

ABO Blood Group Frequency Distribution among the Tangsas of Arunachal Pradesh, India.

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Introduction

The Tangsa tribe is one of the tribes of Arunachal Pradesh which is home to 26 major tribes. The Tangsa people are residing in different circles, in and around Changlang township of the Changlang district of Arunachal Pradesh, India. The Changlang district with its headquarters at Changlang was created on 14 November, 1987 by carving out from Tirap district. The word Tangsa is a common name given to a tribe inhabiting this region. The term “Tangsa”, is related with the word *Tangshang* in Myanmar (Burma), and it denotes a community of many people in Changlang and Tirap district of Arunachal Pradesh, parts of Tinsukia district of Assam in north east India, and across the border in Sagaing region of Myanmar. The term *Tangsa* is derived from ‘*Tang*’ (high land) and ‘*sa*’ (son) and hence means ‘people of highland’. There are many sub-tribes or group within Tangsa. In this paper an attempt is being made to examine the present blood frequency distribution of Tangsa tribe and compared it with past study of ten tribes.

Materials and Methods

For the present study a sample of 432 Tangsa tribes (209 males and 223 females) were tested for identification of ABO blood group types from the Kuttom village, one of the sample villages of the Tangsa tribe of Arunachal Pradesh in the year 2011. For blood group technique of analysis, Lawler and Lawler’s (1951) standard laboratory methods and techniques are employed. These present findings of ABO blood group gene frequency is compared with ten tribal populations of earlier works viz. Nocte, Wancho, Singpho, Nishi (Nyishi), Monpa Tawang, Apatani, Gallong (Galo), Idu Mishmi, Khampti and Tangsa (Goswami, M. C and P. B. Das, 1990).

Result and Analysis

The frequency percent distribution of ABO blood group is shown in Table No. 1. We find that in case of males

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blood group O (47.37%) is found to have the highest frequency followed by A blood group having the frequency values of 63 (30.14%), B blood group 32 (15.31%) and AB blood group 15 (7.17%) respectively. In case of females, blood group O is found to have highest frequency which is 94 (42.15%) and is followed by blood group A, B and AB with the values of 72 (32.28%), 45 (20.17%) and 11 (4.73%) respectively. Clubbing both of the sexes, the highest frequency distribution of ABO blood group is in O type having the frequency of 193 (44.67%) and the frequency distribution of the remaining blood group A, B and AB are 136 (31.48%) 72 (17.82%) and 26 (6.01%) respectively.

The four phenotypes of ABO blood group system A,B,O and AB are controlled by three alleles A(p), B(q) and O(r), with the dominance of A and B over O. The allelic frequencies calculated for the people of Kuttom village using Bernstein's formula (Table 2) are A= 0.209, B= 0.127 and O= 0.667 respectively.

Table No.1. Frequency percent distribution of ABO blood group

Blood Group	Male		Female		Total		Allelic Frequency
	f	%	f	%	f	%	
A+ve	63	30.14	73	32.73	136	31.48	0.320
B+ve	32	15.31	45	20.17	75	17.82	0.184
AB+ve	15	7.17	11	4.93	26	6.01	0.053
O+ve	99	47.37	94	42.15	193	44.67	0.443
Total	209	99.99	223	99.97	432	99.97	1.00

Comparison of frequency percentage of ABO blood groups and allelic frequencies among the Tangsa of Kuttom village with other ten (10) populations of Arunachal Pradesh is shown in Table No.2. From the table it is observed that blood group O is the most frequently found blood phenotypes in all the populations except Apatani and Tawang Monpa. The distribution of phenotypes of the present study is O>A>B>AB (44.67>31.48>17.82>6.01).

The distribution of phenotypes of Nocte, Wancho, Singpho, Nishi, Gallong and Idu Mishmi are same with the present population, which are in the order of O>A>B>AB.

In case of the distribution of phenotypes of Tangsa (past study) and Khampti, the order is of O>A>B>AB.

In Apatani population, A is the highest phenotype (41.56%), followed by O, B and AB. That means, the order of occurrence of distribution of blood type is of A>O>B>AB.

It is observed from the table that the Monpas show a totally different frequency per cent distribution of ABO blood group from the remaining tribes because in this population B is the highest phenotype (29.45%) and is followed by O phenotype having a marginal frequency of 29.00% with A. It is then followed by A and AB phenotypes. Thus, the trend is in the order of B>O>A>AB.

Table No. 2 Comparison of ABO blood group of the present study with other tribal populations of Arunachal Pradesh

Populations	Sample size	Blood Groups				Gene frequencies			χ^2 -value with present study (d.f.=3)	Inference
		A f p.c.	B f p.c.	AB f p.c.	O f p.c.	P	q	r		
Nocte	332	105 (31.62)	55 (16.57)	14 (4.22)	158 (47.59)	0.199	0.110	0.691	1.683	Not-significant
Wancho	330	116 (35.15)	55 (16.67)	21 (6.36)	138 (41.82)	0.234	0.123	0.643	1.315	Not-significant
Tangsa	390	84 (21.54)	113 (28.97)	15 (3.85)	178 (45.64)	0.136	0.182	0.682	20.69	Significant
Singpho	267	90 (33.71)	68 (25.47)	11 (4.12)	98 (36.70)	0.214	0.163	0.623	8.52	Significant
Nishi	242	78 (32.23)	61 (25.25)	21 (8.61)	82 (33.88)	0.231	0.186	0.583	7.50	Not-significant
Monpa Tawang	438	122 (27.85)	129 (29.45)	60 (8.61)	127 (29.00)	0.233	0.244	0.524	40.96	Significant
Apatani	332	138 (41.56)	73 (21.98)	30 (9.03)	91 (27.40)	0.299	0.171	0.529	24.87	Significant
Gallong	441	139 (31.52)	92 (20.86)	31 (7.03)	179 (40.49)	0.215	0.152	0.638	2.27	Not-significant
Idu Mishmi	322	86 (26.71)	57 (25.60)	33 (10.25)	146 (45.34)	0.203	0.149	0.648	5.64	Not-significant
Khampti	293	65 (22.18)	75 (25.60)	22 (7.51)	131 (44.71)	0.161	0.181	0.658	50.91	Significant
Present Study	432	136 (31.48)	77 (17.82)	26 (6.01)	193 (44.67)	0.209	0.127	0.667	-	-

Note: Significant at 5% level.

Summary and Conclusion

The comparison of ABO blood group frequency percent distribution of the present study among the Tangsa tribe of Kuttom village with that of the past study of ten tribal populations of Arunachal Pradesh shows a trend of O>A>B>AB in all six populations including the present study except Tawang Monpa (B>O>A>AB), Apatani (A>O>B>AB) and Tangsa of past study (O>B>A>AB) and Khampti (A>O>B>AB). However, the findings of different frequency per cent distribution other than the trend of O>A>B>AB blood group

distribution among these few tribes shall be relooked for explaining reasons if there be any.

It is also observed from Table 2 that the values of Chi-square test for Tangsa (past), Singpho, Monpa, Apatani and Khampiti show significant difference when compared with the present population.

References

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