

Clinical profile observation of tuberculosis in HIV seropositive and HIV seronegative: Can Chest Physiotherapy be valuable for incapacitating the disease?

Pramod Khandate¹, R P Munje², Maneesh Kumar Martanday³, Avinash Tekade⁴, Arun Kumar Soni⁵

¹Ex. Lecturer, Department of Chest and Tuberculosis, GMC, Nagpur. & Civil Surgeon, General hospital, Gadchiroli.

²Professor and Head, Dept. of Respiratory Medicine, Government Medical College, Nagpur.

³Assistant Professor, Department of Physiology, Govt. Medical College, Kanker

⁴Prof., Dept. Physiology, GMC Chandrapur and Dean, Govt. Medical College, Gadchiroli.

⁵Ex. Physiotherapist, Department of Medicine, Gandhi medical college and Hamidia hospital Bhopal.

Corresponding author: Arun Kumar Soni. E-mail: dr.arun14392@gmail.com

Abstract:

In future the battle against this plague of mankind tuberculosis will not just be concerned with an uncertain something, but with a tangible parasite about whose characteristics a great deal is known, and can be explored. The mortality rate was high in HIV seropositive as compared to seronegative patients. Hence this study is undertaken, considering the seriousness of public health, importance of these two grave diseases, to understand their gravity at local level and its comparison with studies in the other parts of country and world and to observe beneficial effect of chest physiotherapy on these TB patients. For this study slandered study protocol was designed. Then results were observed on demographic and statistical data and after performing spirometry results were commented upon. HIV no untoward effects of chemotherapy was noted in HIV seropositive as well as in HIV seronegative patients. Though all types of respiratory infections are common in HIV Early screening of symptomatic for tuberculosis could be a seropositive. effective approach to early detection and management of tuberculosis among not HIV seropositive but also in HIV seronegative individual. Patients of extrapulmonary tuberculosis or disseminated TB should be screened for high-risk behaviour as well as HIV testing. Also, a longer follow up of these patients is recommended to enable us to study relapses and acquired drug resistance as these patients are already registered at main centre. Also, from the present study this can be concluded that physiotherapy helps in improving the pulmonary function tests in sever TB patients at least after a 30 days of training session.

Key words: HIV, TB, Spirometry.

INTRODUCTION

In future the battle against this plague of mankind TUBERCULOSIS will not just be concerned with an uncertain something, but with a tangible parasite about whose characteristics a great deal is known, and can be explored. [1] About 2 Billion people are infected with tuberculosis. Each year 8 million new cases of T.B. occur and 3 million people die of Tuberculosis in the world. [2]

In India 40% to 60% of the population are infected with tuberculosis and 0.4% are sputum positive and hence infectious to community.[3]

At present about 3 million sputum positive cases exist and 0.5 million people are dying from Tuberculosis every year. By the beginning of 2023, World Health Organization estimates that, more than 30 million people are infected with Human Immune deficiency Virus.

In India, 4 million people are infected with HIV. World wide 75% - 85% of HIV infection in adults have been transmitted through unprotected sexual intercourse, with heterosexual intercourse accounting for more than 70%, mother to child transmission account for more than 90% of global infection in infant and children. Sharing HIV-infected injection equipment by drug users account for 5- 10% of transmission in all adults population and blood transfusions represents 3 -5%. [4] Human Immunodeficiency Virus infection causes profound destruction of immune system of the host and exposes him to various life threatening infection.

Association between tuberculosis and HIV infection presents an immediate and grave public health and socioeconomic threat particularly in developing countries.

