

Distribution of ABO Blood Groups in Changlang, Arunachal Pradesh, India

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KEY WORDS Blood Groups. Tribe. Variation.

ABSTRACT The distribution of the ABO blood groups has been studied among tribes of Changlang district of Arunachal Pradesh. Present findings indicate that A is higher than B among the Longchang and other tribals (i.e. Jugli, Morang, Singpho, Nocte, Tutsa etc.) while among the Muklom both A and B show equal occurrences. It is also evident that there is no significant inter-group difference in respect of ABO blood groups among different tribes inhabiting this district of North Eastern Indian state Arunachal Pradesh.

INTRODUCTION

The Changlang district is situated in the South Eastern end of Arunachal Pradesh and lies between 26°40' and 27°40' North Latitudes and between 95°11' and 97°10' East Longitudes. The district derives its name from the local word "Changlangkan" which in common parlance is spoken and spelt as "CHANGLANG". The word "CHANGLANGKAN" means a hill-top where people discovered the poisonous herb which is used for poisoning fish in the rivers (Dist. Stat. Hand-Book, 1993).

The Climatic condition of the district varies from hot and humid in the plains to cold in the hills. The climatic condition of Changlang, the district headquarters, is moderate and pleasant with an average annual rainfall of 350 cm.

The population of the district as per 1991 Census (Dist. Stat. Hand-Book, 1993) is 92,891 and sex ratio of 874 females per 1,000 males. Major tribes of the district are Tangsa, Singpho, Nocte and Tutsa. According to 1981 Census (Singh, 1994) population figures of Tangsa, Singpho and Nocte in

Arunachal Pradesh are 16,475; 2,353 and 19,606, respectively. Population figure of Tutsa is not available.

A review of literature reveals that considerable data on the ABO blood groups are available among Mongoloid populations inhabiting North Eastern India, but no such data are available among the Muklom and the Longchang two endogamous sub-groups of Tangsa tribe residing in the Changlang district of Arunachal Pradesh. It is therefore that an attempt has been made to study the distribution of the ABO blood groups among different tribal groups of Changlang.

MATERIALS AND METHODS

Subjects for the present study constituted of 241 tribal individuals residing in Changlang. Of these 104 belonged to the Muklom, 50 to the Longchang, and remaining 87 to other tribal groups (i.e. Jugli, Morang, Singpho, Nocte etc.). Grouping of the blood samples obtained from these subjects was performed by trained technicians in the laboratory of the District Hospital, Changlang following Boorman et al. (1977) and using anti-A, anti - B, and anti - AB sera.

RESULTS AND DISCUSSION

Table 1 shows the distribution of the ABO phenotypes and maximum likelihood estimates of allele frequencies calculated following Li (1961) and Roychoudhury (1973) among different tribal groups of Changlang. It is evident that frequency of phenotype A

Table 1 : Distribution of the ABO blood groups among tribal populations of Changlang

Population group	n	Phenotypes				Allele Frequencies		
		O	A	B	AB	A	B	O
Muklom	104	59	22	22	1	0.1182±0.0231	0.1182±0.0231	0.7636±0.0306
Longchang	50	25	9	16	-	0.0956±0.0302	0.1774±0.0402	0.7270±0.0468
Other tribals	87	36	18	30	3	0.1300±0.0264	0.2131±0.0331	0.6562±0.0384

varies from 18.00% among Longchang to 21.15% among Muklom while it is 20.69% among other tribals of Changlang. The occurrence of phenotype B is similar among Longchang (32.00%) and other tribal groups (34.48%) of Changlang while it is much lower among Muklom (21.15%). The goodness of fit values ($\chi^2=0.68$; 0.58; 0.23; d.f.1, for Muklom, Longchang and other tribals, respectively) reveal that each of the three samples is in genetic equilibrium. Table 1 also shows that the value of allele A in Changlang varies from 0.0956 among Longchang to 0.1300 among other tribals and it is 0.1182 among Muklom. The value of allele B varies from 0.1182 among Muklom to 0.2131 among other tribals while it is 0.1774 among Longchang. Inter-group comparison revealed no significant differences between these groups.

In an analytical review of sero - anthropology of Mongoloid populations in India, Bhattacharjee (1975) opined that A allele among them in North East India varies from 16 to 26% except in Arunachal Pradesh where it varies between 22 and 35%. On the other hand B allele ranges between 12 and 24% except in Naga Hills where it varies between 7 and 16%. He also mentioned that the frequency of A allele is higher than B allele in Arunachal Pradesh. Present findings reveal that frequency of A allele among tribals of Changlang varies from 9.56 to 13.00% which is much lower than the lowest level of the range mentioned by Bhattacharjee (1975). Further more unlike Bhattacharjee's observation, in the present study the frequency of A allele was lower than or equal to that of B allele. Duarah

(1979) observed much lower values of A (15.60%) and B (6.50%) among Digaru Mishmi. Goswami and Das (1990) also observed much lower values of A among Tangsa (13.60%), Nocte (19.90), Digaru Mishmi (14.50%), Miju Mishmi (16.60%), Khamti (16.10%) and Minyong (17.50%) and much lower values of B among Digaru Mishmi (6.30%), Miju Mishmi (9.70%), Aka (6.80%), Khowa (3.30%) and Miji (10.10%).

Thus it is evident from the above discussion that results of the present study are in agreement with those of Duarah (1979), and Goswami and Das (1990) but not with those of Bhattacharjee (1975) who might have opined on the basis of data made available to him.

ACKNOWLEDGEMENTS

We are grateful to the authorities of District Health Centre, Changlang for allowing us to use the Hospital data. We are also thankful to the Director, Anthropological Survey of India, Calcutta for providing necessary facilities required for the present study and to the Head of Office, Anthropological Survey of India, Shillong for his help and encouragement.

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