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RESEARCH ARTICLE

Clinical Profile of Tuberculosis in Human Immunodeficiency Virus Seropositive Patients

A.S. Gireesh* and Sharathkumar D. Shah
Dept. of General Medicine, Sri Siddhartha University, Tumkur, Karnataka, India
gireeshaskhushi@gmail.com*; +91 9448957138

Abstract

Seroprevalence was 5.95% in the study out of 40 patients who were diagnosed to be TB-HIV positive under Revised national tuberculosis control program (RNTCP). Majority of the patients were in the age group 31-40 years. Most common presenting symptoms were weight loss (77.5%) and fever (75%). Most common associated clinical findings were anaemia (47.5%), oral candidiasis (37.5%). Most with a BMI below 18.5 kg/m^2 and most common tuberculosis was extrapulmonary tuberculosis (62.5%). Tubercular meningitis (36%) was most common extrapulmonary TB followed by tubercular lymphadenitis (24%). Most common pulmonary TB was sputum negative PTB (22.5%). Sputum positivity was seen only in 10% of patients. Among the X-ray findings, infiltrative lesions (84.6%) were more common. Most of the patients (62.5%) had CD_4 count of <200 cell/µL. Mortality rate was as high as 20% and more in lower CD_4 counts.

Keywords: Tuberculosis, human immunodeficiency virus, seroprevalence, infiltrative lesions, mortality rate.

Introduction

Tuberculosis is a major public health problem in most of the developing countries posing a still bigger threat with the epidemic of HIV. The global impact of converging dual epidemics of Tuberculosis and Human Immunodeficiency virus (HIV) is one of the major public health challenges of our time. In 1993, WHO declared TB a “Global Emergency”. The WHO has estimated between the years 2000 and 2020, one billion people will be infected with the Tubercle Bacillus, 200 million will develop clinical tuberculosis and 35 million will die from it Grange and Zumla (2003). Unfortunately, there are parts of the world where TB has been flourishing unhindered since ages, and is now forming a deadly synergy with HIV/AIDS has led to a dramatic increase in the number cases of TB worldwide (Sharma *et al*., 2005). In India, the overall prevalence of HIV infection is less than 1% and India continues to be in the category of low prevalence countries (Sheela and Sanjay, 2005). Though India is a country with low HIV prevalence, it has the 3rd largest number of people living with HIV/AIDS. As per HIV estimates, 2008-09, there are an estimated 23.9 lakh people living with HIV/AIDS in India with an adult prevalence of 0.31% in 2009. The other major problem that threatens the TB control is the emergence of Multi Drug Resistant Tuberculosis (MDRTB) (Murray, 1990; Chakraborty, 2004). The immunosuppression as a result of HIV infection allows the latent TB infection to become active and those infected are contagious spreading the bacilli in families, communities and health care settings significantly undermining TB control programs (Samuel *et al.,* 1996; Dyalan *et al.,* 2002). The millennium development goals include targets for improved child health and survival and for improved control of priority communicable diseases (including TB and HIV) by 2015 (Chakraborty, 2004). Progress in improving TB/HIV clinical care will contribute to achieving these goals (Anthony *et al.,* 2004). The HIV epidemic has increased the burden of tuberculosis among young adults, especially in populations where the prevalence of TB infection is high (Surendran, 2004). Infection with HIV is the most potent risk factor for progression to active tuberculosis (Raviglione *et al.,* 1992). Tuberculosis is the commonest opportunistic infection in HIV/AIDS patients with an attack rate of 7 per 100 persons/year (Tripathy *et al.,* 2000). Considering the above facts, the clinical profile of tuberculosis in human immunodeficiency virus seropositive patients was investigated in this study.

Materials and methods

Study population: A prospective study of all cases of any age and sex diagnosed TB positive by RNTCP and HIV positive by ICTC who were admitted to Sri Siddartha Medical College and Hospital from 1st August 2012 to 31st January 2014 were evalauated. A detailed history, complete physical examination and routine investigations was done for all patients.

Experimental design: To calculate seroprevalence the total number of TB patients admitted in Sri Siddaratha medical college was collected from RNTCP records. Patients diagnosed to be Tuberculosis positive and seropositive under RNTCP was included in the study wheras, patients who are HIV positive but tested negative for TB by RNTCP were excluded from the study.