In early 1996, W.H.O. estimated that approximately 5 to 6 million people are infected with HIV and T.B. world wide. Out of these 70% of patients with dual infection live in Subsaharan africa, 20% in Asia and 10% in Latin America. [5]

In India, about 37% of HIV seropositive individuals present with tuberculosis and 50% AIDS patients die due to tuberculosis, W.H.O. Global Tuberculosis Programme has estimated that the annual risk of progression to tuberculosis among dually infected person is 10% per year. The chances of developing tuberculosis in the HIV seropositive individuals in developing countries are attributed to reactivation of latent tuberculosis, rapid progression of recently acquired infection to disease and exogenous tuberculosis reinfection.[6]

On the basis of clinical presentation alone it is difficult to differentiate between HIV seropositive tuberculosis and HIV-seronegative tuberculosis. Clinical presentation in HIV-seropositive is quite varied depending on the stage of immunosuppression; with mild degree of immunosuppression, clinical features of tuberculosis in HIV-seropositive individual are similar as in HIV seronegative individual.[7]

While in late stages of HIV, that is in severe degree of immunosuppression, after AIDS has already been diagnosed, clinical features often resemble primary tuberculosis in children.

Tuberculosis usually occur at an earlier stage of immunosuppression, because mycobacterium tuberculosis is more virulent than other HIV related pathogens such as pneumocystis carinii pneumonia and M. Avium complex.[8]

As in the clinical and radiological picture, interpretation of tuberculin skin test is also complicated by their variable degree of immunosuppression in HIV seropositive individual. Pulmonary as well as extrapulmonary form of tuberculosis occur commonly in HIV infected individuals, as well as disseminated form of tuberculosis are also noted.

The management of pulmonary and extrapulmonary tuberculosis in HIV infected individuals is similar to the treatment recommended for HIV- seronegative tuberculosis patients. Apart from problems in diagnosis and management there are other problems, like more relapse rate and increasing rate of multidrug resistance T.B. in HIV seropositive.[9]

The interaction between HIV and tuberculosis is an extremely serious problem in terms of morbidity and mortality, requiring immediate action at global, national and local levels in many countries. Screening for tuberculosis could be an effective approach to early detection of tuberculosis among not just HIV-seropositive but also in HIV- seronegative individual and allows patients with tuberculosis to be diagnosed and treated earlier. [10]

Hence this study is undertaken, considering the seriousness of public health, importance of these two grave diseases, to understand their gravity at local level and its comparison with studies in the other parts of country and world and to observe beneficial effect of chest physiotherapy on these TB patients.

Materials and Methods:

STUDY DESIGN

Present study is a prospective Hospital based study carried out at civil hospital Gadchiroli in the duration from March 2022 to April 2024. Patients coming from Gadchiroli and other related geographical boundaries were considered for the study. Patients giving their written and informed consent were chosen for this study and slandered case record form and procedure of the study was told in detail and in patients known language. Following inclusion exclusion criteria were decided for the study:

Inclusion Criteria:

1) Patients with a history of high-risk behavior attending AIDS counseling center who were subjected to the HIV serology (ELISA) were included. 2) Patients of high-risk group who attended TB and chest department with complaints such as cough with Expectoration fever,

chest pain, hemoptysis, breathlessness. Patients with history suggestive of extrapulmonary involvement like lymphadenitis etc. were also included

Exclusion Criteria:

- 1) Patients who had history of tuberculosis in past
- 2) Patients who were already receiving Antituberculosis
- 3) Patients with Relapse and chronic cases of Tubercu

4) All cases of concurrent immunodeficiency with diabetes mellitus, malignancy, patients who were on immunosuppressive therapy and steroid thereby were also excluded. This study on "clinical profile of tuberculosis in HIV seropositive and HIV seronegative" was conducted at the Department of chest and Tuberculosis, Government Medical College and Hospital, Gadchiroli. 202 patients of high-risk group who attended TB and chest Department for chest symptoms or otherwise, were screened for tuberculosis (Pulmonary and Extrapulmonary) irrespective of their serostatus. ELISA test result for HIV infection were traced only at the time of analysis. This revealed that in all 2769 patients were screened at AIDS counselling center years. Of these 508 were HIV seropositive and 216 period of almost two IV seronegative. Total 2769 of high-risk group were screened at AIDS ling center by ELISA test, for HIV, for a period of 22 months, 608 (21.9%) were HIV seropositive and remaining 2161 (78.1%) were HIV seronegative.

