Original Article

Lower Lobe TB

Prevalence of Lower Lobe TB in Hospitalized Patients

Bacha Amin Khan[1], Abdul Ahad[1], Momin khan[1], Israr-ul-Haq[2] and Fazal Akbar[3]

ABSTRACT

Objective: To determine the prevalence of lower lobe tuberculosis in hospitalized patients.
Study Design: Observational study.
Place and Duration of Study: This study was conducted at the Medical Department of Saidu Hospital from 1st Nov 2015 to 1st Nov 2016.
Materials and Methods: Hundred patents with pulmonary tuberculosis were included. Pulmonary tuberculosis was classified as upper, lower, middle lobe and milliary tuberculosis on x-rays findings and other investigation.
Results: Results showed 60% upper lobe, 23% lower lobe, 11% middle lobe and 6% milliray tuberculosis, according to the formula: prevalence out of TB patients %= No of patients TB type×100÷ total No of TB patients.
Conclusion: we conclude that the lower lobe tuberculosis is quite common and should be considered in the differential diagnosis of lower lobe opacities.
Key Words: Upper Lobe, Lower Lobe, Tuberculosis, Prevalence.

Citation of article: Khan BA, Ahad A, khan M, Haq I, Akbar F. Prevalence of Lower Lobe TB in Hospitalized Patients. Med Forum 2017;28(2):83-85.

INTRODUCTION

Tuberculosis is a global health problem. In 2012, 8.6 million people developed TB and 1.3 million died from the disease including TB in HIV patients[1]. Our country is belonging to the 22 high burden countries in the world. It is also on the list of high MDR-TB burden countries[2], which is 4.3% in new cases and 19% in retreatment patients[3]. TB can involve any part of the body. The most common sites of involvement are the lungs, more often the upper lobes. However a high index of suspicion is needed to diagnose lower lobe tuberculosis because early diagnosis will decrease morbidity and mortality as well as psychological impact on patients[4]. Pulmonary tuberculosis is caused by mycobacterium tuberculosis, as well as atypical mycobacteria. It is an acid fast aerobic bacillus. The characteristic cell wall structure (mycolic acids) makes it resistant to many antibiotics[5]. The development of new diagnostics tests like MTB/RIF assay, line probe assay and DST by liquid medium have helped in the early diagnosis as well as identifying resistant strains[6]. Our concern is to diagnose lower lobe tuberculosis as early as possible, so that effective counseling andearly treatment can be initiated.

[1.] Department of Medicine / Peadiatrics[2]/ Gastroenterology[3], Saidu Group of Teaching Hospital Saidusharif, Swat

Correspondence: Dr. Bacha Amin Khan, Associate Professor of Medicine, Saidu Group of Teaching Hospital Saidu Sharif, Swat.
Contact No: 0301-8067612
Email: bacha66@hotmail.com

Received: December 22, 2016; Accepted: January 27, 2017

MATERIALS AND METHODS

This observational study was carried out in the department of Medicine Saidu Teaching hospital over a period of 1 year from 1st Nov 2015 to 1st Nov 2016. A total of 100 patients both males (60%) and females (40%) were included.The age was ranging from 12 year to 17 year. After clinical evaluation appropriate investigations were performed and data was recorded on a printed designed Proforma. Fever,cough and shortness of breath were the main presenting complaints. Hemoptysis was present in 20% patients. ESR was more than 60mm in first hour in 80% patients while less than 60mm in first hour in 20% patients.79% were sputum smear positive for AFB while 21% were sputum Smear negative. The X-rays and CT findings (in selected cases) were used to classify the lobe involvement.60% were having upper lobe involvement, 23% had lower lobe involvement, 11% have middle lobe involvement and 6% had milliary tuberculosis. Diabetes mellitus was a major risk factor.

RESULTS

(i) The Results are shown in the Tables 1, 2 and 3.
(ii) The statistical formulae 1, 2 and 3 were used to determine the prevalence.