Collection of data: Detailed history regarding the illness was recorded. A thorough physical examination of all systems were carried out.

Appropriate laboratory and radiological investigation details were recorded. All patients were assigned categories as per RNTCP.

Statistical analysis: Descriptive statistics, frequency and percentages were done using SPSS for windows, SPSS INC, New York.

Results and discussion

A total of 40 patients who were diagnosed to be TB-HIV positive under RNTCP were included in the study. Total number of TB cases during this period was collected from RNTCP records. Seroprevalence was 5.95% in the study among which males were 64.5% and females were 35.4% (Table 1). Majority of the patients were in the age group of 40-49 years. Most common presenting symptoms were weight loss (39%) and fever (97%). Most patients were malnourished with a BMI below 18.5 kg/m^2. Most common tuberculosis was extrapulmonary tuberculosis (62.5%). Tubercular meningitis (41%) was most common extrapulmonary TB followed by tubercular lymphadenitis (24%). Most common pulmonary TB was sputum negative PTB (22.5%). Among the X-ray findings, infiltrative lesions (79%) were more common. Most of the patients (42%) had CD_4 count of >200 cell/µL. All patients with upper zone lesions in chest X-ray had CD4 cell count of >200 cells/µL. Patient outcome was improved in more than 90% of patients.

Table 1. Clinical profile of TB in HIV seropositive patients.

Clinical profile	No. of patients	%
Seroprevalence of HIV		
No	490	94.04
Yes	31	5.95
Age group (in years)		
<29	4	14
30-39	7	26
40-49	12	45
50-59	4	14
>60	4	14
Sex		
Female	11	35.4
Male	20	64.5
Pulmonary vs Extra-pulmonary		
Pulmonary	14	45.2
Extra-pulmonary	17	54.8
Pulmonary		
Sputum Positive1+	7	50
Sputum Positive2+	2	14
Sputum Positive3+	1	7
Sputum Negative	4	29
Complaints		
Fever	30	97
Non-fever	1	3
Type of fever		
Continuous	4	14
intermittent	25	92
Remittent	1	4
No cough	9	34
Productive	20	74
Non-productive	2	7
Hemoptysis		
Present	8	36
Absent	14	64
Weight loss		
None	19	61
Present	12	39
Breathlessness		
Present	5	16
Absent	26	84
Constitutional symptoms		
Present	17	55
Absent	14	45
BMI		
<18.5	16	52
18.5-25	15	48
>25	0	0
Haemoglobin		
<10	8	26
10.0 - 12.0	11	35
>12	12	39
Total count		
<4000	1	3
4000-11000	10	32
>11000	20	65
ESR		
<40	15	48
40-60	13	42
>60	3	10
Blood urea		
<30	20	65
30-50	6	19
>50	5	16
Serum creatinine		
<1.4	22	70
>1.4	9	30
RBS		
<110	8	26
110-140	10	32
>140	13	42
Na^+		
<135	10	32
135-146	18	58
>146	3	10
K^+		
<3.5	9	29
3.5-5.5	21	68
>5.5	1	3
CD4 count		
<100	7	23
100-200	11	35
>200	13	42
Chest X-ray findings		
Infiltrative	11	79
Cavitatory	3	21
RNTCP Cat		
1	30	97
2	1	3
Patient outcome		
Improved	28	90
Dead	3	10
Sputum		
Sputum negative pulmonary TB	4	13
Completed treatment	4	13
Clinical Improvement	4	13

Conclusion

Most common manifestation of TB in HIV infected was extrapulmonary TB. Most common symptoms were weight loss and fever and most common signs were anemia and oral candidiasis. Among the pulmonary TB cases, most of them were sputum negative pulmonary TB. CD4 counts correlated well with the clinical profile of TB, which showed that when CD4 counts were <200 cells/µL, extrapulmonaryTB and disseminated TB were more. Chest X-rays were atypical in the form of lower zone involvement and more of infiltrative lesions. High level of clinical suspicion is required in diagnosis of TB in HIV infected, especially when they are in the later stages of disease, which is indicated by CD4 counts <200 cells/µL, where seropositivity and mortality both are high. Treatment of TB and HIV together requires continuous monitoring for compliance and side effect of the drugs.

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