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CLINICO-EPIDEMIOLOGICAL PROFILE OF EXTRA-PULMONARY TUBERCULOSIS PATIENTS ATTENDING TERTIARY CARE CENTER, BHOPAL

Khushali Solanki — Post graduate Resident, Department of Community Medicine, Gandhi Medical College Bhopal.

Manju Toppo* — Professor, Department of Community Medicine, Gandhi Medical College Bhopal. *Corresponding Author

ABSTRACT When Mycobacterium tuberculosis infects organs or tissues outside of the lungs, it results in various illnesses known as extrapulmonary tuberculosis (EPTB). Every system of the body's organs is impacted by the multiple types of EPTB. –1 The study aimed to characterize EPTB patients with different anatomical site involvement and study their clinic-epidemiological profile and their associated risk factors. **Methods-** It was a cross-sectional study done among 312 patients diagnosed with EPTB at the OPD & DOTS center of a tertiary Care Center in Bhopal during the study period of three months. Their information such as contact number and address was collected from the Nikshay portal and they were contacted and interviewed with a pre-designed pre-tested questionnaire in Google Forms. **Results-** Of 312 EPTB patients diagnosed, 186 (60%) were female. Among different age groups studied the age group of 21-30 years had the highest proportion. The EPTB sites commonly affected were Lymph node (27.2%) followed by pleural TB (25.6%). **Conclusion-** Many sites of EPTB were found amongst which the most common site was gastrointestinal followed by pleural TB. %52.2% of the patients had an attached kitchen, 40% did not have cross ventilation in their home, and HIV was nonreactive in 83.97% of the patients.

KEYWORDS : Extrapulmonary tuberculosis, gastrointestinal tuberculosis, lymph node, Nikshay Portal, Genitourinary TB

INTRODUCTION

Although pulmonary tuberculosis diagnosis has advanced significantly, managing and diagnosing Extra pulmonary tuberculosis (EPTB) still presents substantial challenges. [2]Due to its ability to affect practically any bodily system and the uncertainty surrounding its therapeutic management, EPTB is an imminent threat in the fight against tuberculosis. The clinical presentation of EPTB can be vague or resemble any other illness. Thus, the diagnosis and treatment of EPTB continue to be a difficulty and a major roadblock in the fight to eradicate tuberculosis. [3]

According to "India TB Report 2022", 2021 witnessed a 19% increase from the previous year in TB patients' notification—the total number of incident TB patients (new and relapse) notified during 2021 was 19,33,381 as opposed to that of 16,28,161 in 2020.28% of all the notified cases of TB in 2022, have EPTB. [4]

It was found that the percentage of patients with EPTB was more in tertiary care centres in India, ranging from 30% to 53%[5]. This implies that tertiary care centers such as medical colleges, cater to a large and varied type of population and provide an excellent place for economical and advanced diagnostic facilities for early diagnosis and treatment of EPTB cases, backed up by research facilities.

This is much needed, as HIV-TB co-infection, multi-drug-resistant TB, diabetes, etc. have made EPTB a major public health threat even in this era of optimally effective TB treatment.[5] Low level of awareness among clinicians, the difficulty in obtaining samples for diagnosis, and the lack of the right tools make the diagnosis of EPTB a challenge.

Therefore, we carried out the current study at a Tertiary Care Center in Bhopal, Madhya Pradesh, India. Its primary objective was to characterize the fundamental demographic, clinical traits, and risk factors of EPTB patients who were enrolled in TB treatment at the DOTS center, which is linked to a Tertiary Care Center in Bhopal, MP, India.

MATERIAL AND METHOD

Objective- To characterize EPTB patients with different anatomical site involvement and study their clinico-epidemiological profile.

Study Design- Cross-sectional study.

Settings And Sample

Study area- The study was conducted in a Tertiary Care Center of bhopal district, MP.

Study Period- The study was conducted from September 2022 to December 2022.

Study Population- Includes all patients attending the selected Tertiary Care Center who were diagnosed with extra pulmonary tuberculosis infection during the study period.

For this study, data has been obtained from the Nikshay Notification register[6] of TBH and DOTS center with permission of DTO Bhopal to get information regarding EPTB patients registered in the year 2022. A total of 312 patients agreed to participate in the study.

All patients diagnosed with EPTB attending OPD of selected Tertiary Care Center of Bhopal, and Pulmonary TB with extrapulmonary involvement were included in the study while Patients diagnosed with PTB only were excluded.

