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The Spectrum of Extra pulmonary Tuberculosis: A Microbiological, Clinical and Epidemiological Retrospective Review in Chitradurga Region

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ABSTRACT

Out of 6.2 million cases of the Tuberculosis in the world notified to the WHO in 2011, 5.8million were new cases and of the latter, 0.8million cases had Extra-pulmonary Tuberculosis. Thus Extra-pulmonary Tuberculosis (EPTB) is defined as the isolated occurrence of TB in any part of the body other than the lungs. The objective of our study was to approach the microbiological, clinical and epidemiological spectrum of the people having the EPTB in Chitradurga district. A retrospective study was carried out by collecting the data of the period of one year (Jan-Dec 2012) in the Chitradurga region by obtaining permission from Institutional Human Ethical committee. The results of the present study revealed that among 179 patients, the male patients were 96and female patients were 83, also the EPTB was found to more in the age group of 21-40years, even it was detected that the microbial culture of sputum shown the negative result in 178 patients of EPTB. Also the most commonly found EPTB was Pleural Effusion. The treatment regimen included for 173 patients were Category-1 treatment of Revised National Tuberculosis Control Programme (RNTCP) and 6 patientsCategory-2 treatment were given. Our study concluded that the EPTB was found more in 21-40years of patients and the most common affected part was Pleural Effusion in 66populations. With this we conclude that, this study required more patient education towards improvement in their health status and also in eradicating the EPTB.

Keywords: Extra Pulmonary Tuberculosis (EPTB), RNTCP, spectrum, pleural effusion

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INTRODUCTION

Tuberculosis is an ancient disease with protean manifestations[1]. Mycobacterium tuberculosis has existed in human populations since ancient times; however it was in the seventeenth century that pathological and anatomical descriptions of tuberculosis (TB) disease began to appear[2-3]. Tuberculosis (TB) is an ancient killer disease that can heavily affect both non-HIV and HIV-related individuals[4]. When the World Health Organization (WHO) declared TB a global health emergency in 1992, it was prevalent in almost all countries of the world. Despite the accelerated efforts to control the disease for decades, it remains the seventh leading cause of death globally. WHO estimated a total of 9.27million new cases worldwide in 2007 with 13.7 million prevalent cases and 1.3million deaths with >90% in developing countries[2]. But in 2011, 6.2 million cases of TB in the world notified to the WHO in that 5.8 million were new cases and of the latter, 0.8 million (15%) cases had EPTB[5]. While pulmonary tuberculosis is the most common presentation, extra-pulmonary tuberculosis (EPTB) is also an important clinical problem[6-7].

The term EPTB has been used to describe isolated occurrence of tuberculosis at body sites other than the lungs. However, when an extra-pulmonary focus is evident in a patient with pulmonary tuberculosis, such patients have been categorized under pulmonary tuberculosis as per the guidelines of the WHO[8].Mycobacteria may spread to any organ of the body through lymphatic or haematogenous dissemination and lie dormant for years at a particular site before causing disease[2].Extrapulmonary tuberculosis has a broad spectrum of clinical manifestations that may be referable to almost any organ system and should be considered in the differential diagnosis of bone, joint, genitourinary tract and central nervous system (CNS) disease[4-9].

Among the various extra- pulmonary sites, tuberculoses lymphadenitis is the most common form that occurs in younger age group less than 15 years. At the extremes of age, miliary and meningeal tuberculosis are more common. Even, it is difficult to isolate Mycobacterium tuberculosis due the small number of organisms present at these sites[10]. The proportion of EPTB among all TB cases varies from country to country.

The extrapulmonary manifestation of TB is prevalent in 10-34% of non-HIV cases while it occurs in 50-70% of patients co-infected with HIV[2]. The emergence of extrapulmonary disease as an important form of active tuberculosis has been noted in many studies[11-12]. The purpose of our study was to assess the epidemiological status, clinical conditions and the presence of the microbes in the sputum in the patients diagnosed with Extrapulmonary Tuberculosis.

MATERIALS AND METHOD

The retrospective study was conducted by obtaining prior permission from the Institutional Human Ethical Committee and the District RNTCP center, Govt district hospital, Chitradurga. The data of one year was collected from Jan-Dec 2012.

Inclusion Criteria:

Extra-pulmonary Tuberculosis The patients on RNTCP-DOTS therapy.

Exclusion Criteria

Tuberculosis in pregnancy and lactation

Source of data

Data collected from the medical record maintained in the RNTCP center.

Study procedure

To identify the EPTB patients and collected their demographic details, medical and medication history and was documented in a suitably designed case record form. The data was analyzed descriptively and reported.

Statistical method

Chi square test was considered for study analysis, P-value < 0.05 was considered statistically significant.

RESULTS AND DISCUSSION

A total number of 179 cases diagnosed as Extra Pulmonary Tuberculosis (EPTB) were collected, in which 83 were female and 96 were male. On calculating the standard deviation, 16.75 for female and 18.42 for male distribution in the study cases, it shows p-value as 0.916. A dual study done by Jay B. resulted that there were 454 extrapulmonary TB cases between 1977 and 1981, 356 cases between 1982 and 1986. In both the studies the proportion of extrapulmonary TB remained unchanged (11.3%), although in 1986, it rises to 15.7%. In comparison to national figures the difference is quite small.

