

Tuberculosis as an Occupational Hazard in Ward Workers

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The present study was designed to estimate the risk of tuberculosis in ward workers in a tertiary care hospital, Lahore. A total 53 ward workers who had been working in chest medicine and internal medicine wards for the last one year, were assessed. As regards demographics, 34 were male and 19 were female with mean age 34.3 years. Out of these workers, three (5.6%) were diagnosed as case of active tuberculosis and all these workers were male. Sputum AFB microscopy was positive in one case. Nosocomial transmission of tuberculosis is known to occur and this risk is much more common in ward workers than that of general population. So it is concluded that there is a significant increased ($P < 0.001$) risk of tuberculosis in ward workers.

Key words: AFB acid fast bacilli

Tuberculosis has become a resurgent public health problem in developing countries¹. Worldwide, it is the leading cause of death from any single infectious agent^{2,3}. According to WHO estimates, one third of the world's population is infected with mycobacterium tuberculosis, killing more than 2 million people each year and 95% of these cases occur in the underdeveloped world^{4,5}. So this study was carried out to estimate the incidence of tuberculosis in ward workers who are exposed to many patients of tuberculosis while performing their duties in the wards.

Objective:

To investigate the risk of tuberculosis in ward workers.

Study Design:

It was a unicentered, retrospective, investigator initiated, consent based study.

Study Setting:

The study was conducted at Institute of Chest Medicine and Departments of Internal Medicine, King Edward Medical College / Mayo hospital Lahore.

Subjects and methods:

All ward workers (including peons, ward boys, sweepers etc) in the Institute of Chest Medicine and four Internal Medicine Wards were included in the study. The diagnosis of TB was based on symptomatology, X-ray chest, and sputum microscopy for acid fast bacilli. The sputum microscopy was reserved for those patients who were symptomatic and showed X-ray changes.

Inclusion criteria

- All those workers, working in the above mentioned wards for a period of at least one year.
- The duration of duty to be at least 8 hours/ day for 6 days a week.
- No past history of tuberculosis before the start of service.

Data collection: Detailed personal biodata collected regarding work i.e. service duration, number of hours/day and nature of job.

Results:

A total of 53 ward workers (who fulfilled the inclusion criteria) were included in the study from the chest medicine and the four internal medicine wards. As regards gender, 34 were male and 19 were female (Graph I). The workers were aged between 18-50 years with mean age 34.3 years (Table-I).

Amongst 53 workers, three (5.6%) were diagnosed as tuberculous patients. Remaining 50 workers did not suffer from tuberculosis (Table II). All of the workers who suffered from tuberculosis were male (Table III). Only one worker was positive for AFB (Table IV). Diagnosed T.B. workers did not have family history of tuberculosis and no other immunocompromising concomitant disease.

Graph I. Sex distribution

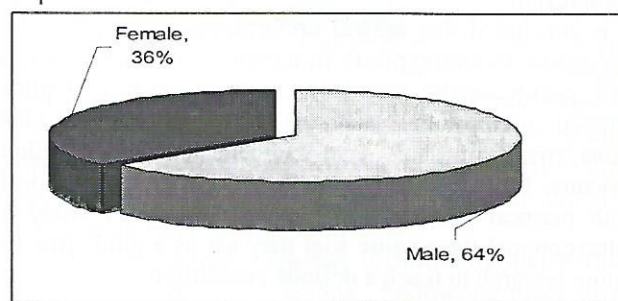


Table I. Age distribution

Age (Years)	Male	Female
18-19	1	0
20-29	3	3
30-39	15	10
40-49	8	5
50-59	7	1
Total	34	19

Mean age – 34.3 years.

Table II. Detailed data regarding tuberculosis in ward workers

Ward	Workers Studied			TB Diag- nosed	Not Diag- nosed
	Total	Male	Female		
Chest medicine	11	7	4	1 male	10
Medical Unit-I	10	5	5	1 male	9
Medical Unit-II	11	8	3	0	11
Medical Unit-III	13	8	5	1 male	12
Medical Unit-IV	8	6	2	0	8

Table III. Gender Distribution regarding TB workers

Total No. of tuberculous workers	Gender Distribution	
	Male	Female
3	3	0

Table IV. Sputum smear results in tuberculous workers

Total No. of T.B. workers	AFB- Microscopy	
	Smear +ve	Smear -ve
3	1	2

Discussion:

Tuberculosis is an international disease of epidemic proportions and occupational exposure to mycobacterium tuberculosis poses a major risk to health care workers. Worldwide, T.B. is one of the biggest health problem in Pakistan⁶. Pakistan stands 8th position among 22 top tuberculous countries in the world and the incidence is estimated to be 175 per 100,000 population⁷. Because of the high incidence of tuberculosis in the community, there are quite a lot number of patients admitted in chest medicine and internal medicine wards. So the ward workers who are performing their duties in the wards are exposed to a heavy burden of mycobacteria. So this study was carried out to determine the incidence of tuberculosis in these ward workers.

It usually takes lengthy contact with someone having active TB before a person can become infected. On average, people have a 50 percent chance of becoming infected with mycobacterium tuberculosis if they spend eight hours a day for six months or 24 hours a day for two months while on work or living with someone who is suffering from active disease⁸.

In our study, out of 53 workers, 3(5.66%) suffered from tuberculosis at any time during their period of job in the wards. This risk of getting TB is 33 times higher than that of general population. All three workers who suffered from T.B. were male. According to WHO, tuberculosis is more common in men than women⁹.

Prospective studies to evaluate the precise occupational risk to health care workers in developing

countries with a high incidence of T.B. are lacking. Other retrospective studies provide variable results. According to Kanyerere H.S. et al; T.B. case notification rate in health care workers was 6% in 2001 and 2002 in a central hospital in Malawi¹⁰. Kruuner A et al study revealed the incidence of tuberculosis in ward workers (mean 91/100000/year) which is 1.5 to three times higher than in the general population¹¹. According to Harries DM et al study, the risk of tuberculosis in health care workers was upto 40 times higher than that for the general population¹².

Although our study is small one but its result are comparable to the above mentioned Interantional studies. Further evaluation of this issue is needed by mega studies.

Conclusions:

1. The incidence of tuberculosis in ward workers especially those working in Chest Medicine and Internal Medicine units, where tuberculosis patients are treated, is high as compared to general population ($P < 0.001$).
2. With the resurgence of TB as a global problem, due attention needs to be given to this disease in the health-care setting.

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