Patients suffering from sever disease and continuous cough with expectoration were given chest physiotherapy to cope up with the issue and limit the spread of the disease. Chest physiotherapy is therapist-administered techniques such as postural drainage, chest percussion, vibration, and compression, with assisted coughing or suction. By definition Chest physical therapy is the term for a group of treatments designed to improve respiratory efficiency, promote expansion of the lungs, strengthen respiratory muscles, and eliminate secretions from the respiratory system. [11]

Observations: For present study a total pf 2796 patients were screened of which we had found 608 patients were HIV positive and 2161 patients were HIV negative. Of all 202 symptomatic patients (i.e. 120 HIV seropositive and 82 HIV seronegative) 96 were diagnosed as having tuberculosis and considered for the study.

Table 1 represents total population for the study and gender wise distribution of the study population as:

HIV testing

Total population screened	HIV Positive	HIV negative	
2796	608	2161	
TB patients amongst HIV suspects			
	HIV positive	HIV negative	total
TB patients	62	34	96
Non-TB patients	58	48	106
Age wise distribution			
Age group	HIV positive TB patients	HIV negative TB patients	Total
15-24	14	10	19
25-34	35	17	45
35-44	11	2	28
45-54	2	34	04
Gender wise distribution amongst patients			
	HIV positive TB patients	HIV negative TB patients	Total
Male	50	29	79
Female	12	5	17

Table 1: Showing demographic distribution of study population.

Out of 120 HIV seropositive patients, 62 (51%) had evidence of tuberculosis and 58 (49%) had non tubercular disease and amongst 82 HIV seronegative patients, 34 (41.4%) had evidence of tuberculosis and 48 (58.6%) had non tubercular disease. Thus 62 HIV seropositive tuberculosis and 34 HIV seronegative tuberculosis patients formed the study group.

The above table shows the age distribution of tuberculosis HIV seropositive and HIV seronegative group. Of 62 HIV seropositive tuberculosis patients, maximum 35 (56.4%) of them were in age group of 25-34 years followed by 14 (22.6%) were in age group of 15-24 years and 11 (17.7%) were in age group up of 35-44 years and 2 (3.3%) were in age group 45-54 years. Out of 34 HIV seronegative patients, maximum 17 (50%) patients of them were in age group of 35-44 years followed by 10 (29.5%) in age group of 25-34. years, 5 (14.7%) were in age group of 15-24 years and 2 (5.8%) patients were in age group of 45-55 years, Mean age for HIV seropositive patient was 20 deviation of ± 7.35 years and Mean age of HIV negative was 34.21 years with standard deviation of ± 8.25 year.

Considering sex distribution of tuberculosis patients in both groups. Of 62 HIV seropositive patients, 50 (80.6%) were male and 12 (19.4%) were female and of 34 HIV seronegative patients, 29 (85.3 (14.7%) were female. Male to female ratio was 4:1 in HIV and 5.9:1 in HIV seronegative tuberculosis patients ($p = 0.5682$ and 5 patients. In HIV seropositive group, of 50 male patients, male (56%) of them were in age group of 25-34 years, 10 (20%) were in age group of 15-24 years, 10 (20%) were in age group of 35-44 years and 2 (4%) patients were in age group of 45-54 years. Of 12 female patients, maximum of them, 7 (58.3%) patients were in age group of 25-34 years, followed by 4 (33.3%) patients in age group of 15-24 years and one (8.4%) was in age group of 35-44 years.

In HIV seronegative group of 29 male patients, maximum of them 15 (51.7%) patients were in

	HIV positive TB patients	HIV negative TB patients
Laborer	19	17
Taxi driver	13	4
Rickshaw puller	06	8
Waiter	06	1
House wife	06	2
Unemployed	03	2
Clerk	03	0
Sex worker	2	0
others	5	0

age group of 45-54 years, 8 (27.5%) patients were in age group of 25-34 years, 4 (13.7%) were in age group of 15-24 years. Of 5 female patients, one (20%) patient was in age group patients were in age group of 25-34 years. And 2 (40%) group of 35-44 years. 2 (40%) were in ages.

