

A study of the prevalence of HIV-1 infection in cases of pulmonary tuberculosisSunita Bajaj^{1*}, Sandeep R Saboo²^{1*} Associate Professor, Department of Radiology, Government medical college, Nizamabad, India² Professor, Department of Pulmonology, Deccan Institute of Medical Sciences, Hyderabad, India**ABSTRACT**

Background: H.I.V. infection usually requires several years to progress to A.I.D.S., which is the final stage of disease characterized by severe immuno-suppression. Clinically significant problems occur earlier in the natural history of H.I.V. infection, however, pulmonary disorders are found in all stages. **Aim:** Present study is mainly based to observe the prevalence of H.I.V.-1 infection and A.I.D.S. in pulmonary tuberculosis. **Materials and methods:** The present study of the prevalence of H.I.V-I infection in pulmonary tuberculosis was conducted on 52 bacillary cases of pulmonary tuberculosis. 25 healthy, age, and sex matched control cases were taken. H.I.V-1 infection was determined by testing the serum of the cases with Retro-Tek H.I.V.-1 E.L.I.S.A. method. **Results:** The majority of pulmonary tuberculosis cases were found in the age group 30-49. The disease was more common in males than in the females with M:F::2.5:1 ratio. At the time of admission into the study all the patients had complains of cough with sputum production. Majority had fever, loss of appetite, loss of weight, breathlessness. Other symptoms like haemoptysis, chest pain were also found in varying proportion. On clinical examination most of the patients had signs of infiltration, fibrocavity, fibrosis. About 2/3rd of the patients were radiologically far advanced. Moderately advanced lesions were found in rest of the cases. Where as only 6% had minimal lesions. The mode of transmission of HIV infection was probably heterosexual as none of the patients had previous history of homosexuality, blood transfusion, surgery. More number of HIV-1 seropositive TB cases (25%) had serum for VDRL. significantly reactive than HIV-1 seronegative TB cases (17.5). Majority of HIV-1 seropositive TB cases gave history of promiscuity (75%) than the HIV-1 seronegative TB cases(47.5%). In the 52 cases of pulmonary tuberculosis selected for the study, 37 cases were non-reactive. The remaining 15 cases were found to be reactive and, of these initial reactive cases when test was repeated 14 cases were found to be reactive again and were referred to as "repeatably reactive". When test was repeated in 12 of these 14 repeatably reactive cases 10 were found to be reactive again. Thus over all 10 cases were reactive for H.I.V-1 infection three times and 2 cases were reactive for two times. **Conclusion:** Anti-tuberculosis treatment was found to be equally efficacious in both HIV-1 seropositive and seronegative pulmonary tuberculosis patients. Sputum smear conversion for A.F.B. bacilli was not influenced by HIV-1 infection.

Key words: Pulmonary tuberculosis, Human Immunodeficiency virus,**Introduction**

The incidence of TB among newly diagnosed HIV-infected children varies from 0.61 per 100 child-years (and a prevalence of 3%) in low burden countries like the United States[1,2] to 53.3 per 100 patient-years in high burden countries like South Africa[3]. Remorselessly Human Immunodeficiency virus

(H.I.V.) infection, finds and reveals the vulnerabilities in our system of medical care and our social, economic, and political structures. Issues surrounding Acquired Immunodeficiency Syndrome (A.I.D.S.) seem to Penetrate into nearly every sphere of human existence; scientific research, ethics, law, the prisons, the world of art, economics, international relations, and personal intimacy. All this and much more are affected. In a broad sense, A.I.D.S. & H.I.V. infection have served as stark reminders of how human existence is inextricably linked with natural forces. Physicians must be prepared to deal with the problems of H.I.V.-1 infection and A.I.D.S. on several levels. As this disease spreads into

