Int J Biol Med Res.2016;7(2):5502-5505

Contents lists available at BioMedSciDirect Publications

International Journal of Biological & Medical Research

Journal homepage: www.biomedscidirect.com

Original Article

Biological Determinants in association with Tuberculosis among populations of Delhi.

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ARTICLE INFO

Keywords:
Blood Pressure,
Random Blood sugar,
Tuberculosis,
Pulse rate,
Settled,
Migrated

ABSTRACT

Tuberculosis (TB) remains a major global public health problem. In the past, a relationship between TB and diabetes mellitus (DM) was recognized, and its importance was acknowledged through joint treatment clinics. However, this is rarely highlighted in current research or control priorities. This paper aims to evaluate the evidence for an association between these two diseases and association with blood group. Methods literature work on blood group and diabetes association with the tuberculosis. Assessed the quality according to criteria such as sample size, methods of selection of cases and summarizing the results in tabular form. Results A+ shows the highest percentage with EPTB i.e. 44.7% then with PTB i.e. 43.5%. B+ blood group also shows highest percentage with PTB i.e. 58.1% then with EPTB having percentage 32.3%. Conclusion: There is association between the TB and diabetes and TB and blood group. Further well-designed studies are needed to assess the magnitude precisely.

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Introduction

The WHO 2012 Global Tuberculosis Control Report reveals that there were 1.4 million estimated deaths due to tuberculosis in 2011, of which 300,000 were in India.1 In 1997, the 'Directly Observed Treatment Supervised' (DOTS)-based Revised National Tuberculosis Control Programme (RNTCP) was initiated in India. Worldwide the prevalence of diabetes mellitus is on increase.

Materials and Methods:

The study was conducted amongst the newly diagnosed with pulmonary tuberculosis and extra pulmonary tuberculosis. Subjects treated under category I, II of Dots Centre in urban population of Delhi in different district. The data was collected from July-August 2015. The present study is cross sectional study which consists of total 569 in which population is segmented into settled and migrated population. In settled population no. of males (222) and no. of females (147) and in migrated population no. of males (122) and no. of females(78). The present study is cross-sectional study which consists both male and female and aged group taken from (17-55). The patients were enrolled in DOTs centre of East Delhi, South Delhi and North Delhi. Ethical clearance was obtained from departmental committee. Biological Data was collected in parameters such as Blood group, Random Blood Group, Blood Pressure and Pulse rate. Blood groups of all subjects were examined by testing the individuals red blood cells with anti-sera. Also testing against cell containing known antigen by identifying antibodies in his/her own serum.

Blood Pressure measurement of the individual was taken by using calibrated mercury sphygmomanometer by international guidelines. Blood pressure readings were taken with the subjects seated, on the right and left arm with the appropriate cuff size. The higher of two consistent reading was noted down.

Random blood sugar level of individual was taken by pin-prick. Sugar level of individual more than 140mg/dl. And subjects less then 140 mg/dl as normal blood sugar (ADA 2014).

Pulse rate of the individual is done by stethoscope and stopwatch. Subject were made to seated comfortably and laid down hand on table and stethoscope on left arm of the subject. And pulse rate is noted down by using stopwatch for pulse per minute.

After completing the field data. Data was then coded and computerized for analysis purpose. Then data edited in computer. For analysing the data we used Spss package (IBM 20 version). Where editing coding and labelling process were done.

Results:

Presents the biological profile of the studied population of Delhi. Its include blood group frequency associated with type of TB. Physiological variables include systolic and diastolic blood pressure and random blood sugar level.

Table 1.Presents the percentage of blood group with type of TB. A+ shows the highest percentage with EPTB i.e. 44.7% then with PTB i.e. 43.5%. B+ blood group also shows highest percentage with PTB i.e. 58.1% then with EPTB having percentage 32.3%. Only 9.6% with MDR TB. AB+ blood group also showing highest percentage with PTB i.e. 51.8% with EPTB 37.3%. O+ blood group having 58.8%, with EPTB 29.7% and with MDR 11.5 %.

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Table 1: Frequency for Type of TB in Blood group among settled population of Delhi.

