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Association of ABO Blood Groups with Procrastination among Tuberculosis Patients in the Tribal Populations of Nagaland

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Recent study has found that procrastination not only affect ones works but mental and physical health as well. Tuberculosis is considered to be one among the oldest disease to be found in the North eastern states of India. The present study focused on analyzing the association of ABO blood groups with Procrastination among tuberculosis patients in the tribal populations of Nagaland. This study considered the population of the tuberculosis patients with ABO blood groups. Also 50 control group respondents were selected from the faculty members of St. Joseph University. The samples of the study consisted of the 50 TB Patients and 50 Controls through random sampling technique. Blood group testing was done using the standard protocol of AB D Antisera typing Kit. The study concluded that procrastination effects on the O +ve blood groups patients genotype is significantly associated more with the female patients (p = 0.02) than male patients (p = 3.8). The allele frequency of blood group O is the highest, ??2 The goodness of fit test resulted in value was 5.1 and p value was 0.02 among tuberculosis patients in the tribal populations of Nagaland.

Keywords: ABO Blood Groups; Procrastination Behavior; Tuberculosis; Tribes.

Tuberculosis (TB) remains a main public health problem in India, accounting for a quarter of the eight million instances of TB that arise worldwide. Despite the fact that tablets are available for remedy, TB stays nevertheless as a massive burden, in aid negative settings and the arena's most vital motive of death specifically in India. When clinical knowledge is used to manual coverage and practices, evidences are ranked in line with the relative merits of various data.[1] Over the decade, numerous new interventions in TB manipulate had been advanced and recommended in WHO hints and carried out into India's TB manipulate programmed. In the northeastern states of India, TB and PRG are found to be endemic. While guidelines for brand spanking new interventions are normally based on proof from standard population, little is thought from tribal regions. According to Indian state TB statistics 2017 and 2018 it is found that Nagaland a North Eastern state of India inhibited by tribal population accounts to 5826 TB Patients Notified Public Sector out of 2,050,220 population. The Revised National Tuberculosis Control Programme (RNTCP) has adopted multiple strategies so as to reach overall coverage of tuberculosis diagnosis and treatment. However, rural populations such as those living in the hilly terrain of Nagaland have limited access

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to health structures due to "poor road conditions and lack of basic communication services", which may also hinder completion of TB treatment20. Due to limited evidence, at the side of other factors, this could have hindered wide-scale use of tribal unique proof based interventions. One of the approaches is proof from it as a minimum one desirable systematic assessment. Its purpose is to reduce large portions of statistics to usable dimensions. Some declare that doing so is an effective medical approach; one of this is much less time ingesting and greater dependable then engaging in new research. The use and usefulness of systematic critiques is one effective mechanism for improving the proof available to tell population fitness decision making.[1]

Moreover they contend that the various occasions where in man or woman research is executed allow reviews consequences to be generalized throughout distinct contexts and emerge more extra tremendous than person research. There are currently rare systematically accumulated statistics on the availability of proof for scale-up of newly encouraged interventions for TB control in tribal areas.[1]

The polymorphism in the ABO blood group remains important in population genetic studies, estimating the availability of compatible blood, evaluating the probability of hemolytic disease in the new born, resolving disputes in paternity/ maternity and for forensic purposes[2]. The frequencies of ABO and Rh phenotypes in different populations have been extensively studied. Rh system emerged as second most important blood group system due to hemolytic disease of newborn and its importance in RhD negative individuals in subsequent transfusions once they develop Rh antibodies. The D antigen, after A and B, is the most important red cell antigen in transfusion practice[3].

Several physical, emotional and mental problems appear to be associated with procrastination. It may create embarrassment and inferiority complex among students of which the found negative relationship between level of ego identity and procrastination; it lessens confidence among students and their expectancy of completing a task[4]; resulting in unhealthy sleep, diet and exercise habits[5] yields to higher rates of smoking, drinking, digestive ailments, insomnia and cold and& flu symptoms[6]; increases a lot of stress, worry, and fear leading a miserable life with shame and self-doubt creating and raising anxiety and deteriorates self-esteem[7] affects achievement of goals creating anxiety[8] and causes higher stress, low self-esteem, depression, cheating, plagiarism, higher use of alcohol, cigarette and caffeine and decreased ability to maintain healthy self-care habits like exercise and eating[9]

The study was conducted with the objectives to the context of disease epidemiology and procrastination, upon various Indian tribal communities, who are highly isolated both demographically and topographically, from the mainstream Indian populations. Blood bank usually has a problem of ever-changing stock position and it being very difficult to predict the prevalence of a particular blood group at a particular time. The present study was done to assess the prevalence of blood groups in different categories of Northeast India with the following specific objectives; (i) To evaluate the most common Blood group among tuberculosis patients (ii) To compare and study the controlled groups with those of tuberculosis patients.