Study Tool- The patients were interviewed using a predesigned pre-tested questionnaire.

After taking Institutional ethical clearance and getting the address and contact number of the patient from the Nikshay register, they were contacted and interviewed at their home. After reaching home the patient data was gathered in Google form.

Statistical Analysis- The filled questionnaire was checked for completeness and findings were coded for analysis. Data was entered in Microsoft Excel and expressed in frequency, percentages, mean, and standard deviation.

RESULTS

Among the 312 participants, 186 (60%) were female and 126 (40%) were male. The majority of the patients belonged to 21-30 years followed by less than 18 years(22.8%). Most commonly seen among students (27.6%), the majority belonged to an urban area (71.7%), had a nuclear type of family(71.1%), with lower middle socioeconomic status[7](35.8%). The majority of them belonged to the non-slum

area(76.7%), Kitchen was attached in 52.2%, cross ventilation was seen in 60% and lighting was adequate in 67.3% of the patient's homes.

Table 1: Socio-demographic Profile Of The Study Participants (n=312)

Age group (Mean± SD=30.02± 16.76 years)	Frequency	Percent
< 18 years	71	22.8
18-20 years	29	9.2
21-30 years	100	32.1
31-40 years	38	12.2
41-50 years	35	11.2
51-60 years	19	6.1
>60 years	20	6.4
Occupation		
Doctor	2	0.6
Elementary	65	20.8
Farmer	18	5.8
Private job	54	17.3
Small business	47	15.1
Student	86	27.6
Unemployed	40	12.8
Total	312	100.0
Residence		
Rural	88	28.2
Urban	224	71.7
Type of family		
Nuclear	222	71.1
Joint	90	28.8
Socio economic status		
Lower	101	32.3
lower middle	112	35.8
Middle	40	12.8
Upper Middle	33	10.5
Upper	26	8.3
Total	312	100.0
Locality		
Slum	73	23.3
Non-Slum	238	76.7
Kitchen		
Separate	149	47.7
Attached	163	52.2
Cross Ventilation		
Present	187	60
Absent	125	40
Lighting		
Adequate	210	67.3
Inadequate	102	32.6

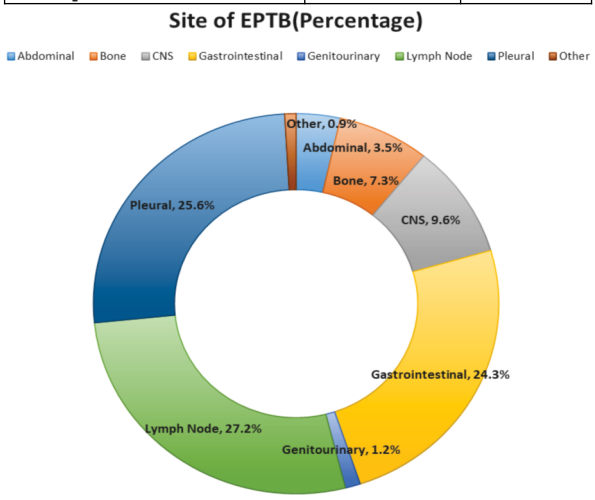

Figure 1: Site of Extrapulmonary TB

The most common site of involvement among the study participants was the Lymph node (27.2%) followed by Pleural TB (25.6%), Gastrointestinal (24.3%), CNS (9.6%), Bone (7.3%), Abdominal (3.5%) and another site such as breast, ocular, abscess, Skin, etc.

Table 2: Associated Risk Factors In EPTB Cases

EPTB	Diabetes	Hypertension	HIV
<18 years (71)	64 (90.1%)	4 (5.6%)	1 (1.4%)
18-20 years (29)	0		1 (3.4%)
21-30 years (100)	1 (1%)	4 (4%)	3 (3%)
31-40 years (38)	4 (10.5%)	3 (7.8%)	0
41-50 years (35)	1 (2.8%)	1 (2.8%)	4 (11.4%)
51-60 years (19)	2 (10.5%)	1(5.2%)	0
> 60 years (20)	4 (20%)	7 (35%)	1 (5%)
Total	76	20	10

Out of the total 313 patients, 76 patients had diabetes, 20 had hypertension and 10 patients were reactive to HIV infection. The majority of the patients were in the age group less than 18 years who had diabetes, more than 60 years had hypertension (7) and 4 had HIV in the age group 41-50 years.