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new populations, it will be the rare health care professional indeed who will not care for the patients with H.I.V. infection. This increases the need to counsel anxious, perplexed, and angry family and loved ones; provide rational guidance and leadership for confused and frightened communities; deal with issues of infection control; and evaluate and implement new therapies and diagnostic techniques. There are many moving targets when we deal with H.I.V. infection and A.I.D.S. In a few months, new knowledge may make parts of it incorrect or outdated. There have been many major changes in the epidemiology of H.I.V. infection and its complications. Some of these, such as the current resurgence of tuberculosis, including disease due to resistant *Mycobacterium tuberculosis*, and the spread of H.I.V. infection from drug users to their sexual partners, have had major impact on public health. In the late 1970's physicians on the East and West Coasts of United States started caring for patients who presented with complications of severe immune-deficiency, but in whom a known cause of immuno-suppression could not be identified. These patients, sexually active homosexual men, presented with Kaposi's sarcoma, pneumocystis carinii pneumonia, oral and esophageal candidiasis, and other infections and neoplasia characteristic of severely depressed cell-mediated immunity[3,4] Soon after, similar complications were noted among intravenous drug users and subsequently among the recipients of the transfused blood and blood products, including haemophilia patients. This disease was subsequently called acquired immuno deficiency syndrome. It was found to be caused by infection with a newly identified virus human immunodeficiency virus. This virus, a human retrovirus, infects the T-helper lymphocytes leading, over a period of years through mechanisms that are still being elucidated, to the depletion of these cells and the development of the progressive, severe, irreversible immune deficiency. Over the past 10 years, infection with this virus has spread throughout the world and has produced the current pandemic of A.I.D.S. H.I.V. infection usually requires several years to progress to A.I.D.S., which is the final stage of disease characterized by severe immuno-suppression. Clinically significant problems occur earlier in the natural history of H.I.V. infection, however, pulmonary disorders are found in all stages. The incidence of tuberculosis is rising significantly in those areas where dual H.I.V. and tuberculous infections are prevalent. Pulmonary tuberculosis differs from other H.I.V. related infections in that it is spread by respiratory route from human to human from both normal and immuno-compromised host. Furthermore, in H.I.V. infected patients, tuberculosis

often presents with an a typical picture that confounds diagnosis. Tuberculin anergy is common, the chest radiograph is often a typical and there is a high incidence of extra-pulmonary and disseminated disease[5,6]. Fortunately, even among H.I.V. immuno-suppressed persons, tuberculosis is preventable and curable. Control of the tuberculosis epidemic requires the early recognition and treatment of H.I.V. infected persons with tuberculous infection or disease and ensuring their compliance with therapy[7]. It also requires the institution and maintenance of strict environmental control measures in A.I.D.S. clinics, wards, and hospitals where H.I.V. immunosuppressed patients, who are at great risk of contracting tuberculosis, are recurrently exposed to each other. The risk of acquiring tuberculous infection (i.e. as documented by the development of a significant tuberculin skin reaction) and the risk of tuberculous infection progressing to disease is primarily related to the frequency and density of tuberculous bacilli in the air of the person's environment. The risk of tuberculous infection progressing to disease is related to the patient's T-cell immune response. The World Health Organisation (W.H.O.) estimates 30 - 60% of adults in developing countries are infected with mycobacterium tuberculosis. In some developing countries, over half the population is infected by the time they reach adulthood⁷. In part of the Sub-saharan Africa 5 - 15% of the general urban population and 10 - 15% of sexually active urban young adults are thought to be infected with H.I.V. In those developing countries where H.I.V. infection is becoming prevalent (Asia and Africa) and tuberculous infection has long become endemic e.g. Sub-Saharan Africa, parts of Latin America and the Caribbean the incidence of tuberculosis, which is already high, will rise steeply, and the resources for tuberculosis control which are currently inadequate, will be strained even more[8]. A rising incidence of tuberculosis has already been documented in Tanzania, Burundi, Uganda, Zaire, Abidjan and Malawi. At present in India about 10 million persons are suffering with radiologically suspected pulmonary tuberculosis, of which, about 2.5 million would be sputum positive cases. The number of deaths are estimated to be nearly 500,000 every year. The projection of W.H.O. with regards to H.I.V. infection and A.I.D.S. in Asia and Africa by 2000 A.D. suggest an extremely high prevalence of H.I.V. infection.⁹ It would be worth while to note the relationship between pulmonary tuberculosis and H.I.V. infection and the effect of the same on the overall prevalence of tuberculosis. Present study is mainly based to observe the prevalence of H.I.V.-1 infection and A.I.D.S. in pulmonary tuberculosis.

