



Original Research Article

Spectrum of Tuberculosis Cases Diagnosed At a Tertiary Health Care Centre in Jalgaon District, Maharashtra, India

Bendale N.P.^{1*}, Rathi H.B.^{2*}, Chaudhari A.M.^{3**}

¹Assistant Professor, ²Professor & Head, ³Medical Officer,
*Department of Community Medicine, **RNTCP,
Dr. Ulhas Patil Medical College, Jalgaon, Maharashtra.

Corresponding Author: Bendale N.P

Received: 08/07/2015

Revised: 24/07/2015

Accepted: 29/07/2015

ABSTRACT

Introduction: Pulmonary and extra-pulmonary Tuberculosis still remains a major public health problem. This study was undertaken to see the spectrum of tuberculosis cases diagnosed at Dr. Ulhas Patil Medical College Hospital, Jalgaon.

Objectives:

1. Calculate the sputum positive rate in study population
2. Calculate Percentages of various extra pulmonary tuberculosis cases.

Methodology: Retrospective record based study was carried out. All the cases diagnosed of tuberculosis from January 2011 to December 2015 (4 years) at Dr. Ulhas Patil Medical College Hospital, Jalgaon Maharashtra were included in this study.

Results: The sputum positivity rate was 8.53% among suspected cases of TB. Among the diagnosed cases of TB, 36.45% were sputum positive pulmonary TB, 13% were sputum smear negative pulmonary TB and 50.47% were suffering from extra-pulmonary TB. Most common site of extra-pulmonary involvement was pleura in 37.5% followed by Lymph nodes in 16.2%, abdominal in 15.7%, Central Nervous System In 14.3%, bone and joints in 12.7% and pericardial in 1.4%.

Keywords: Sputum Positivity Rate, Extra-pulmonary TB, Sputum Negative Pulmonary TB

INTRODUCTION

Tuberculosis (TB) is a major killer disease all over the world due to a single infectious agent. It is a major public health problem in India and other developing countries. In 2013, 9 million people suffered from TB and 1.5 million died due to TB world-wide. Over 95% of TB deaths occur in low- and middle-income countries. [1] Revised national tuberculosis programme has brought down the incidence and

prevalence of tuberculosis in India. The TB death rate dropped 45% between 1990 and 2013. [1] Every year around two million people develop TB in India and 300,000 die of TB. [2] The decrease in TB incidence has been slow, mortality remains high and due to the emergence of drug-resistant mycobacteria, TB still remains major public health problem.

Tuberculosis commonly infects lungs. It is detected by Sputum smear

microscopy for acid fast bacillus. Also, TB may infect any part of the body resulting in disease known as Extra-pulmonary tuberculosis. In many cases it is difficult to diagnose. These cases cannot be diagnosed by routine sputum microscopy and X-ray. It requires various procedures such as fine needle aspiration cytology to Magnetic resonance imaging. So, extra-pulmonary tuberculosis usually is not diagnosed at primary level of health care. Extra-pulmonary tuberculosis accounts for a quarter of the world's annual incidence of TB. Sparse literature is available regarding the proportion of extra pulmonary tuberculosis affecting various organs.

This study was done to study the spectrum of tuberculosis cases diagnosed at Dr. Ulhas Patil Medical College Hospital, Jalgaon, Maharashtra to get an idea of various forms of tuberculosis in this area.

Objectives:

1. Study of demographic characteristics of study population
2. Calculate the sputum positivity rate in study population
3. Calculate Percentages of various extra pulmonary tuberculosis cases.

MATERIALS AND METHODS

Retrospective record based study was carried out. All the cases diagnosed of tuberculosis from January 2011 to December 2015 (4 years) at Dr. Ulhas Patil Medical College Hospital, Jalgaon Maharashtra were included in this study. Prior permission from concerned authorities was taken before proceeding to the actual study.

The sputum samples from 1829 tuberculosis suspects were examined for acid fast bacillus at the designated microscopy centre located in the hospital. Diagnoses of extra-pulmonary tuberculosis and sputum negative pulmonary tuberculosis were made by specialists in the respective

field with the help of appropriate investigations like fine needle aspiration cytology, magnetic resonance imaging, X-ray etc.

