

FREQUENCY OF ABO BLOOD GROUPS AND SECRETOR/NON-SECRETORS IN PULMONARY TUBERCULOSIS

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Abstract: Background & objective: In the literature available, we found that various diseases are associated with blood groups and secretor status of the individual. We found that tuberculosis is associated with secretion of blood groups and their secretion into saliva. We like to investigate whether tuberculosis that is very common in this part of the world is similarly associated and therefore we took up this project. **Material and method:** Blood group of 107 normal individuals and 101 individuals who are AFB positive for tuberculosis were tested by rapid slide technique and their Secretor status was similarly, determined by hemagglutination inhibition test and the results were compiled, compared with each other and a conclusion was drawn. **Results:** It is found that the percentage of non-secretors is significantly greater in pulmonary tuberculosis as compared to the control group; $\chi^2=8.51$; d.f.=1 ; $0.005>P>0.001$ (SPSS; Chi-square test) and when blood groups are added to secretor status it is observed that the frequency of 'O' non-secretors is greater than the others $\chi^2=4.336$; d.f.=1; $P = 0.05$ and that 'A' Secretors have least of all percentages. **Conclusion:** Non-secretors are more prone to develop pulmonary tuberculosis. 'O' non- secretors are more prone to develop pulmonary tuberculosis and 'A' secretors are least affected.

Key words: Rapid slide technique, Secretors, Non-secretors.

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Introduction:

Frequency of distribution of ABO and Rh blood groups has been reported by various authors in our country so also that of secretors among normal individuals^{1,2,3}. Some workers tried to correlate the incidence of secretion of blood group substances in diseases like rheumatic fever⁴, duodenal ulcer⁵, leprosy⁶ and tuberculosis⁷.

In the present study an attempt is made to find out the frequency of ABO blood groups and secretor status in proven cases of pulmonary tuberculosis to learn if there is any genetic relationship of the disease.

Material and Methods:

The material for the study was obtained from the AFB positive cases of pulmonary tuberculosis attending Mamata General Hospital, Khammam for treatment. In totality samples of blood and saliva was obtained randomly from 101 cases of pulmonary tuberculosis and so also from 107 AFB negative normal individuals who generally, accompanied the patients and which served as a normal control group representing population of Khammam; after obtaining consent from the institutional ethical committee and written consent

was taken from all the subjects who are involved in the study. The oxalated blood samples were suitably diluted in phosphate buffer solution at pH 7.4 in Thomas W.B.C. diluting pipette to give 5% red blood cell suspension and ABO blood group of the individuals was found out by rapid slide technique using anti-A and anti-B sera having a titer of 256. The samples of saliva collected were boiled for 15 minutes to destroy the enzymes that inactivate blood group substances in saliva, and then centrifuged for 1 minute at 3000 r.p.m. and supernatant fluid was used to find out secretion of blood group substances in saliva by haemagglutination inhibition method using rapid slide technique described by Wiener (1943) using Euleropeuslectin containing anti-H having a titer of 64. Both saliva and anti-H were diluted 1:8 before use. The results obtained were compiled, tabulated and statistically analyzed using chi-square test to find out the level of significance.

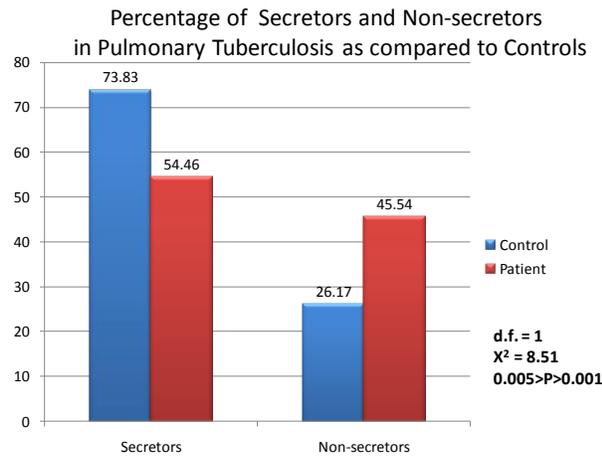
Result:

Results of the incidence of ABO blood groups, secretors and non-secretors in cases of pulmonary tuberculosis and normal controls have been shown in the table.