Material and methods

This study was undertaken in Bhaskar Medical College, Moinabad during the period from June 2012 to November 2013. Material for the present study comprised of 52 bacillary cases of pulmonary tuberculosis admitted to the institution. Age and sex matched 25 healthy normal subjects without any evidence of pulmonary tuberculosis or any other infection in the past one year were taken as control group.

Inclusion criteria: Patients clinically diagnosed and confirmed by the presence of A.F.B. in the sputum.

Exclusion criteria: Patients suffering with diabetes mellitus and other similar diseases were excluded.

All the selected patients were hospitalized. The cases were subjected to meticulous history, thorough clinical, radiological and biochemical examination at the time of admission. Routine investigations like urine examination, T.C., D.C., E.S.R., blood sugar, blood urea, serum creatinine were performed in all cases admitted into the study. Apart from above investigations all basic investigations were done like Liver function test, Sputum for AFB by Ziehl-Neilsen method, Direct smear for gram stain, Sputum for culture and sensitivity for pyogenic organisms, Mantoux test, V.D.R.L.examination, and X-ray chest P.A.view was taken. Retro-tek HIV-1 ELISA test was done to confirm HIV. It is enzymed linked immunosorbent assay for the detection of antibodies to human immunodeficiency virus type-1 in the human serum or plasma. The presence of circulating anti-bodies

Results

indicates that the individual had prior exposure to HIV1 viral proteins. Determination of mean of negative control, the two separate ELISA reading of negative control are added together the result is divided by two (giving average absorbents) Determination of mean of positive control. The two separate ELISA readings & absorbents are of positive control of similar e added together and the result is divided by two. The value obtained represents the mean of positive control. Cut off value the cut off value is determined by dividing the mean of positive control by two. The resulting value is considered the cut off value between nonreactive and reactive readings. Interpretation of results is by Specimen with absorbents values equal to or less than the cutoff value are considered nonreactive and retrotek hiv ELISA is considered negative for antibodies to HIV. Further testing is not required. Specimens with absorbent values greater than cutoff value are considered reactive (initial reactive). The original sample is retested. Initially reactive specimens which do not react in the repeat test are considered negative for HIV. If the specimen is repeatable reactive the probability that anti-bodies to HIV are present is high. In most settings it is appropriate to investigate repeatedly reactive specimens by additional more specific test. After the above investigations all the patients were put on tab Ethambutol, Tab INH, Cap Rifamycin and Tab Pyrazinamida. The drugs were changed during the course of study in some patients due to development of toxicity.

Table 1: Demographic Distribution

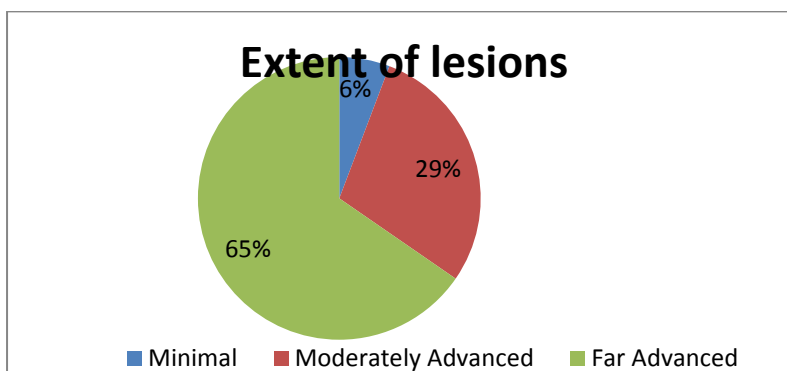
Age in Yrs	No. of controls	Percentage	No. of Patients	Percentage
10-19	0	0	3	5.8
20-29	5	20	11	21.2
30-39	9	36	20	38.4
40-49	7	28	9	17.3
50-59	4	16	5	9.6
60-69	-	-	4	7.7
SEX				
Females	7	28	15	28.85
Males	18	72	37	71.15

The majority of pulmonary tuberculosis cases were found in the age group 30-49. The disease was more common in males than in the females with M:F::2.5:1 ratio.