Table 2: occupation of the HIV patients.

In 62 HIV seropositive tuberculosis patients, 19 (30.6%) were laborer, 13 (20.8%) were truck driver, 6 (9.8%) were ricksha puller, 6 (9.8%) were waiter, and 6 (9.8%) were housewife, 3 (4.8%) unemployed, 3 (4.8%) were clerk, 2 (3.2%) were commercial sex worker 02 (3.2%) were beggars, one (1.6%) was farmer and one (1.6%) was tailor by occupation.

In 34 HIV seronegative tuberculosis patients, 17 (50%) were laborer by occupation, 8 (23.5%) were ricksha puller, 4 (11.2%) were truck driver, 2(5.8%) were house wife and 2 (5.8%) were unemployed and remaining one (2.9%) was waiter by occupation.

detailed history was taking the most likely cause of transmission of HIV-infection. The total 62 HIV-seropositive tuberculosis patients, maximum i.e. 47(75. positive and determine mat, out of patients acquired HIV-infection through heterosexual contact, followed by blood transfusion

in 6(9.8%) patients, intravenous drug abuser in 2(3.2%) and 1(1.4%) was homosexual. While remaining 6(9.8%) patients had no high-risk history, they acquired HIV-infection from their spouses. Of 34 HIV seronegative patients. 28(82.3%) had hetro sexual contact, 5(4.8%) had history of blood transfusion and 1(2.9%) was intravenous drug abuser.

	HIV positive TB patients	HIV negative TB patients
Heterosexual	47	26
IV drugs	2	5
Homosexual	1	1
No high risks	6	0
Total	62	34
	HIV positive TB patients	HIV negative TB patients
Fever	62	32
Cough	45	31
Breathlessness	39	20
Chest Pain	24	15
Hemoptysis	05	06
Night sweat	40	16
Weight loss	49	21
Diarrhea	48	16
Swelling	19	4
Duration in months	HIV positive TB patients	HIV negative TB patients
0.5 – 1	9	11
1 – 3	21	8
> 3	32	5
	HIV positive TB patients	HIV negative TB patients
Cachexia	38	13
Pallor	51	24
Icterus	6	2
Clubbing	3	3
Oral Thrush	24	3
Lymphadenopathy	23	2
Herpes zoster	3	
Chest wall abscess	1	
	HIV positive TB patients	HIV negative TB patients
Parenchymal infiltrate	27	30
Pleural effusion	3	2
Adenopathy	17	2

Miliary mottling	6	00
NRL Extra plural	3	0
Others	6	0
Cavitatory disease	6	16
Non Cavitatory disease	21	14
Type of TB in patients		
	HIV positive TB patients	HIV negative TB patients
Pulmonary	25	30
Extra Pulmonary	37	4
Types of Extra pulmonary TB seen on patients		
	HIV positive TB patients	HIV negative TB patients
Lymphadenitis	23	2
Miliary TB	4	
Pleural effusion	3	2
Meningitis	3	
Pneumothorax	1	
Pericardial effusion	1	
Abdominal Koch's	1	
Chest wall abscess	1	
Treatment out comes in TB patients		
	HIV positive TB patients	HIV negative TB patients
Quiescent	43	31
Default	8	2
Treatment failure	3	
Death	7	
Referred	1	1

Table 3: Sign- symptoms and distribution of TB amongst study population.

In HIV seropositive tuberculosis patients, all fever, followed by 45(72.5%) patients had cough, 3 breathlessness, 24(38.7%) patients had chest pain hemoptysis, 40(64.5%) patients had night sweats, 49(79 loss, 48(77.9%) patients had fatigue, 19(30.6%) had diarrhea patients had patients had patient had had weight 8.7%) had swelling, 5(8%), 5(8%) had vomiting and remaining 3(4.8%) patients each had neck stiffness, alter sensorium, headache and convulsion. And in 34 HIV seronegative patients, 32(94%) patients had fever, 31(91.1%) patients had cough, 21(61.6%) patients had weight loss, 20(58.8%) patients had breathlessness, 16(47%) patients had night sweats, 16(47%) had fatigue, 15(44.1%) patients had chest pain, 6(17.6%) patients had hemoptysis, 4(11.7%) had diarrhea and remaining 2(5.8%) had swelling. HIV seronegative tuberculosis. In 62 HIV seropositive patients, maximum 32(51.6%) patients of them were symptomatic for more than 3 months, followed by 21(33.8%) patients were symptomatic between 1-3 months and remaining 9(14.6%) patients were symptomatic for less than one months.

