ORIGINAL ARTICLE

Factors Leading to Multidrug Resistant Tuberculosis

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ABSTRACT

Aim: To determine the frequency of factors leading to Multidrug resistance tuberculosis.
Study design: Cross Sectional Study
Setting: Pulmonology Department, BVH Bahawalpur**.**
Duration of study: From March, 2015 to September, 2015.
Results: Total 126 patients with MDR-TB were included in this study. Minimum age of the patients was 20 years and maximum age of the patients was 60 years. Mean age of the patients was 39.44±9.043. Most 65(51.6%) of the patients with MDR-TB belonged to age group 31-40 years and 74 (58.7%) were male and 52(41.3%) were female. Total 88(69.8%) patients were un-educated.
Conclusion: Most common age group affected with MDR-TB was 31-40 years and most of the patients were un-educated. Male were more victim as compare to female and laborer was most commonly affected by MDR-TB. Mostly patients reported with MDR-TB have previous history of taking ATT.
Keywords: MDR-TB. tuberculosis, factors, DOTS

INTRODUCTION

Approximately one third of the world population has latent tubercle bacilli infection. Around 8 million new cases of active disease develop each year and 3 million people die[1]. In Pakistan its incidence is estimated to be 171/100,000 population[2]. Besides high incidence of tubercle bacilli in Pakistan, prevalence of multi drug resistant strains is also a cause of great concern[3]. Multi Drug Resistant Tuberculosis (MDR TB) is defined as "simultaneous resistance of mycobacterium tuberculosis to both isoniazid (INH) and rifampicin (RIF) with or without resistance to other anti tuberculosis drugs[4]. Patients infected with MDR strains are not only difficult to cure but also more likely to remain source of infection for a longer period of time than those with drug susceptible organisms[5].

METHODOLOGY

A sample size of 126 patients was taken. All the patients of either age or sex from Pulmonology Department BVH, Bahawalpur suffering from tuberculosis, whose AFB culture and sensitivity report revealed INH and RIF both resistance are included. All patients whose AFB culture and sensitivity report revealed Mono drug resistant TB or Poly drug resistant TB but not MDR- TB. All those patients whose culture and sensitivity report was awaited or not available at time of interview was also be excluded. The data were entered and analyzed in SPSS version 16.

RESULTS

The detail of results is given in tables 1,2,3,4

Table 1: Reasons for interruption of ATT course with gender

Reasons for interruption of ATT course	Male	Female	Total
Non-affordability	37(61.67%)	23(38.33%)	60(47.62%)
Side effects	33(56.9%)	25(43.1%)	58(38.1%)
Not improving	4(50%)	4(50%)	8(6.35%)
Total	74(58.53%)	52(41.27%)	126

P value: 0.761

Table 2: Reasons for interruption of ATT course with age

Reasons for interruption of ATT course	Age Group				Total
	20-30	31-40	41-50	51-60	
Non-affordability	5(8.33%)	28(46.67%)	16(26.67%)	11(18.33%)	60(47.62%)
Side effects	10(17.24%)	32(55.17%)	9(15.52%)	7(12.07%)	58(46.04%)
Not improving	0	5(62.5%)	1(12.5%)	2(25%)	8(6.35%)

P value 0.338

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Table 3:Inadequate chemotherapy with age

Reasons for interruption of ATT course	Age Group				Total
	20-30	31-40	41-50	51-60	
Yes	8(16%)	24(48%)	12(24%)	6(12%)	50(39.68%)
No	7(9.21%)	41(53.95%)	14(18.42%)	14(18.42%)	76(60.32%)
Total	15(11.90%)	65(51.59%)	26(20.63%)	20(15.87%)	126

P value: 0.455

Table 4: Inadequate chemotherapy with Gender

Inadequate Chemotherapy	Male	Female	Total
Yes	29(58%)	21(42%)	50(39.68%)
No	45(59.21%)	31(40.79%)	76(60.32%)
Total	74(58.73%)	52(41.27%)	126

P value 0.519

DISCUSSION

In present study mean age of the patients with MDR-TB was 39.44 ± 9.043. Results of Present study revealed that out of 126 patients with MDR-TB, the most common (51.6%) age group was 31-40 years. Faustini et al[6] reported that most of the patients with MDR-TB was below 65 years. In another study Moniruzzaman et al,[7] the most common (46%) age group of patients with MDR-TB was 21-40 year. These findings are also in favor of my study.

In present study, out of 126 patients with MDR-TB male are more common as compare to female 58.7% vs 41.3%. Male patients with MDR-TB are prominent in our study. Faustini et al[6] determined the risk factors for MDR-TB in six countries of Europe and found that MDR-TB patients were more likely to be male. Findings of this study are similar with present study. Moniruzzaman et al[7] also reported 55% male and 45% female patients with MDR-TB in their study. These findings are also comparable with my study. In another study, Mulu et al[8] reported male predominance (57.5% vs 42.5%) in patients with MDR-TB. These results are similar with my study.

In my study, total 84.9% patients were found with previous history of taking ATT. In one study by Tadesse F, [9] among the MDR-TB cases, 97% have previously been treated for TB. Results of this study are comparable with our study. But Baliza et al[10] found 50% patients with previous history of ATT used which is in contrast with my study.

REFERENCES

1. Dye C, Williams BG. Criteria for the controle of drug resistant tuberculosis. Proc Natl Acad Sci USA 2000;97:8180-5.
2. World Health Organization. Global tuberculosis controle; surveillance, planning, financing. WHO report, Geneva: World Health Organization, 2003 .
3. Matter TO. Surveillance of tuberculosis transmission by chromosomal DNA fingerprinting. Infect DIs J P 1997;4:3-5.
4. Mahmood A. Multi- drug resistant tuberculosis. J Pak Med Assoc 2001;51: 204-5.
5. Green E, Nchbeleng M, De villiers BR et al. Drug susceptibility patterns of Mycobacterium tuberculosis in Mpumalanga Province, South Africa: . J Health Poul Nuter 2010:28:7–13.
6. Faustini A, Hall AJ, Perucci CA. Risk factors for multidrug resistant tuberculosis in Europe: a systematic review. Thorax. 2006 Feb;61(2):158–63.
7. Moniruzzaman A, Elwood RK, Schulzer M, FitzGerald JM. A population-based study of risk factors for drug-resistant TB in British Columbia. The International Journal of Tuberculosis and Lung Disease. 2006;10(6):631–8.
8. Mulu W, Mekkonnen D, Yimer M, Admassu A, Abera B. Risk factors for multidrug resistant tuberculosis patients in Amhara National Regional State. African Health Sciences. 2015 May 28;15(2):368.
9. Tadesse F. Risk Factors for Multi-drug Resistant Tuberculosis in Addis Ababa, Ethiopia. Universal Journal of Public Health. 2015;3(2):65–70.
10. Baliza M, Bach AH, Queiroz GL et al. High frequency of resistance to the drugs isoniazid and rifampicin among tuberculosis cases in the city of Cabo de Santo Agostinho, an urban area in northeastern Brazil. Revista da Sociedade Brasileira de Medicina Tropical. 2008;41(1):11–6.