Table 2: Distribution of symptoms in patients

Symptoms	No. of Patients	Percentage
Cough with or without expectoration	52	100
Chest Pain	24	46.15
Haemoptysis	15	28.85
Fever	47	90.40
Loss of appetite	42	80.90
Loss of Weight	32	61.50
Palpitations	7	13.50
SOB	32	61.50
Giddiness	19	36.50
Hoarseness of voice	3	5.80
Malaise	14	26.90
Joint Pains	3	5.80
Others		
Skin Rash	2	3.80
Back Ache	1	1.90
Parathesias	6	11.50
Signs		
General Examination Anemia	30	57.7
Icterus	1	1.9
Lymphadenopathy	5	9.6
Thickened nerves	11	21.2
Clubbing	24	46.1
Pedal Oedema	8	15.4
Others		
J V P	1	1.9
Respiratory system infiltrative	25	48.1
Cavitary	19	36.5
Fibrotic	16	30.8
Pleuritic	2	3.8
<i>Normal</i>	2	3.8

At the time of admission into the study all the patients had complains of cough with sputum production. Majority had fever, loss of appetite, loss of weight, breathlessness. Other symptoms like haemoptysis, chest pain were also found in varying proportion. On clinical examination most of the patients had signs of infiltration, fibrocavity, fibrosis.

**Fig 1: Distribution of radiological extent of disease**

About 2/3rd of the patients were radiologically far advanced. Moderately advanced lesions were found in rest of the cases. Where as only 6% had minimal lesions.

Table 3: Prevalence of HIV-1 patients and controls

	Reactive		Non Reactive	
	No. of Patients	%	No of Patients	%
No. of Patients 52	11	23.1	40	76.9
No. of Controls	0	0	25	100.0
<i>Correlation of Age distribution</i>				
10-19	0	0	3	7.5
20-29	5	41.7	6	15
30-39	2	16.7	7	45
40-49	2	16.7	4	10
50-59	1	8.3	4	10
60-69	2	16.7	2	5
<i>Correlation of sex distribution</i>				
Female	6	50	9	22.5
Male	6	50	31	77.5

he majority of pulmonary tuberculosis cases were found in the age group 30-49

Table 4: Correlation of symptoms and signs in HIV-1 reactive and non-reactive categories

Symptoms	HIV-1 Reactive		Non- Reactive	
	No of Patients	%	No. of Patients	%
Cough with expect	12	100	40	100
Chest pain	5	41.6	19	47.5
Haemoptysis	4	33.3	9	22.5
Fever	12	100	35	87.5
Loss of appetite	10	83.3	32	80
Loss of Weight	9	75	23	57.5
Palpitations	2	16.7	5	12.5
SOB	9	75	23	57.5
Giddiness	9	75	24	60
Malaise	4	33.3	10	25
Joint Pains	-	-	3	7.5
Others	-	-	1	2.5
Skin Rash				
Back Ache	-	-	6	15
Parasthesia	1	8.3	-	-
Night Sweats	2	16.7	-	-
<i>Duration of Symptoms</i>				
0-2 Months	1	8.3	4	10
3-5 Months	2	16.7	5	12.5
6-8 Months	5	41.6	12	30
9-12 Months	1	8.3	9	22.5
13-18 Months	0	0	1	2.5
19-24 Months	2	16.7	4	10
2-3 Years	-	-	3	7.5
3-4 Years	-	-	-	-
4-5 Years	-	-	3	7.5
<i>Signs</i>				
General examination	9	75	1	52.5
Anemia				

Icterus	0	0	1	2.5
Lymphadenopathy	1	8.3	4	10
Thickened Nerves	1	8.3	10	25
Clubbing	4	33.3	20	50
Pedal Edema	3	25	5	12.5
Other JVP	2	16.7	5	12.5
Neck Stiffness	1	8.3	-	-
Respiratory system Infiltrative	7	58.3	18	45
Cavitary	4	33.3	15	37.5
Fibritic	2	16.7	14	35
Pleuritic	-	-	2	5
Normal	1	8.3	1	2.5

Table 5: Correlation of radiological extent of disease in HIV-1 reactive and non-reactive categories

Radiological extent	HIV 1 Reactive		Non Reactive	
	No. of Patients	%	No. of Patients	%
Minimal	1	8.3	2	5
Moderately Advanced	6	50	91	22.5
Far Advanced	5	41.7	29	72.5