In 34 HIV seronegative patients, maximum 18(52.9%) patients of them were symptomatic between 1-3 months, followed by 11(32.3%) patients were symptomatic for less than 1 months and remaining 5(14.8%) patients were symptomatic for more than 3 months.

Of total 62 HIV seropositive patients, maximum 51(82.2%) patients of them had pallor, 38(61.2%) had cachexia, 24(38.7%) patients had oral thrush, 23(37.1%) patients had lymphadenopathy, 6(9.6%) had icterus, 3(4.8%) had clubbing. 3(4.8%) patients had Herpes Zoster infection and 1 (1.6%) patient had abscess over chest wall. Of 24 patients with lymphadenopathy, 17(73.9%) patients had cervical lymphadenopathy, 3(13%) patients had axillary lymphadenopathy and 2(8.8%) had inguinal lymph node enlargement and remaining 1 (4.3%) patient had generalized lymphadenopathy. Of total 34 HIV seronegative patients, 24(70.5%) patients had pallor, 13(38.2%) patients had cachexia, 3(8.8%) patients had clubbing, 3(8.8%) patients had oral thrush, 2(5.8%) had icterus and 2(5.8%) had lymph node swelling i.e. cervical. Of 34 HIV seronegative TB patients, 30 were pulmonary and 4 were extrapulmonary. Of 30 pulmonary TB patients, 25 (83.4%) had significant induration and 5(16.6%) patients had no induration. Of 4 extrapulmonary patients, 3(75%) had significant induration and remaining 1(25%) had no induration. All 7 patients who died, were of HIV ser Amongst patients who survived 55 (61.7%) were HIV were HIV seronegative, tuberculosis (38,3%).

The age group of the patient who died were 25 group of 32 years while mean age among patients who survived maximum age years. There were 6 (35%) male and 1(14.3) female death, while 73 (82%) males and 16 (18%) females were survived ($p = 0.63964$ NS). There was 1 (14.3%) sputum positive and 6 (85.7%) were sputum negatives among the dead. While 30 (33.7%) patients were sputum AFB positive and 59 (66.3%) patients were sputum negative who survived. ($p=0.25323$ NS). There were 3 (42.8%) pulmonary and 4 (57.2) patients with extrapulmonary TB among the dead whereas 52 (58.4%) were of pulmonary and 37 (41.6%) were of extrapulmonary TB among patients who survived ($p= 0.5004$ NS). Chest X-ray showed, far advanced lesion in 2 (28.5%) patients, moderately advanced lesion in 1 (14.35%), miliary mottling in 2 (28.5%). pneumothorax in 1 (14.3%) and 1 had no radiological lesion in those who died. Among patients. Who survived chest X-ray showed, minimal lesion in 14 (15.8%), moderate lesion. in 24 (26.9%), far advanced lesion in 16 (17.9%), Miliary lesion effusion and in 4 (4.5%), pleural effusion in 5/5.0%, hilar Mediastinal adenopathy in 4 (4.5%), 1 (1.2%) patient 2 (2.3%) had no radiological lesion.

