ORIGINAL ARTICLE

An Audit of Tuberculosis from Sir Ganga Ram Hospital, Lahore

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ABSTRACT

Objective: To evaluate the prevalence of tuberculosis and its types in patients admitted in Sir Ganga Ram Hospital, Lahore. And to make the patients aware of possible consequences of tuberculosis and protective measures that should be taken.

Materials and Methods: A consecutive case series was done among 150 diagnosed tuberculosis patients of age group 14 to 75 years admitted in different medical units of Sir Ganga Ram Hospital, Lahore during a period of three months (from September 2011 to November 2011). Data was collected by interviewing the patients using a self administered questionnaire and also by extracting their history files. Information sought included demographic data, signs and symptoms, and risk factors of TB.

Results: A total of 150 patients, majority 79% male participated in the study. About half of the patients were of age group 30-50 years. A large proportion of the patients 81% were illiterate and belong to the lower socioeconomic class. Almost 59% of cases had pulmonary TB, 27% had abdominal TB, 7% had vertebral tuberculosis and 7% had meningeal tuberculosis. Most of the patients 74% were taking anti TB medicine. About 57% of the cases had positive contact history. A vast number of patients 90% had anorexia, majority 91% patients had weight loss, and 80% of the patients experienced fatigue and flu like symptoms were observed in 7% of the patients. Fifty nine percent had high grade fever; in 84% of the patients fever was associated with chills and rigor and accompanied by night sweats in 71% of cases. The pulmonary symptoms of tuberculosis including cough was present in 64%, dyspnea in 53% of the patients, hemoptysis in 48% of cases, and pleuiritic chest pain in 40% of the patients.

Conclusion: Tuberculosis is a curable disease but its number is increasing day by day in Pakistan mainly because of illiteracy and poverty and lack of awareness about TB. No necessary steps are being taken to prevent the spread of TB. Even in most of the government hospitals there are no isolated wards available for TB patients. Awareness about the spread, symptomatology, treatment and consequences of TB particularly to the patient and to general population is recommended.

Keys words: Tuberculosis, Recurrent infection, Smoking, Illiteracy, Poverty

INTRODUCTION

Tuberculosis (TB) is a common, and in many cases lethal, pandemic infectious disease caused by various strains of mycobacteria, usually Mycobacterium tuberculosis.[1] TB is caused by a number of factors which includes malnutrition, overcrowding, poverty, increase in refugees carrying the disease and unhygienic habits. It can spread through air when people who have active MTB (mycobacterium tubercle bacillus), cough, sneeze or spit and transmit their saliva through the air. Most infections in humans result in an asymptomatic, latent infection. However 1 in 10 latent infection eventually progress to an active disease, which if left untreated can kill more than 50% of the victims. If not treated each person with active TB can infect on average 10 to 15 persons[2]. New infections occur at the rate of about 1% per second.[3]

Roughly one third of the world's population is suffering from tuberculosis.[2] TB is the second leading cause of death from an infectious disease worldwide after HIV. In 1993, the World Health Organization (WHO) declared TB as a global public health emergency, when an estimated 7–8 million cases and 1.3–1.6 million deaths occurred each year. In 2010, there were an estimated 8.5–9.2 million cases and 1.2–1.5 million deaths (including deaths from TB among HIV-positive people).[4]

WHO has divided the globe into a total of six regions according to the incidence of TB which states 30% incidence in Africa, 2.9% in America, Eastern Mediterranean, 4.5% in Europe, Western Pacific 21% and the highest incidence of around 35% in South-East Asia. In 2008 the estimated per capita TB incidence was stable or falling in all six WHO regions.[5]

According to earlier study conducted in 2007, Pakistan ranked 8th among 22 countries which were most affected by TB. While according to survey conducted in 2009-2010 Pakistan ranked

6th on the list of 22 high burden TB countries in the world[6]. TB kills around 48000 people each year. In 2007 approximately 297108 people in Pakistan (in productive years) developed TB. While in 2010, 0.413 million patients were registered out of which 0.3 million were suffering from pulmonary tuberculosis. The emergence of MDR (multi drug-resistant)-TB and HIV co-infection is of growing concern here, as TB is most commonly seen in immunosuppressed persons.

The general symptoms of TB are chronic cough with blood tinged sputum (hemoptysis), fever, night sweats and weight loss. Mainly TB attacks lungs but in 25% of active cases it can also infect other parts of the body causing other types of TB collectively denoted as extra-pulmonary TB.[7] Extra-pulmonary infection sites include pleura in tubercles pleurisy, the central nervous system in meningitis, lymphatic system in scrofula of the neck[8], the genital urinary system in urogenital tuberculosis and bones and joints in Pott's disease of the spine. When it spreads to the bones it is known as the osseous TB, a form of osteomyelitis. While a potentially more serious form is disseminated TB more commonly known as miliary disease.[8]

Our main objective of the survey was to find out the frequency of the TB patients in Sir Ganga Ram hospital and the types of TB in patients who were admitted. Besides this our other objective was to make the patients aware of the possible consequences of the disease and the protective measures that should be taken in order to avoid it.