Table 6: Correlation of variables reaction in HIV-1 sero + ve and sero - ve

Tuberculin skin reaction	SERO + VE		SERO - VE	
	No of patients	%	No of patients	%
0-4 mm	2	16.7	11	27.5
5-9 mm	1	8.3	4	10
10 mm	9	75	25	62.5
<i>Modes of transmission</i>				
Promiscuity	9	75	19	47.5
Surgery	-	-	2	5
H/O Blood Transfusion	-	-	2	2
Past treatment history	9	75	15	37.5
V D R L	3	25	7	17.5
BCG Scars	3	25	12	30
Mortality	1	8.3	2	5

The mode of transmission of HIV infection was probably heterosexual as none of the patients had previous history of homosexuality, blood transfusion, surgery. More number of HIV-1 seropositive TB cases (25%) had serum for VDRL, significantly reactive than HIV-1 seronegative TB cases (17.5). Majority of HIV-1 seropositive TB cases gave history of promiscuity (75%) than the HIV-1 seronegative TB cases (47.5%).

Table 7: Correlation of drug reactions in HIV-1 sero + ve and sero - ve categories

Drug Reaction	SERO+VE		SERO-VE	
	No. of Patients	%	No of Patients	%
Nausea	2	16.7	10	25
Vomiting	2	16.7	7	17.5
Giddiness	1	8.3	8	20
Paraesthesia	3	25	11	27.5
Jaundice	1	8.3	-	-

Rash	1	8.3	-	-
Arthralgia	-	-	1	2.5
Convulsions	-	-	1	2.5

Paraesthesia is most common drug reactions seen in study

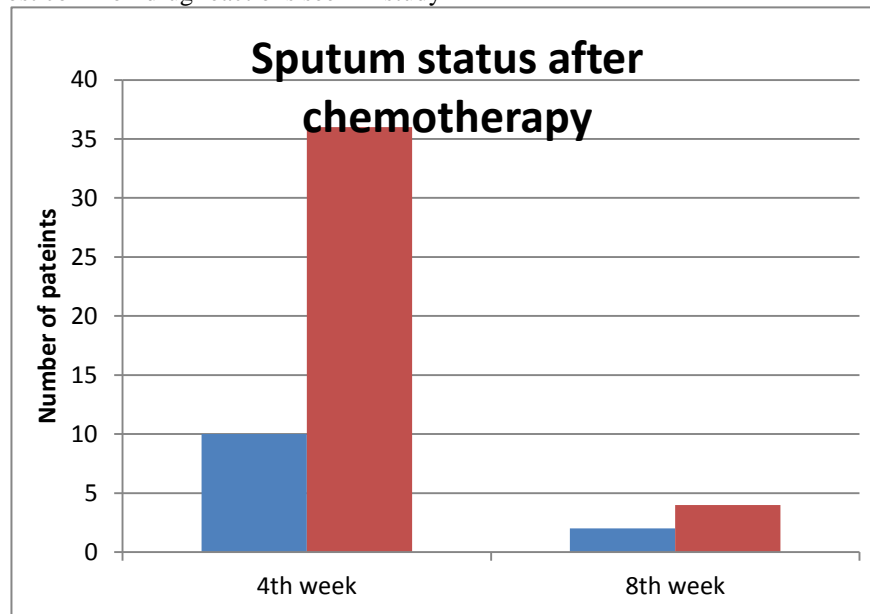


Fig 2: Status of sputum after chemotherapy

In the 52 cases of pulmonary tuberculosis selected for the study, 37 cases were non-reactive. The remaining 15 cases were found to be reactive and, of these initial reactive cases when test was repeated, 14 cases were found to be reactive again and were referred to as "repeatedly reactive". When test was repeated in 12 of these 14 repeatedly reactive cases 10 were found to be reactive again. Thus over all 10 cases were reactive for H.I.V-1 infection three times and 2 cases were reactive for two times.