Cavitary disease was seen in only 1 (14.3%) and 6 (85/55) had non cavitary disease, among dead. However, cavitary disease was seen in 21 (23.5%) in those who survived. 68 (76.5%) patients had non cavitary disease ($p = 0.4929$ NS). CNS involvement was seen in 3 (42.83%) patients who died, and 4 (57.2%) patients had no CVS involvement. 89 patients who survived had no CNS involvement. Out of all the participants in the study. Total of 239 patients were severely affected with cough with expectoration who were treated with chest physiotherapy and to see their results spirometry was performed. Details of spirometry values are depicted in table 4 as follows:

N = 239	Day 1	Day 15	Day 30

	Day 30 vs Day 15	Day 30 vs Day 1	Day 15 vs Day1
FEV1	NS	p < 0.05 S	p < 0.05 S
FVC	p < 0.05 S	p < 0.05 S	NS
FEV1/FVC	p < 0.05 S	p < 0.05 S	NS
FEF 25-75%	p < 0.05 S	p < 0.05 S	NS
PEFR	p < 0.05 S	p < 0.05 S	NS
FEV1	1.31 ± 0.33	2.19 ± 0.62	2.23 ± 0.68
FVC	2.01 ± 0.5	2.32 ± 0.76	2.84 ± 0.49
FEV1/FVC	59.1 ± 7.45	66.95 ± 8.09	79.81 ± 6.9
FEF 25-75%	0.76 ± 0.54	1.01 ± 0.26	2.36 ± 0.41
PEFR	2.99 ± 1.36	4.13 ± 1.38	6.8 ± 0.67

Table 4: Details of spirometry value

For getting statistically significant results analysis of variance (ANOVA) test was applied with Bonferroni's post hoc test to see the intergroup relationship whose results are depicted in table 4.1 as follows:

It can be observed from above table that chest physiotherapy for nearly a month improves health of TB patients.

Discussion:

This study on "clinical profile of tuberculosis in HIV seropositive and HIV seronegative" was carried out in the Department of Chest and Tuberculosis. Government Medical College and Hospital Nagpur over a period of 22 months from 1st January 2021 to 31st October 2023.

Amongst 202 symptomatic patients, who attended TB chest Department, 96 were diagnosed as having tuberculosis (pulmonary (extrapulmonary) and reports of ELISA for HIV were traced for analysis which revealed that 2769 patients attending AIDS counseling Centre, Government Medical College and Hospital Nagpur, were screened for HIV Testing. Of these 2769 patients, 608 were HIV seropositive and 2161 were HIV seronegative.

Amongst 202 symptomatic patients, 120 were HIV seropositive and 82 were HIV seronegative. Of these 120 HIV seropositive patients, 62 (51%) were diagnosed as having tuberculosis and formed the study group, remaining patients had non tubercular disease and out of 82 HIV seronegative patients, 34 (41.4%) had evidence of tuberculosis and formed the study group.

Thus occurrence of tuberculosis among symptomatic HIV seropositive patients were 51% and among HIV seronegative patients were 41%.

This proportion is very high as compared to the incidence noted by Selwyn PA et al (1989) who reported 4% in HIV seropositive and none in HIV. The interaction between HIV and TB is an extremely serious problem in terms of morbidity and mortality requiring immediate action at global, national and local level in many countries.

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seronegative, and also by Narian JP et al (1992) To who reported in HIV seropositive and 0.5% an HIV seronegative, study by ICMR (1996) reported 10% incidence of tuberculosis in HIV seropositive patients. [12]

The possible explanation for this higher proportional rate can be that. the only symptomatic patients were screened in present study, where as various authors have studied the risk of tuberculosis in individual infected with TB and HIV even if they were asymptomatic Thus timely screening of symptomatic definitely helps in detecting tubercular disease in HIV seropositive. [13]

Present study shows that most of the patients i.e. 78% were in the age group of 15-35 years. Maximum 35 (56%) patients in HIV seropositive tuberculosis were in the age group of 25-34 years, followed by 14 (22.6%) patients were between the age group of 15-24 years and 11 (17.7%) patients were between the age group of 35-44 years. While among HIV seronegatives, maximum i.e. 17 (50%) patients were between the age group of 35-44 years, followed by 10 (29.4%) patients were in the age group of 25-34 years. Thus HIV seropositive tuberculosis patients were younger as compared to patients in HIV seronegative tuberculosis ($p=0.0056$ H.S.). The mean age was 29.6 years in HIV seropositive tuberculosis which was lower as compared to 34.2 in HIV seronegative tuberculosis. Thus the mean age recorded in this study were a little lower than the mean age recorded by Goyal M et al. Also HIV seropositive tuberculosis patients were more frequently below the age of '35' years as compared to HIV seronegative tuberculosis patients which were seen above the age of 35 ($p = 0.00052$ H.S.).[14]