Table 3- Clinico-epidemiological Trends- Age, Sex, And Site-specific Distribution Of EPTB

Site of EPTB	Age group													
	< 18 yrs		18-20 yrs		21-30 yrs		31-40 yrs		41-50 yrs		51-60 yrs		>60 yrs	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Abdominal	0	0	0	4 (20%)	1 (3.3%)	2 (2.9%)	1 (5.5%)	1 (5%)	1 (5.2%)	0	0	0	1 (11.1%)	0
Bone	1 (4%)	1 (2.1%)	1 (11.1%)	1 (5%)	1 (3.3%)	8 (11.7%)	19 (5.5%)	3 (15%)	2 (10.5%)	0	1 (7.1%)	1 (25%)	0	2 (18.1%)
CNS	3 (12%)	9 (19.5%)	1 (11.1%)	3 (15%)	2 (6.6%)	4 (5.8%)	1 (5.5%)	2 (10%)	2 (10.5%)	2 (14.2%)	0	0	1 (11.1%)	0
Gastrointestinal	7 (28%)	11 (23.9%)	2 (22.2%)	6 (30%)	7 (23.3%)	18 (26.4%)	5 (27.7%)	4 (20%)	4 (21%)	4 (28.5%)	3 (21.4%)	3 (75%)	0	2 (18.1%)
Genitourinary	0	0	0	0	0	1 (1.4%)	0	0	0	2 (14.2%)	1 (7.1%)	0	0	0
Lymph Node	8 (32%)	15 (32.6%)	4 (44.4%)	4 (20%)	9 (28.1%)	17 (25%)	7 (38.8%)	6 (30%)	3 (15.7%)	6 (37.5%)	1 (7.1%)	1 (20%)	2 (22.2%)	2 (18.1%)
Pleural	6 (24%)	10 (21.7%)	1 (11.1%)	2 (10%)	11 (34.3%)	17 (25%)	3 (16.6%)	39 (15%)	7 (36.8%)	2 (14.2%)	8 (57.1%)	0	5 (55.5%)	5 (45.4%)
Others	0	0	0	0	1 (3.3%)	1 (1.4%)	0	1 (5%)	0	0	0	0	0	0
Total	25	46	9	20	32	68	18	20	19	16	14	5	9	11

It was found in the study that Pleural TB was most common in the age group 21-30 years and more than 60 years while in the age group less than 18 years lymph node TB was most common.

DISCUSSION

In the present study, out of 312 participants, the mean age of study participants was 30.02± 16.76 years.186 (60%) were female and 126 (40%) were male. The most common site of involvement among the study participants was the Lymph node (27.2%) followed by pleural TB (25.6%), Gastrointestinal (24.3%), CNS (9.6%), Bone (7.3%), Abdominal(3.5%) and another site such as breast, ocular, abscess, Skin, etc.

Wanli Kang et al[8] in their study found that the most common EPTB lesion was tuberculous pleurisy (49.8%), followed by bronchial TB (14.8%) and tuberculous meningitis (7.6%). Sally-Ann Ohene [9]conducted a study in which they found that the EPTB sites commonly affected were disseminated at 32.8%, pleura at 21%, spine at 13%, and Central Nervous System (CNS) at 11%.

A study conducted by Shrivastava AK[5] found that the commonest type of EPTB was in cases of lymph nodes and lymphatic (30.76%), followed by TB in the pleural cavity (23.03%).

This is a one-of-a-kind study as recently there have not been many studies done on the epidemiological profile of EPTB patients in India. Also, Clinico-epidemiological trends- Age, Sex, and Site-specific distribution of EPTB have been explained in this study.

Since it was a cross-sectional study only the relationship of socio-demographic variables with EPTB was shown, the causal relationship could not be shown. The study was done among the patients of one Tertiary Care Center in Bhopal district thus extrapolating the findings to other participants could be challenging.

CONCLUSION

This study covered the current trends in EPTB epidemiology as well as the understanding of the relative contributions of host-related factors to the pathogenesis of the disease. In this study, there was a higher prevalence of EPTB, with the lymph node showing the highest proportion. Furthermore, female patients had a higher rate of EPTB positivity than male patients. The patient's age range of 21 to 30 years was a major risk factor for EPTB positivity.

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Conflict Of Interest: None

Ethical Approval: The study was approved by the Institutional Ethical Committee.

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