Research Methodology

The present study was descriptive in nature. Therefore survey approach was considered and adopted to collect the data from respective respondents.

Population and Sampling

The present study was delimited to the TB patients of the olive Christian Hospital, Dimapur, Nagaland. The population of the study is tuberculosis patients of the above said hospital with the ABO blood groups. Among the population 50 TB patients were selected as a sample through the random sampling technique Further, 50 control group respondents were selected from the faculty members of St. Joseph University to evaluate and compare the result. Overall 100 respondents were considered for the study including patients and control group.

Data Collection

The study was descriptive in nature; therefore, the researchers considering the survey approach was appropriate to adopt for data collection. The researchers has developed two different set of questionnaire for patient group and control group respectively based on 5 point Likert scale technique. And the developed an

questionnaire has been validated through the pilot study with the 50 respondents. Some corrections were identified and rectified in the pilot study. Finally, the questionnaires were administered on TB Patients of olive Christian Hospital, Dimapur, Nagaland and Control group peoples. The collected data were coded and analyzed in terms of percentage and mean score through Ms-Excel.

Laboratory Analysis

Once the samples were collected the ABO and Rh blood group testing was done from the laboratory using the standard protocol of AB D Antisera typing Kit.

Statistical Analysis

The gene and allele frequencies of blood group, are calculated by Hardy-Weinberg model using S2 ABO estimator software.[10] Allele Frequencies are calculated under the assumption of Hardy–Weinberg equilibrium and expressed as percentages. The chi – square test is used to compare observed allelic and genotypic frequency distributions of the blood group and Rh antigens to that of under the Hardy–Weinberg.[11]

RESULTS AND DISCUSSION

Association studies between ABO blood groups with Procrastination among tuberculosis patient's diseases are the hallmarks for unravelling the genetic pattern of complex diseases. Studying the relationship between allelic and genotype frequencies of candidate genes among both affected and healthy subjects, to understand the genetic etiology of complex human traits, is an efficient method to elucidate their disease pathogenesis. It is found that female occurred in the order O> A >B. The allele frequency of blood group O is the highest, ??2 The goodness of fit test was resulted in value was = 5.1 and p value was 0.02. This only significant value(Table.2) There is the high proportion of Rh (D) +ve individuals than the Rh – ve in the study populations. (Table.1)

Hence forth, we tried to elucidate the possible association of the ABO blood groups with Procrastination among tuberculosis disease patients. The ABO blood groups with Procrastination were observed to be more prevalent

Table 1. Frequency of ABO blood groups and Rh factor in Patients and Controls

Group	A	B	AB	O	N	Phenotypic frequency	Rh+ Ve	Rh-Ve
Control	9(18%)	11(22%)	0	30(60%)	50	O>B >A >AB	50	-
Male	4(14.8%)	10(37%)	0	16(59%)	27	O>B >A >AB	27	-
Female	5(21.7%)	2(7.4%)	0	16(69.5%)	23	O>A >B >AB	23	-
Case	16 (32%)	10 (20%)	0	24(48%)	50	O>A >B >AB	50	-
Male	4(16%)	3(12%)	0	18 (72%)	25	O>A >B >AB	25	-
Female	3 (12%)	1(4%)	0	21 (84%)	25	O>A >B >AB	25	-

Table 2. Shows the overall allele frequencies for the ABO in Patients and Controls

Group	Group	Gene frequency			Hardy-Weinberg log likelihood	Genotypic frequency	χ^2	p value
		p[A]	*q*[B]	*r*[O]				
Control	Control	0.095	0.12	0.79	-48.6	O>B >A	1.4	0.23
	Male	0.084	0.2	0.72-	-33.5	O>B >A	0.001	0.97
	Female	0.13	0.064	0.8	-22.88	O>A >B	1.05	0.3
Case	Case	0.185	0.12	0.7	-57.5	O>A >B	1.03	0.3
	Male	0.1	0.07	0.82	-24.22	O>A >B	0.76	0.38
	Female	0.08	0.02	0.88	-18.79	O>A >B	5.1	0.02*

* Statistically significant.

among cases than controls, as shown in Table. 2 and 3. Genotype distributions, allelic frequencies and the corresponding odds ratios (OR) were calculated for each variant as shown in Table: 4.

No significant association was observed in the ungrouped data. This occurred in the order ABM (Dominant model). The allele frequency of blood group A +B Vs O is the highest, ??2 The goodness of fit test was resulted in value was = 4.6 and p value was 0.05 this is significant value (Table. 4) However, when segregated the subjects into male and female, we found that the O Blood group homozygous genotype has a significant prevalence upon females than in males.

After the discovery of blood groups, numerous studies on associations of blood groups and various diseases were performed. Identifying the prognostic and associating factors, which predict the condition of the disease and its response to the treatment, can play an important role in determining the therapeutic strategies.