Data of demographic characteristics like age, sex, place of residence; sputum microscopy results, site of extra-pulmonary involvement were collected. Data entry was done in Microsoft Excel. It was randomly checked for accuracy.

Data analysis was carried out by calculating percentages of sputum positive cases, sputum negative pulmonary cases and various types of extra-pulmonary tuberculosis cases.

RESULTS

Table 1: Age wise distribution of TB cases

AGE GROUPS	Frequency	Percent	Cumulative Percent
0-15 YEARS	46	10.7	10.7
16-30 YEARS	126	29.4	40.2
31-45 YEARS	119	27.8	68.0
46-60 YEARS	80	18.7	86.7
>60 YEARS	57	13.3	100.00
Total	428	100.00	

During the study period of 4 years, total diagnosed TB patients were 428, out of which 269 (62.9%) were male and 159 (37.1 %) were female. Sixty-six percent were residing in rural areas while 34 % were living in urban areas.

Table 2: Distribution of TB cases according to type of organ involvement

	Frequency	Percentage
Sputum smear positive Pulmonary	156	36.45
Sputum Smear Negative Pulmonary	56	13.08
Extra-pulmonary	216	50.47
Total	428	100

One patient was found to be sputum positive along with tuberculosis of spine.

Out of 1829 suspects, 156 were diagnosed as having sputum positive tuberculosis (8.53%). Fifty-six cases (13.08%) were diagnosed as sputum negative pulmonary tuberculosis.

Table 3: Distribution of extra-pulmonary tuberculosis cases

Site	Frequency	Percentage
Pleura	81	37.5
Lymph node	35	16.2
Bone and Joints	26	12.1
Abdominal	34	15.7
Central nervous system	31	14.3
Others	9	4.2
Total	216	100

The others category included 3 cases (1.4%) of pericardial effusion, 1 case of TB breast, 1 miliary TB.

DISCUSSION

Under RNTCP, in the year 2013, sputum positive rate among the TB suspects was 11.43%. (TBC India 2014) sputum positive rate among TB suspects was 8.56% (1643/19206) in Jalgaon district. The data reported from Jalgaon Municipal Corporation under RNTCP showed sputum positive rate of 13.55% among TB suspects. [3] In present study we found sputum positivity rate of 8.53%. [1]

Under RNTCP, in the year 2013, new sputum positive, new sputum negative pulmonary and new extra-pulmonary tuberculosis cases were 54.55%, 25.58% and 19.86 % respectively. [3] In our study all sputum smear positive cases, sputum smear negative and extra-pulmonary TB cases were 36.45%, 13.08% and 50.47% respectively. As our study was carried out in a tertiary centre, such difference was observed. Extra pulmonary cases require sophisticated techniques for diagnosis. Such diagnostic facilities are available mostly in tertiary centers. So there are more chances of these patients getting diagnosed at tertiary level than primary level health care.

In a study of 1267 cases registered for treatment of all forms of tuberculosis at Mangalore 528 (41.67%) had extra-pulmonary TB and Pleural TB was the commonest type (28.03%), followed by lymph node TB (24.81%) [4]

A study conducted at a tertiary centre in Thailand reported extra-pulmonary TB in 46.9% and pulmonary TB in 53.1% cases. [5] Solovic and colleagues reported the percentage of EPTB cases among TB in the EU ranged from 4% to 48%. [6] During 2002 to 2011, 167,652 cases of EPTB were reported by the 30 Member States of European Union, EPTB accounted for 19.3% of all notified cases, ranging from 5.8% to 44.4% among Member States. [7]

Another study from Madagascar indicated that the incidence of extra-pulmonary tuberculosis was 7.7%. Most common extra-pulmonary TB was pleural tuberculosis (55,6%) and ganglia tuberculosis (34%). Peritoneal tuberculosis was much less frequent. [8]

One study from Israel reported 19.6% of extra-pulmonary TB of all TB cases. Most EPTB affected the lymph nodes (39.8%), pleura (16.9%) and urinary system (11.1%). [9] Another study from Bangladesh showed that lymph nodes are the most common site of involvement (50%) followed by tubercular pleural effusion (15%) and virtually every site of the body can be affected by tuberculosis. [10]