When sex distribution of HIV seropositive tuberculosis as well as of HIV seronegative tuberculosis was considered, present study shows that maximum i.e. 50 (80.6%) patients were male in HIV seropositive and 29 (85.3%) in HIV seronegative tuberculosis. Whereas 12 (19.4%) in HIV seropositive tuberculosis and 5 (14.7%) in HIV seronegative tuberculosis were female. Male to female ratio was 4: 1 in HIV seropositive and 5.9:1 in HIV seronegative tuberculosis. These result of male preponderance of tuberculosis was also noted by Mohanty KC et al (1995), Gupta PR et al (1998)." [15]

Occupation is one of the cause for predisposition for tuberculosis and also for HIV, like medical, paramedical and commercial sex worker, True drivend migrant and widow. In present study occupational history revealed various occupations like labourer (37%), Truck driver (17%), etc. In both the groups i.e. HIV seropositive and HIV seronegative tuberculosis, maximum number of patients were labourer by occupation whereas more than 20% of the patients in HIV seropositive were Truck driver, as compared to only 11.1% in HIV seronegative group.

Various authors have studied high risk group for the presence of HIV infection as well as Tuberculosis, these includes, like Torres et al in Snelter student, Sanchez MA in prisoners, Selwyn PA et al and Richman et al in intravenous drug abuser. Similarly Mohanty KC (1995) reported that commercial sex worker (CSW) have a high risk for HIV collection and also for

tuberculosis. When various high risk behaviour were studied, as a poses transmission mode of for HIV infection, heterosexuality with multiple sexual partner was found to be an important risk factor not only for HIV seropositive but also for HIV seronegative group. [16]

Thus, 47 (75%) patients had such heterosexual contact. This Incidence is quite low as compared to that reported by Mohanty KC who reported to be 95% but it is slightly higher in comparison to study by Sharma SK et al who reported 40% of acquired HIV infection through heterosexual contact. In present study, 9.8% of patients acquired HIV infection through Blood Transfusion, this is higher than reported by Mohanty KC, but this incidence is very low compared to that of Sharma SK et al who reported that 40% of patients acquired HIV infection through Blood Transfusion. [17]

In present study 1(1.4%) patient was homosexual and dually infected. This is similar to the result of study conducted by Mohanty et al who found 1.3% of patients of HIV infection were homosexual.

Among 17 female patients of both group ie. HIV seropositive and HIV seronegative tuberculosis, 3 (17.6%) patients acquired HIV infection through heterosexual contact and 3 (17.6%) patients acquired HIV infection by Blood Transfusion, However 6 (35.2%) patients had no risk behaviour for HIV infection. thus, it appears that they acquired HV infection from their husband.

Hepatomegaly and splenomegaly were also noted in present study, but percentage is quite low as compared to study by Clemens Richter (1994) who reported, 41.5% patients had hepatomegaly and 40% patients had splenomegaly. Sputum smear for Acid Fast bacilli (AFB) is a gold standard for diagnosis of tuberculosis, however sputum sensitivity for AFB also depends upon the degree of immunosuppression.

In present study, 11 (24.4%) patients had positive sputum smear for AFB and 34 (75.6%) patients had negative sputum smear for AFB among HIV seropositive tuberculosis. Where as 20 (66.6%) patients had positive sputum smear and 10 (33.4%) patients had negative sputum smear among HIV sero negative tuberculosis. Thus, sputum smear positivity was less in HIV seropositive as compared to HIV negative tuberculosis ($p=0.0028$, H.S.). [18]