MATERIAL AND METHOD

A consecutive case series was carried out among tuberculosis patients who were admitted in different units of Sir Ganga Ram Hospital during September 2011 to November 2011. A total of 150 diagnosed tuberculosis cases, both male and female, above the age 14 were selected conveniently, included in this survey. The patients suffering from signs and symptoms of tuberculosis and those who were taking medication against TB were approached with keen interest. Data was collected by interviewing the patients using a self administered questionnaire and also by extracting their history files. Information sought included demographic data, signs and symptoms, and risk factors of TB. Data entry and analysis was done in SPSS 17. Mean and standard deviation were calculated for quantitative variables while frequency and percentages were calculated for qualitative variables. Informed consent was obtained by the patients before interviewing them.

RESULTS

A total of 150 tuberculosis patients from Sir Ganga Ram Hospital participated in the study. Most of the patients 79% were male and 71% of the cases were aged above 30 years. Majority 81% of the cases, belonged to lower socioeconomic class based on their family income, followed by middle (19%) socioeconomic class. About 53% of cases were employed whereas 21% were unemployed, 11% were housewives and 7% were students. A large number of the patients (81%) were illiterate. About 67% of the cases were from male surgical ward. (Table 1)

Table 1: Demographic Characteristics of Tuberculosis Patients. (N=150)

	Number	Percentage
Gender		
Male	118	78.7
Female	32	21.3
Age Group		
<30 years	44	29.3
30-50 years	75	50.0
>50 years	31	20.7
Mean ± SD	39 ± 15	
Occupation		
Unemployed	44	29.33
Employed	79	52.67
Housewife	17	11.33
Student	10	6.67
Socioeconomic status		
Low class	121	80.7
Middle class	29	19.3
Educational status		
Illiterate	121	80.7
Literate	29	19.3
Ward		
Male surgical ward	16	10.7
Male medical ward	100	66.7
Female surgical ward	8	5.3
Female medical ward	26	17.3

Table 2: Frequency Distribution of Patients Regarding General Symptoms of Tuberculosis. (N=150)

Symptoms	Number	Percentage
Anorexia	135	90.0
Weight loss	137	91.3
Fever	136	90.7
High grade fever	88	58.7
Chills and rigor	126	84.0
Night sweats	107	71.3
Flu like symptoms	11	7.3
Fatigue	120	80.0

Table 3: Frequency Distribution of Patients Regarding Pulmonary Symptoms of Tuberculosis (N=150)

Symptoms	Number	Percentage
Cough	96	64.0
Hemoptysis	72	48.0
Pleuritic chest pain	60	40.0
Dyspnea	80	53.3

Table 4: General Physical Examination of T.B. Patients. (N=150)

Signs	Number	Percentage
Pallor	113	75.3
Palpable lymph nodes	29	19.3
Emaciated	53	35.3
Clubbing	38	25.3

A vast number of patients 90% had anorexia, majority 91% patients had weight loss, and 80% of the patients experienced fatigue and flu like symptoms were observed in 7% of the patients. Fifty nine percent had high grade fever; in 84% of the patients fever was associated with chills and rigor and accompanied by night sweats in 71% of cases. (Table 2)

The pulmonary symptoms of tuberculosis including cough was present in 64%, dyspnea in 53% of the patients, hemoptysis in 48% of cases, and pleuiritic chest pain in 40% of the patients. (Table 3)

The general physical examination of the patients showed that 75% of the TB cases had pallor, 35% of the patients showed signs of emaciation, 25% of the patients presented with signs of clubbing and 19% of the patients had palpable lymph nodes. (Table 4)

Table 5: Routine Investigation of T.B. Patients. (N=150)

	Mean	Median	SD	Quartiles (1^{st}, 2^{nd}, 3^{rd})
Hb	11.11	11	2.91	9.8, 11.0, 12.2
TLC	10.18	9.85	5.35	5.6, 9.85, 13.4
Lymphocytes count	31.77	25	22.40	15, 25, 45
ESR	75.02	80	43.48	35, 80, 112

Table 6: Pulmonary and Non Pulmonary Investigation of T.B. Patients. (N=150)

Investigation	Number	Percentage
Positive Sputum culture for AFB	77	51.3
Mauntox test done	4	2.7
Pleural tap done	12	8.0
Bronchoscopy done	7	4.7
Chest CT done	106	70.7
Biopsy taken	30	20.0
Asitic fluid aspirate taken	20	13.3

The mean hemoglobin level, TLC level, lymphocyte count and erythrocyte sedimentation rate (ESR) of TB patients were 11.11, 10.18, 31.77 and 75.02 respectively. (Table 5)