Formula 1: Prevalence total patients admitted (%)= Pulmonary TB patients×100÷Total No of patients admitted.

Formula 2: Prevalence out of TB patients (%)=No of patients (TB types)×100÷Total No of TB patients.

Formula 3: Prevalence of type of TB=No of patients (TB type lower lobe) ×100÷Total No of TB patients.

Table No. 1: Symptoms with percentages

Sr.No.	symptoms	Percentages
1	Cough	100
2	Fever	100
3	Shortness of breath	90
4	Weight loss	60
5	Chest Pain	30
6	Hemoptysis	20
7	Night Sweats	15

Table No.2: Kinds of TB

Site	Upper lobe TB	Lower lobe TB	Middle lobe TB	Milliary TB
Right	30	11	11	6
Left	30	12		
Total	60	23	11	6

Table No.3: TB with percentage

A	B	C	D	E	F
Total	Pulmonary TB	Upper lobe TB	Lower lobe TB	Middle lobe TB	Milliary TB
17869	100	60	23	11	06
Prevalence total patients admitted (%)	0.56	0.34	0.13	0.06	0.03
Prevalence out of TB patients (%)		60.00	23.00	11.00	6.00

DISCUSSION

The purpose of this study was to know the prevalence of lower lobe tuberculosis in hospitalized patients suffering from pulmonary tuberculosis. The young doctors need training and awareness[7], as well as education of the public. This can be achieved if regular training workshops are arranged and different types of media are used for mass propaganda, keeping in view the WHO learning objectives[8]. Because of the high burden of the disease across the world and especially in Pakistan, it is important that all pulmonary shadows should be thoroughly investigated and high index of suspicion for tuberculosis should be in the mind of health care provider. Early diagnosis will prevent spread of the disease in the community. Patient education at the start of the treatment is essential to adhere to therapy which will minimize the risk of drug resistant TB[9,10,11]. The national TB program recommends sputum examination for any patient who has a cough of more than two weeks (Presumptive TB). Patients with advanced disease have different radiological manifestations on the X-rays, involving different parts of the lung[12]. One third of the world population is harboring the bacilli and are at risk of the disease[13].

For a poor country like Pakistan where health facilities are not up to the standard, a serological test can also be relied upon, which has a sensitivity of 73% and specificity of 98%[14]. Sputum smears are positive only when there is a large number of bacteria (>100000/ml)in the sputum[15]. Sputum cultures are 100% specific but takes long time on solid media and the bactec cultures are very expensive. This sometimes lead to the delay in diagnosis. Fortunately new techniques are coming like DNA probe and polymerase chain reaction[16]. Patients who have characteristic radiological features of TB but are smear negative, presents a challenge in the management[17].The incidence and prevalence of lower lobe tuberculosis is increasing maybe because of the early detection due to New diagnostic tools[18]. Since it was first reported by Reiner in 1935[19], the clinical features of lower lobe TB are similar to that of pneumonia, so misdiagnosis and delay in diagnosis can occur[20], which can have disastrous consequences[21]. Lower lobe TB is more common in the elderly and diabetics because of increased alveolar oxygen pressure in the lower lobes in these patients[22,23]. Although studies have shown variable reports about the incidence and prevalence i.e. from 6.4% to 18.49%[24,25]. In our study Diabetes was a major risk factor as in other studies[26,27]. while in our study the prevalence of lower lobe TB is 23%,which is more than the previous studies. one reason may be relatively small sample of patients, or may be because of improved diagnostic techniques.

CONCLUSION

We conclude that the lower lobe tuberculosis is quite common and should be considered in the differential diagnosis of lower lobe opacities.

Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

1. WHO/Global TB report 2014. http:/www. who.int/tb/publications/global-report/en.
2. http://www.Who.int/tb/publications/global-report/ en/
3. Global TB Report/Country profile-Pakistan.
4. Haider I, Raja SM, Chisti A, Iqbal R. Psychological status of patients with pulmonary tuberculosis and chronic chest diseases. PJMR 1990;29(1):246-56.
5. Cegielski JP, et al. The global tuberculosis situation: Progress and Problems in the 20th century, prospects for the 21st century. Infect Dis Clin. North Am 2002;16:1.
6. Chesnutt MS, Prendergast TJ. Pulmonary disorders. Current Medical diagnosis and treatment. McGrawhill; 2016.p.276-320.
7. Knowledge, Attitude and Practices regarding tuberculosis and DOTS among interns in Delhi, India. JCPSP 2007;17(8): 457-46.

8. World Health Organization. Treatment of Tuberculosis: Guidelines for national programmes, WHO/TB/97.220, 2nd ed. Geneva: The Organization; 1997
9. Gopi PG, Vasantha M, Muniyandi V, Chandrasekaran R, Balasubramanian, Narayanan PR. Risk Factors for non-adherence to directly observed treatment (DOT) in a rural Tuberculosis Unit, South India 2007. http://medind.nice.in/lb/t07/12/ibrt0712p66.pdf
10. Grange JM, Zumla A. The global emergency of tuberculosis: what is the cause? J Royal Society for the promotion of health 2002; 122 (2);78-81.
11. Iseman MD. MDR-TB and the developing world—a problem no longer to be ignored: The WHO announces 'DOTS Plus' strategy. Int J Tuberculosis Lung Dis 1998;2(11):867.
12. Centre for diseases control and prevention. Initial therapy for TB in the era of multi-drug resistance: recommendations of the advisory council for the elimination of tuberculosis. Morbid mortal wkly Rep 1993;42:1-7.
13. Brown P. A disease that is a live and kicking world health, TB a global emergency 46th year. 1993;4: 4-5
14. Mahmood A, Hannan A, Butt T. Serodiagnosis of tuberculosis using lipopolysacharride and 38kDa protein as antigens: An evaluation study. JCPSP 2000;10(2):47-49.
15. Grange JM. The mycobacteria. In:Topley and wilson's principles of Bacteriology, Virology and Immunology. Edward Arnold 1990; 2:74-95.
16. Sjorbring U, Meclienburg M, Anderson AB, Mionerh H. Polymerase Chain reaction for detection of M. Tuberculosis. J ClinMicrobiol 1990;28(10):2200-4.
17. LIX Zhang Y, Shen V. Transmission of drug resistant tuberculosis among treated patients in Shangai China. J Infect Dis 2007;195:864-9
18. Kobushi Y, Matshushima T. Clinical analysis of recent lower lung field tuberculosis. J Infect Chemotherapy 2003:9:272-275.
19. Reisner D. Pulmonary tuberculosis of the lower lobe. Arch Int Med 1935;56:258-80.
20. Mathur P, Sacks L, Auten G, Sall R, Levy C, Gordin F. Delayed diagnosis of pulmonary tuberculosis in city hospitals. Arch Int Med 1994; 154(3):306-10.
21. Kartz I, Rosenthal T, Michaeli D. Undiagnosed tuberculosis in hospitalized patients. Chest 1985;87(6):770-4.
22. Perez-Guzman C, Torres Cruz A, Villarreal-velurde H, Vargas MH. Progressive age related changes in pulmonary tuberculosis images and the effects of Diabetes. Am J Respir Crit Care Med 2000;162:1738-1740.
23. West JB. Respiratory Physiology: The essentials, 4th ed. Baltimore, Williams and Wilkims; 1990.
24. Vishwanathan R. Tuberculosis of the lower lobe. Brit Med J 1936;2:1300.
25. Ahmad Z, Zaheer MS: Lower lung field tuberculosis-A clinical study. JIACM 2003;4(2): 116-20.
26. Dooley KE, Charsson RE. Tuberculosis and Diabetes Mellitus: Convergence of two epidemics. Lancet Infect Dis 2009; 9(12):737-746.
27. Alkabab YM, Al-abdely HM, Heysell SC. Diabetes related tuberculosis in the middle East: an urgent need for regional research. Int J inf Dis 2015; 40:64-70