Discussion

Tuberculosis is a major public health problem in the developing countries of the world today. Approximately 10 million people are suffering from pulmonary tuberculosis in our country. No authentic information about the prevalence of tuberculosis in India was available before the National Sample Survey carried out between 1955-1957 (I.C.M.R 1958). According to the National Sample Survey the finding are Prevalence rate of active and probably active tuberculosis varies from 13 -25/ thousand aged 5 yrs and above. Rate of bacteriologically positive cases per thousand varies from 2 - 8. Prevalence is lower in females than males especially in age group 35 years and above[10].After this study, several epidemiological

studies have been conducted in small group of persons they have large confirmed the findings of National Sample Survey. The AIDS epidemic has already had a profound impact on Tuberculosis morbidity in the U.S.A[11] HIV sero prevalence rates reported in the African patients among tuberculosis patients are; Zaire73 (33 - 36%), Uganda (30%), Cote- D'Ivoire (24%), Burundi (58%), Kenya (16%). In the present study the reported prevalence of HIV sero positivity among Tuberculosis patients is 23.1%. The difference in the prevalence of HIV sero positivity among the T.B. patients are probably related to difference in their back ground prevalence of tuberculous infection. Thus it appears that if a person is tuberculous infected and becomes immuno suppressed from HIV infection he has an extremely high risk of developing clinically active tuberculosis. Several lines of evidence support the hypothesis that A.I.D.S., and HIV infection are involved in the secular trends noted in tuberculosis prevalence. First, since other immuno suppressive disorders are associated with an increased risk of developing clinically apparent tuberculosis. It is biologically plausible that the severely compromised immunity secondly to AIDS and HIV infection will favour activation of pre-existing latent tuberculous infection. Secondly, the states and cities with largest AIDS cases has had the largest T.B. increased of any

state or city[12]. In the present study majority of the patient belonged to age group 30 to 39 (38.4%) the number of patients in the age group 30 to 49 is (55.7) of the total number of cases. Among the HIV sero negative cases of pulmonary tuberculosis the majority of patients belonged to age group 30 - 39 (45%) where as in the HIV sp cases of pulmonary tuberculosis majority belonged the age group of 20 - 29 (41.7%). This could be due to the increased sexual activity in this age group. The sex distribution in the present study is similar to those of others who have confirmed the finding of National Sample Survey. Holmes CB et.al¹³ has stated that the prevalence as well as incidence of disease are higher among males than females, with male to female ratio varying from 3:1 to 5:1. The male to female ratio in present study was 2.5:1. The Sex Distribution among the HIV sero negative case of pulmonary tuberculosis was similar to that of National Sample Survey. But the ratio in HIV sero positive case of pulmonary tuberculosis was 1:1. In our study the pulmonary tuberculosis cases were investigated for HIV serology using Retro-Tek HIV-1 ELISA method which detect anti bodies against the various HIV proteins. Out of the 52 cases 37 cases were found to be non-reactive at the initial testing. The rest of the patients i.e., 15 were declared 'Reactive'¹³. On the repeating the ELISA test on the 15 reactive patients 14 were 'repeatedly reactive'. When ELISA test was repeated in 12 of these repeatedly reactive cases 10 were again found to be 'Reactive'. Confirmatory test like 'Western Blot' is to be done to confirm all the cases. Braitstein P et al study of pulmonary tuberculosis have found cough (96%), fever (86%), weakness & loss of weight (80%), chest pain (71%), loss of appetite (65%), and haemoptysis (30%) of cases. In the present study cough with sputum production (100%) fever (90%) loss of appetite (80%) weakness & loss of weight (61%) are in co-relation with the study of Singh. Among the HIV sero positive cases of pulmonary tuberculosis fever (100%), cough with sputum production (100%), loss of weight (75%), loss appetite (83%) and haemoptysis (33%) are also in corelation with finding. In the present study HIV sero positive patient of pulmonary tuberculosis (80%), came with the complains of symptoms earlier than HIV sero negative case of pulmonary tuberculosis (50%) in the first 8 months. Hopewell PC¹⁵ have described the symptoms of HIV sero positive pulmonary tuberculosis as non-specific presenting with cough, fever, night sweats, malaise, loss of appetite, loss of weight, haemoptysis, pleuritic chest pain and shortness of breath. Minor variations noted the present study between sero positive and sero negative pulmonary tuberculosis can be due to extensive nature of disease.