Table 1: Frequency distribution of Secretor/Non-Secretor in Controls (107) and in Pulmonary Tuberculosis (101)

Controls			Pulmonary Tuberculosis		
Secretor	Non-Secretor	Total	Secretor	Non-Secretor	Total
79 (73.83%)	28 (26.17%)	107	55 (54.45%)	46 (45.55%)	101

Histogram 1:



Histogram 2:

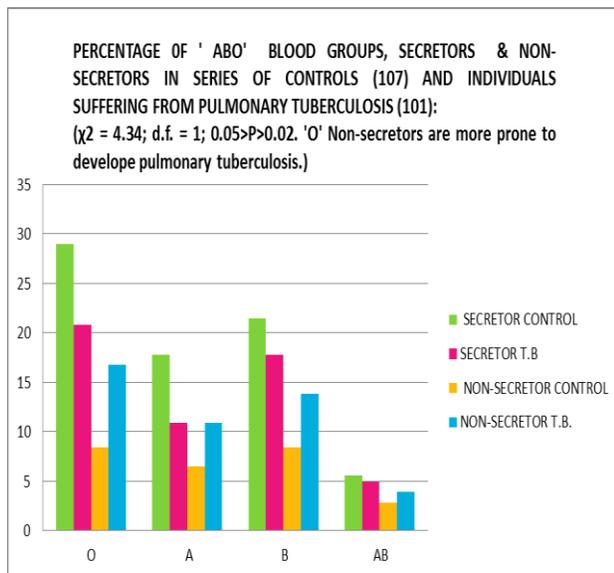


Table 2: Frequency distribution of ABO Blood Groups and Secretors/non-secretors in Controls (107) and in Pulmonary Tuberculosis (101) in both of the genders :

Blood Group	Total No. of individuals examined	Secretors	Non-Secretors
Control			
O	40 (37.38%)	31 (28.97%)	09 (8.41%)
A	26 (20.29%)	19 (17.76%)	07 (6.54%)
B	32 (29.91%)	23 (21.50%)	09 (8.41%)
AB	09 (8.41%)	06 (5.60%)	03 (2.8%)
Total	107	79 (73.83%)	28 (26.17%)
Pulmonary Tuberculosis			
O	38 (37.62%)	21 (20.79%)	17 (16.63%)
A	22 (21.78%)	11 (10.89%)	11 (10.89%)
B	32 (31.68%)	18 (17.82%)	14 (13.86%)
AB	09 (8.91%)	05 (4.95%)	04 (3.96%)
Total	101	55 (54.45%)	46 (45.55%)

Discussion:

From the above table2 and histogram2,it seems that the percentage of ABO blood groups in controls and in patients does not significantly vary.

When secretor status of the controls and patients is compared it is found that the percentage of non-secretors is increased (46/101) 45.55% in patients as compared to (28/107) 26.17% in controls (i.e.174.05% increase on controls) and which is statistically significant ($\chi^2=8.51$; d.f.=1; P = 0.005) (please vide Table 1 and Histogram 1).

When the frequency of secretors and non-secretors in different ABO blood groups is examined in controls and in patients, it is found that the percentage of blood group 'O' non-secretors in patients (17/101)16.83% has increased as compared to the controls (9/107) 8.41%.i.e. 200.12% increase on controls and this observation is statistically significant ($\chi^2=4.336$; d.f.=1; P = 0.05). On the other hand, the percentage of 'A' secretor (11/101) 10.89% is reduced in patients as

compared to controls (19/107) 17.76% i.e. 61.3% decrease on controls though statistically just short of significant (please vide Table 2 and Histogram 2).

We agree with Tyagi et.al.⁷ that in this geographical part the same relationship exists.

Conclusion:

From the above results it can be concluded that non-secretors are more prone to develop pulmonary tuberculosis and that the secretors are protected. When secretor status is combined with different ABO blood groups the results show that 'O' non-secretors are more prone to develop pulmonary tuberculosis than the others.

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