Blood Groups		N	%
A+	PTB	37	43.5
	EPTB	38	44.7
	MDR	10	11.8
	Total	85	100.0
B+	PTB	115	58.1
	EPTB	64	32.3
	MDR	19	9.6
	Total	198	100.0
AB+	PTB	57	51.8
	EPTB	41	37.3
	MDR	12	10.9
	Total	110	100.0
O+	PTB	87	58.8
	EPTB	44	29.7
	MDR	17	11.5
	Total	148	100.0
A-	PTB	8	47.1
	EPTB	6	35.3
	MDR	3	17.6
	Total	17	100.0
B-	PTB	2	66.7
	EPTB	1	33.3
	Total	3	100.0
AB-	PTB	2	100.0
O-	PTB	4	66.7
	EPTB	2	33.3
	Total	6	100.0

Table 2. Presents physiological variables which includes systolic and diastolic blood pressure and random blood sugar level in settled males and females. The mean value of systolic blood pressure for male is (114.68±17.57) and for female (114.09±16.06). Not major difference observed in both systolic blood pressure in male and female. Mean and SD value of diastolic blood pressure for male i.e. (77.37±11.72) and for female (77.57±12.44) . Here significance difference observed at $p<0.05$ level mean value for pulse rate for male (101.46±17.74) and female (88.57±38.14). Mean and SD value for random blood sugar level of male (114.82±46.86) and female (108.35±44.14).

Table 2: Physiological Variables of TB patients in Settled Males and Females.

Variables	Mean±SD		
	Males	Females	t Value
SBP (mm/Hg)	114.68±17.57	114.09±16.06	0.336
DBP (mm/Hg)	77.37±11.72	77.57±12.44	-0.121
Pulse Rate/min.	101.46±17.74	88.57±38.14	3.318*
Random blood sugar level	114.82±46.86	108.35±44.14	1.098

*p<0.05

Table 3. presents physiological variables which includes systolic and diastolic blood pressure and random blood sugar level in migrated males and females. The mean value of systolic blood pressure for male is (117.11±11.66) and for female(115.43±13.23). Not major difference observed in both systolic blood pressure in male and female. Mean and SD value of diastolic blood pressure for male i.e. (75.79±9.36) and for female (76.47±9.68) . mean value for pulse rate for male (98.88±16.6) and female (102.7±14.03). mean and SD value for random blood sugar level of male (110.37±33.83) and female (103.61±31.31).The mean value of systolic and diastolic pressure is almost similar in both sexes. The mean pulse rate mean is higher in males (101.46±17.74) than females (88.57± 38.14). In males characterized mean value is higher of random Blood sugar level (114.82± 46.86) than female (108.35±44.14).

Table 3.Physiological Variables of TB Patients in Migrated Males and Females.

Variables	Mean±SD		
	Males	Females	t Value
SBP (mm/Hg)	117.11±11.66	115.43±13.23	0.909
DBP (mm/Hg)	75.79±9.36	76.47±9.68	-0.485
Pulse Rate/min.	98.88±16.6	102.7±14.03	-1.496
RBSL Random Blood Sugar Level	110.37±33.83	103.61±31.31	1.148

Systolic blood pressure, Diastolic blood pressure, random blood sugar level.

Table 4. Presents percentage for BCG vaccine taken or not and if the BCG marks are present and absent shown. In this table it was observed that female has taken BCG vaccine is higher 77.6% and 70.5% in settled and migrated respectively. BCG vaccine is taken or not. BCG status if BCG vaccine is taken then its scars are present or absent.

Table 4:Percentage Frequency Distribution for BCG Vaccine, BCG Statusamong the Settled and Migrated.

Table 4:Percentage Frequency Distribution for BCG Vaccine, BCG Status Settled and Migrated.

Variables	Settled (N=369)				Migrated (N=200)			
	Male (N =222)		Female (N=147)		Male (N =122)		Female (N=78)	
	N	%	N	%	N	%	N	%
BCG Vaccine								
Yes	168	75.7	114	77.6	73	59.8	55	70.5
NO	54	24.3	33	22.4	49	40.2	23	29.5
BCG status								
Present	157	70.7	100	68.0	69	56.6	51	65.4
Absent	65	29.3	47	32.0	53	43.4	27	34.6

low level of awareness about oral health and the poor periodontal status can be attributed to the fact that rural populations continue to experience marked disparities in health and health care access. Oral health and disease essentially a multifactorial process, hence, it might be difficult to arrive at a conclusion whether the pregnancy alone causes the deterioration in oral health.

Conclusion

Periodontal health status among women depends on numerous factors. Education and socioeconomic condition have an important role, especially in developing countries. Pregnancy worsens the existing poor oral hygiene among women, and then it triggers a vicious cycle which can lead to serious complications during pregnancy. Routine dental check up should be the integral part of Ante natal visits and women should be counseled and motivated for maintaining good oro-dental hygiene. Elective and cosmetic procedure can be postponed till delivery and emergency cases should be dealt with utmost care in consultation with an obstetrician.

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