The results were non-significant and are depicted in Table 1. In the study we found that more number of tuberculosis cases reported among the age group of 21-40yrs (46 females and 38 males). Below 20yrs, 40 patients are diagnosed with EPTB (13 female and 27 male). Later in 41-60 yrs and above 60 yrs 35 (17 female and 18 male) and 20 (7 female and 13 male) patients were diagnosed. The results were non-significant and are depicted in Table 2. Based on RNTCP treatment regimen, category-1 drugs are more commonly prescribed. Out of 179 patients, 39 patients are < 20 yrs of age and are treated with category-1 drugs and 1 patient with category-2

drugs. Among 84 patients with age group 21-40yrs, 82 were treated with category-1 drugs and 2 with category-2 drugs.In 41-60yrs and above 60yrs age group, 52 with category-1 drugs and 3 with category-2 drugs respectively. In a study conducted by RB Rock[11]revealed that among 407 patients for a period of 10 years, 239 had EPTB. 179 patients are tested for HIV test in which 2 are resulted positive. In the present study we have 179 patients with EPTB in which only one patient showed a positive result in sputum culture test. HIV test has not done and results are not reported.

The results were non-significant and are depicted in Table 3. The results demonstrated 83 female patients 80 were treated with category-1 and 3 with category-2 drugs. In 96 male patients 93 with category-1 and 3 with category-2 therapy were treated and it shows male dominancy. In a retrospective study by Nissapatorn V[4] had given importance on the treatment adherence in 195 cases and females are more in number. The results were non-significant and are depicted in Table 4. With the study we found that the different parts affected in patients based on age groups selected, showed that below 20 yrs subjects are more prevalent on lymph node (15) followed by pleural effusion (12), abdominal TB (10) and others (3) which includes bone and joints TB, genital TB, skin TB, meningitis TB and miliary TB.

Table 1: Distribution of age according to sex in the study subjects

Sex	Number	P-value
Female	83	**0.916**^{NS}
Male	96	

Significance *P <0.05, **P <0.01 and *** P<0.001; NS: Non-Significant

Table 2: Distribution according to age and sex in the study subjects

Age Group	Female	Male	Total	P-value
< 20	13	27	40	**0.087**^{NS}
21-40	46	38	84	
41-60	17	18	35	
>61	07	13	20	
Total	83	96	179	

Significance *P <0.05, **P <0.01 and *** P<0.001; NS: Non-Significant

In age group 21-40yrs it is affected more with pleural effusion (31) followed by lymph nodes (23), abdominal TB (21) and others (9). The age group of 41-60yrs and above has affected more with pleural effusion (13 and 10). In a study by SubashChandir[2], A total of 194 patients treated for EPTB were identified. Mean age of patients was 34 ± 16.4 years, and 75% of patients were female. Lymph node and spine were the most common sites involved (60%).The results were non-significant and are depicted in Table 5. When we compare the patients with their treatment

regimen and the part affected with the disease we can conclude that patients taking category-1 drugs are 173, they are more affected with pleural effusion. Patients with category-2 therapy were6; they are more prevalent to lymph nodes. The results are depicted in Table 6.

Table 3: Distribution according to Age and Category in the study subjects

Age Group	Cat 1	Cat 2	Total	P-value
< 20	39	1	40	**0.378^{NS}**
21-40	82	2	84	
41-60	34	1	35	
>61	18	2	20	
Total	173	6	179	

Significance *P <0.05, **P <0.01 and *** P<0.001; NS: Non-Significant

Table 4: Distribution according to Sex and category in the study subjects

Age Group	Cat 1	Cat 2	Total	P-value
Female	80	3	**83**	**0.856^{NS}**
Male	93	3	**96**	
Total	173	6	**179**	

Significance *P <0.05, **P <0.01 and *** P<0.001; NS: Non-Significant

Table 5: Distribution according to age & parts affected in the study subjects

Age Group	Abdominal TB	Lymph Node	Pleural Effusion	Others	Total	P-value
< 20	10	15	12	3	40	**0.468^{NS}**
21-40	21	23	31	9	84	
41-60	12	5	13	5	35	
>61	4	3	10	3	20	
Total	47	46	66	20	179	

Significance *P <0.05, **P <0.01 and *** P<0.001; NS: Non-Significant

Table 6: Distribution according to category of drugs & parts affected in the study subjects

Category	Abdominal TB	Lymph Node	Pleural Effusion	Others	Total	P-value
I	45	42	66	20	173	**0.067^{NS}**
II	2	4	0	0	6	
Total	47	46	66	20	179	

Significance *P <0.05, **P <0.01 and *** P<0.001; NS: Non-Significant

CONCLUSION

The EPTB is increasingly creating its effective environment vast than the TB. It has become a major clinical problem presently in India which is creating the platform of death because of the unavailability of the suitable anti-tubercular therapy. So it became a need for the society and the professionals to concentrate on the disease for well-being. A fore through research is needed for evolving a suitable therapy for the treatment of tuberculosis.

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