This study demonstrated that blood group O+ve was commonest and O-ve was least frequent among blood donors. This is in agreement with the studies that performed on blood donors[12] and population of Tehran Province.[13]

Previous studies of the ABO pattern among patients with pulmonary tuberculosis were made at a time when the incidence was much higher than at present in Copenhagen. If a weak correlation exists between tuberculosis and some of the blood groups, it could easily have been obscured when the

Table 3. Distribution of ABO blood frequencies in Cases and Controls stratified according to gender

Sl. No	Gender	ABO blood	Case (n= 50)	Control (n= 50)	$\chi 2$	OR	95% CI	P-value
1.	All (50)	A	16	9	1.92	2.14	0.77-6.2	0.082
		B	10	11	0.05	0.88	0.33- 2.32	0.5
		O	24	30	1.0	0.615	0.27- 1.35	0.31
2.	Female (20)	A	2	5	0.69	0.33	0.056 – 1.97	0.45
		B	0	2	0.5	0.0	0.00 – 3.43	0.46
		O	18	13	2.29	4.8	0.86 –27.2	0.12
3.	Male (30)	A	4	4	0.41	1.0	0.22 – 4.43	0.70
		B	8	10	0.08	0.72	0.23 – 2.20	0.77
		O	18	16	0.07	1.32	0.77 – 3.65	0.79

$\chi 2$: Chi-square with 1 degree of freedom; OR: odds ratio

Table 4. Distribution of ABO blood frequencies (dominant and recessive model) in Patients and Controls

	Gender	Model	TEST	Case (n= 50)	Control (n= 50)	OR	95% CI	$\chi 2$	P-value
	All	A +B Vs O	ABM	26	20	1.62	0.73 -3.57	1.0	0.31
ABO		B+O vs A	REC1	34	41	0.4	0.17 – 1.19	1.92	0.16
blood		A+O vs B	REC2	40	39	1.12	0.42 – 3.02	0.0	0.8
	Female	A +B Vs O	ABM	2	7	0.2	0.02 – 1.14	4.6	0.05*
		B+O Vs A	REC1	18	15	3.0	0.5 -17.7	1.51	0.21
		A+O Vs B	REC2	20	18	1.0	0.29 - -1.0	2.50	0.15
	Male	A +B Vs O	ABM	12	14	0.76	0.27 -2.21	0.26	0.6
		B+O Vs A	REC1	26	26	1.0	0.22 – 4.43	0.0	1.0
		A+O Vs B	REC2	12	14	0.7	0.27 – 2.12	0.26	0.6

ABM:Dominant model: REC1: Recessive model; REC2: Recessive model n: sample size; OR: Odds ratio; CI: Confidence Interval: DOM model: Only when DD is present, the diseases would be caused, REC model: when O is in homozygous or heterozygous it will cause diseases.

* Statistically significant.

disease was more frequent. This is likely especially if recurrences, sequelae or non-bacillary patients were included. The ABO pattern of these patients is closer to or identical with the ABO pattern of normal persons. In this context it should be recalled that the diagnosis of pulmonary tuberculosis is less exact among abacillary patients. This fact may well explain the discrepancies in the ABO pattern of bacillary and abacillary patients, since the latter group may contain a number of patients not suffering from tuberculosis.

The present study showed that there was an association between tuberculosis and the blood groups B and AB in this region of the Dimapur City. The deviations were however not significant[14]. Many studies with similar intent were conducted earlier.

It is Suggested blood Groups O and AB individuals are more susceptible to TB[15]. However, a study by Rao et al., concluded that blood Groups O and A were the most common blood groups associated with PTB.[16] A study in Gujarat, a significant association was discovered between blood Group AB and pulmonary TB.[17] Similarly, Jain17 had similar observations for AB blood group and pulmonary TB. People with blood Group O showed protection from TB in a Chinese population.[18] This could be one of the most important for the observed deviations from the expected ABO pattern, but it remains speculative so far. Studies suggests that self-administered TB treatment is feasible for patients living in areas with limited or no access to health services.[20]

CONCLUSION

The study concluded that procrastination effects on the O +ve blood groups patients genotype is significantly associated more with the female patients (p = 0.02) than male patients (p = 3.8). The allele frequency of blood group O is the highest, ??2 The goodness of fit test resulted in value was 5.1 and p value was 0.02 among tuberculosis patients in the tribal populations of Nagaland. The significant association of the O blood genotype with Procrastination among tuberculosis patients, especially, with females of the tribal populations was observed.

The ABO blood groups with Procrastination were observed to be more prevalent among tuberculosis patients than the controls. When separated the subjects into male and female, it is found that the O Blood group homozygous genotype has a significant prevalence upon females than in males. With the observed association of ABO genotype, Procrastination with tuberculosis, this study anticipates more studies with larger cohorts to extend and elucidate. The in progress study be responsible for spirited information on the Procrastination of TB among the tribal population of Nagaland which jerry can be situated used as a standard data for future epidemiological studies.

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