Investigations showed that in 57% patient's sputum culture was positive for AFB. Mauntox test was done in only 3% of the patients. Pleural tap and broncoscopy was performed in only 8% and 5% of the patients respectively. Chest CT scan showed lung abnormality in 71% patients. Biopsies were performed on 20% of the patients, which

showed granuloma. Fine needle aspirations were performed in 13% of the patients. (Table 6)

The diagnostic and treatment status of the patients revealed that 73% were new cases whereas 27% of the cases were old or recurrent cases of TB. Most of the patients 74% were on anti tuberculosis treatment (ATT). About 59% cases were of pulmonary TB, 27% of abdominal TB and 7% of vertebral and meningeal TB each. Also, 65% patients were smokers out of which 90% patients suffered from pulmonary TB. (Table 7)

Table 7: Diagnostic and Treatment Status of T.B. Patients. (N=150)

	Number	Percentage
Diagnostic status		
Old case	40	26.7
New case	110	73.3
Taking anti T.B. medicine		
Yes	111	74.0
No	39	26.0
System involved		
Vertebral T.B.	11	7.3
Abdominal T.B.	40	26.7
CNS, meningitis T.B.	11	7.3
Pulmonary T.B.	88	58.7
Positive contact history of TB		
Yes	85	56.6
No	65	43.3

DISCUSSION

Tuberculosis is the most common cause of death in adults due to single infectious Agent9. Tuberculosis was considered controlled in the last century after the discovery and widespread availability of potent anti-tuberculosis drugs. It was only during the last two decades of the twentieth century that the medical community started to realize that tuberculosis has staged a comeback with deadlier and drug resistant potency. Additionally, its association with AIDS and drug abuse opened newer frontiers. Difficulty in treating tuberculosis in other immune incompetent states like post organ transplant situations became another challenge. WHO declared tuberculosis as Global Emergency in 1993 and established a subsidiary organization by the name STOPTB 9-11. The goal of “The Stop TB Strategy” by WHO is to dramatically reduce the global burden of TB by 2015 in line with the Millennium Development Goals (MDGs) and the Stop TB Partnership targets.

In this survey, out of 150 patients majority 79% were males. Number of males that were infected exceeded the number of infected females by 29% in our study. While according to studies conducted previously TB is mainly regarded as the killer of women (mostly of reproductive ages). In a previous study 59% of infected women were reported.[12] There are several factors like larger burden from poverty, ill health, malnutrition etc that increases their mortality rate. As many as 900 million women are infected with TB globally. In our research less percentage of women are affected, which shows that they are not given due importance to women in our country and are not brought to the hospitals.

The most common type of tuberculosis observed in this study population was pulmonary TB, being 59%. Abdominal TB was found to be second about 27%. While remaining 7.3% include other types of TB. While three previous studies from Pakistan has reported the incidence of extra-pulmonary tuberculosis as 45%[12], 50%[13] and 33%[14] respectively. WHO reported as 17% of extra-pulmonary.[15] This discrepancy may be due to fact that WHO data is mostly collected from DOTS centers in Pakistan. These centers mainly deal with pulmonary and pleural diseases.

In our study it was found that 65% of the admitted patients were regular smokers and 90% of them were suffering from pulmonary TB. All the previous research that has been conducted had found that smoking is one of the major cause of TB as it degrades the proper functioning of the lungs and makes it more susceptible to infection.

In our study 58% of patients were recurrent cases of tuberculosis, the people who were already infected were again suffering from the same disease with other infected organ. This may be because of the spread of the bacteria to the infected organ or any other organ of the diseased person. The number of recurrent cases is increasing day by day, this is mainly because of the incomplete course of the medication followed by the infected individuals. Other main contributing factor for the recurrent TB is the resistance of the bacterium towards the drug. New MDR-TB (multi-drug resistant-TB) cases rose from 2 % in 2003 to 3.2% in 2007. Pakistan accounts for 57% of the MDR-TB burden within WHO’s Eastern Mediterranean Region9.

Most of the patients (81%) admitted were illiterate. And 57% of the patients had contact history of tuberculosis. As already mentioned TB is a disease of poverty, malnutrition and poor housing with 95 percent cases and 98 percent death occurring in under developed and the developing countries. Of these more than half the cases were recorded in the Asian countries.

CONCLUSION

TB is a curable disease but it is increasing in Pakistan because of lack of awareness and low literacy rate. Many patients have accepted it as a part of their lives and no steps are being taken to prevent it from spreading and even in many hospitals there are no isolated wards for the TB patients.

RECCOMENDATIONS

Following measures can be helpful for control of tuberculosis in Pakistan with collaboration of mass media and social workers:

- The first and foremost step to prevent it from spreading is to aware the people about the spread, symptomatology and consequences of TB and to guide them how to fight against this lethal disease.
- To provide universal access to high-quality care for all people with TB and to protect vulnerable populations from TB, TB/HIV and drug-resistant TB
- To bring realization among people suffering from tuberculosis about the significance of good compliance and complication with poor compliance of treatment .
- To begin awareness campaigns against harmful effects of smoking.

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