It is stated that low percentage of sputum positivity in HIV seropositive tuberculosis may be due to severe degree of immunosuppression and can also be due to absence of cavitation, Sputum negativity in present study was higher in comparison to Goyal M who reported 72.5% sputum negative in HIV seropositive tuberculosis and 28% in HIV seronegative tuberculosis. In the present study there was no mortality in HIV seronegative group and 7 (11.4%) died in HIV seropositive group. Thus, the mortality rate in HIV seropositive is high as compared to the HIV seronegative group. [14]

This mortality rate is similar to that noted by Arora VK, who reported 12.5% death. But the mortality rate appears to be low as compared to Mohanty KC et al who reported it to be 24.7% and Mohanty KC et al 20.4%, but slightly higher than that reported by Theur P et al. [19]

Small PM et al which was 6.4%. Patients were followed up for 22 months, and no relapses were noted in this period of follow up. But the follow up period is quite small to comment upon relapses and in turn on acquired drug resistance. In the present study treatment completion rate was 75.4% in HIV positive patients, which is quite high as compared to Small PM et al which was 50% and Parronee et al 57%. [20]

The treatment response in HIV seronegative patients is quite high as compared to study by Mohanty KC et al who reported 82.6% and 84.6% response to treatment. In recent few years World has been facing a catastrophe known as COVID 19 a hazardous respiratory and multisystemic disease claiming millions of deaths all around the Globe and the count is still increasing. Chest physiotherapy technique is based on the theory that when several areas of the chest and back are percussed, shock waves are conducted through the chest wall, slackening the airway secretions. In present study effects of physiotherapy sessions were observed on pulmonary functions of post TB patients. Patients were given 15 of chest physio sessions. These selected patients were undergone physiotherapy sessions and pulmonary function testing as per study protocol. Considering the results of spirometry except FEV1 rest

other parameters like FVC, FEV1/FVC, FEF 25-75% and PEFr were not significant even after 15 days of extensive physiotherapy. These results were suggestive of positive effects of chest physiotherapy training on TB patients after a minimum of 30 days training.

Conclusion:

HIV seropositive seronegative tuberculosis patients. tuberculosis patients were younger than HIV male predominance was more in both groups as compared to female. Maximum number of patients were labourer by occupation and truck hers were more common in HIV seropositive tuberculosis than HIV seronegative tuberculosis. Heterosexuality with multiple sexual partner (75%) was more common mode of transmission for HIV infection followed by blood transfusion (9.6%), and intravenous drug abuser.

Among females, 6 patients had no high-risk history, they acquired HIV Infection from their spouses. Fever, night sweats, weight loss, fatigue and diarrhoea were commonest wizing symptoms in HIV positive patients with tuberculosis. Whereas cough and hemoptysis were commonly seen in HIV seronegative patients. Duration of symptoms were longer (3-6 months) in HIV seropositive tuberculosis patients, as compared to HIV seronegative patients: (1-3 months) Cachexia, pallor, oral thrush, lymphadenopathy occurred commonly in HIV seropositive as compared to HIV seronegative patients. Herpes infection was noted only in HIV seropositive patients.

Outcome of tuberculosis was quite satisfactory in HIV positive as well as in HIV negative tuberculosis patients. Treatment response was 70.4% in HIV seropositive patients and 93.9% among HIV seronegative patients 4.8% of patients deteriorated in spite regular Antituberculosis Treatment in HIV seropositive patients.

The mortality rate was high in HIV seropositive (11.7%) as compared to seronegative patients. HIV no untoward effects of chemotherapy was noted in HIV seropositive as well as in HIV seronegative patients. Though all types of respiratory infections are common in HIV

Early screening of symptomatic for tuberculosis could be an seropositive. effective approach to early detection and management of tuberculosis among not HIV seropositive but also in HIV seronegative individual. Patients of extrapulmonary tuberculosis or disseminated TB should be screened for high-risk behaviour as well as HIV testing. Also, a longer follow up of these patients is recommended to enable us to study relapses and acquired drug resistance as these patients are already registered at main centre. Also, from the present study this can be concluded that physiotherapy helps in improving the pulmonary function tests in sever TB patients at least after a 30 days of training session.

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