It was found from a Thailand based study that common sites of extra-pulmonary involvement were the lymph nodes (29.7%), followed by the pleura (27.4%), the bones and spine (25.1%), the meninges and brain (4.5%), the pericardium (3.5%) and the gastrointestinal tract (3.0%). Disseminated TB occurred in only 8 cases (2.0%). [5]

Another study states that proportion of Extra Pulmonary TB had increased minimally from 30% in 2010 to 32% in 2011 in Saudi Arabia. [11]

CONCLUSIONS

The sputum positivity rate was 8.53% among suspected cases of TB. Among the diagnosed cases of TB, 36.45% were sputum positive pulmonary TB, 13%

were sputum smear negative pulmonary TB and 50.47% were suffering from extra-pulmonary TB. Most common site of extra-pulmonary involvement was pleura in 37.5% followed by Lymph nodes in 16.2%, abdominal in 15.7%, Central Nervous System In 14.3%, bone and joints in 12.7% and pericardial in 1.4%.

The proportion of extra-pulmonary cases diagnosed at tertiary centre was higher than general population.

Limitations: As this study was based at tertiary health care centre, findings cannot be generalized to the population.

REFERENCES

1. World Health Organisation Tuberculosis Fact Sheet No. 104 Reviewed on March 2015. Available at www.who.int/mediacentre/factsheets/fs104/en/#content
2. TB INDIA 2014 , Revised National TB Control Programme: ANNUAL STATUS REPORT Available at www.tbcindia.nic.in/pdfs/TB%20INDIA%202014.pdf p.9
3. TB INDIA 2014 , Revised National TB Control Programme: ANNUAL STATUS REPORT Available at www.tbcindia.nic.in/pdfs/TB%20INDIA%202014.pdf p.127
4. S Rama Prakasha, G Suresh, Ivor Peter D'sa, Shobha S Shetty, and S Ganesh Kumar, Mapping the Pattern and Trends of Extra-pulmonary Tuberculosis. *J Glob Infect Dis.* 2013 Apr-Jun; 5(2): 54-59.
5. Wiwatworapan T, Anantasetagoon T., Extra-pulmonary tuberculosis at a regional hospital in Thailand. *Southeast Asian Journal of Tropical Medicine and Public Health.* 2008 May; 39 (3):521-5.
6. Solovic I, et al. (2013) Challenges in diagnosing extra-pulmonary tuberculosis in the European Union 2011. *Eurosurveillance* 2013 Mar 21;18(12). pii: 20432.
7. Sandgren A, Hollo V, van der Werf MJ. Extra-pulmonary tuberculosis in the European Union and European Economic Area, 2002 to 2011. *Euro Surveillance.* 2013 Mar 21; 18(12). pii: 20431.
8. Menard D, et al. Extra-pulmonary tuberculosis in Antananarivo. Principal localizations and biological diagnosis. *Archives Institute Pasteur Madagascar.* 1995; 62(1):77-82.
9. Mor Z, Pinsker G, Cedar N, Lidji M, Grotto I. Epidemiology of extra-pulmonary tuberculosis in Israel. 1999-2010. *Int J Tuberc Lung Dis.* 2013 Feb;17(2):229-33. doi: 10.5588/ijtld.12.0375.
10. Quddus MA, Uddin MJ, Bhuiyan MM. Evaluation of extra pulmonary tuberculosis in Bangladeshi patients. *Mymensingh Med J.* 2014 Oct; 23 (4):758-63.
11. Memish ZA, Bamgboye EA, Abuljadayel N, Smadi H, Abouzeid MS, Al Hakeem RF Incidence of and risk factors associated with pulmonary and extra pulmonary tuberculosis in Saudi Arabia (2010-2011). *PLoS One.* 2014 May 13;9(5):e95654. doi: 10.1371/journal.pone.0095654. eCollection 2014.

How to cite this article: Bendale NP, Rathi HB, Chaudhari AM. Spectrum of tuberculosis cases diagnosed at a tertiary health care centre in Jalgaon district, Maharashtra, India. *Int J Health Sci Res.* 2015; 5(8):61-64.
