. *Int. J. Pharm. Bio. Sci.* 7(B): 414-418.
8. Agrawal, A., Tiwari, A.K., Mehta, N., Bhattacharya, P., Wankhede, R., Tulsiani, S., Kamath, S. (2014). ABO and Rh (D) group distribution and gene frequency; the first multicentric study in India. *Asian. J. Transfus. Sci.* 8(2): 121-125.
9. Baishya, R., Saharia, D., Nath, M. (2015). Distribution of ABO & Rh Blood Group Among Healthy Blood Donors Attending Blood Bank of Gauhati Medical College & Hospital, Guwahati. *International Journal of Science and Research Methodology, Human*, 2 (1): 22-30.
10. Srikant, G., Kumar, N.S., Ravidhar. (2013). Distribution of Blood Groups in and Around Bellary, Karnataka. *Indian Journal of Clinical Practice*, 24(3): 247-250.
11. Raj, J., Singh, B. (2017). Distribution of ABO blood groups and rhesus factor percentage frequencies amongst the populations of Sikkim, India. *Proc. Indian Natn. Sci. Acad.* 83 (1): 217-222.
12. Rajshree, B., Raj, J.Y. (2013). Distribution of ABO blood group and Rh(D) factor in western Rajasthan. *National Journal of Medical Research* 3(1): 73-75.
13. Singh, S., Arora, I. (2018). Frequency and distribution of ABO and rhesus (D) blood groups in district Chamba, Himachal Pradesh: a study from rural tertiary care hospital. *International Journal of Community Medicine and Public Health* 5(2): 689-692
14. Yadav, S., Chaudhary, J., Kumar, N., Kannauje, P.K., Kumar, K., Bhattnagar, R., Tiwari, R. (2018). Distribution of ABO and Rh blood group in myeloproliferative diseases. *Acta. Med. Int.* 5: 39-43.
15. Nandakumar, R., Raghu, P., Deva, A., Prabhakaran, K. (2015). ABO and Rh (D) Blood Group Polymorphisms in Soligatribal population of Tamil Nadu, India. *J. Life Sci.* 7(1,2): 18.