None of the selected patients presented with any other system involvement or with clinical features like herpes, thrush suggesting severe immuno suppression. In the present study patient of HIV sero positive pulmonary tuberculosis presented with physical signs of infiltration (58.3%), cavity (33.3%), fibrosis (16.8%). Among the HIV sero negative cases of pulmonary tuberculosis presented with infiltration (45%) cavity (37.5%), fibrosis (35%). The reason for more infiltrative and less fibrotic lesion in HIV sero positive case could be due to decreased immunity. Havlir DV et.al described that severe & progressive pulmonary tuberculosis may fail to produce any symptom that can be recognised by either the patient or the physician[16]. When the patient do develop symptoms, the disease is likely to be advanced. In the present study 65% of the patients had far advanced lesion and (29%) had moderately advanced lesion. Only (6%) had minimal lesion, the reason being as this disease is common in low socio-economic status they neglect the symptoms, in the early stage of the disease and unless they are very sick they do not come for hospitalisation. This, finding goes against the finding of National Sample Survey, in which majority had moderately advanced lesion. The reason is that here the cases were taken from hospitalised patients, whereas that study was undertaken in general population. The findings in the present study corroborates with findings of Khanna[17] who observed far advanced lesion in (87.5%) in hospitalised pulmonary tuberculosis cases. In the present study 2 out of 12 cases of HIV sero positive pulmonary tuberculosis presented with INFRA-HILAR pulmonary tuberculosis lesion. These atypical findings corroborates with the findings of Debnath J, et al[18] who have reported atypical radiographic presentations of pulmonary tuberculosis in HIV sero positive cases (20% to 45%). According to the global summary 1991 reported by C.D.C., HIV transmission commonly occur with sexual intercourse (75%) of which (60%) in vaginal, (15%) in anal. I.V.-drug abuse, perinatal transmission occur in (10%) each and blood transfusion responsible for (5%). In the present study all the HIV sero positive cases of pulmonary tuberculosis were hetero-sexual with none being homo-sexual, none of them were I.V.-drug abusers and no one was transfused blood. In the present study the higher incidence of promiscuity (75%) was seen among HIV sero positive cases of pulmonary tuberculosis, whereas only (47.5%) gave history of promiscuity in HIV sero negative cases of pulmonary tuberculosis. Serum for V.D.R.L., was significantly reactive in 25% HIV sero positive cases of pulmonary tuberculosis, whereas only (17.5%) of HIV sero negative cases of pulmonary tuberculosis has

significant V.D.R.L., reactivity. According to literature the tuberculin skin reaction of more than 10mm induration was similar for of HIV sero positive and sero negative pulmonary tuberculosis cases. In the present study the tuberculin skin reaction (1 PPD) was found to be more than 10mm induration almost equally in HIV sero positive (75%) and HIV sero negative (62.5%), cases of pulmonary tuberculosis[19].

In the present study the sputum conversion by smear at the end of second month in the HIV sero positive pulmonary tuberculosis cases is (100%) which is almost identical to the finding of the above studies. The HIV sero negatives cases of pulmonary tuberculosis also showed 100% sputum conversion by smear. The regimen used i.e., 2 EHRZ/4 HR is in accordance with the recommendations of American Thoracic Society. The 100% response seem in both HIV sero positive and HIV sero negative is similar to the studies reported[18]. The treatment regimen of 2 EHRZ/ 4 HR was selected to avoid the emergence of resistant tubercle bacilli. Injection streptomycin was avoided in the study to reduce the risk of transmission of HIV infection from patient to patient. The conventional drug regimens of R1 to R5 were not used for the fear of emergence of resistant tubercle bacilli. Due to drug toxicity treatment was changed to HE in two cases. Nausea occurred in 16.7% in HIV sero positive cases and in 25% of sero negative pulmonary tuberculosis cases. The nausea was probably due to rifampicin for it disappeared after consuming rifampicin with food. Hepatitis occurred in 16.7% of HIV sero positive patients whereas it was not seen in HIV sero negative cases. Hepatitis was probably due to rifampicin as it subsided after removal of rifampicin from the treatment. This is similar to findings Villarino ME²⁰ who reported 1/5th patient receiving RH developing some kind of hepatic reaction. In India Parthasarathy et. al recorded jaundice in 8% patients on rifampicin therapy, Hepatitis occurred in 10% of patients with spinal tuberculosis, 16-39% of children with meningitis and 2-8% with pulmonary disease treated with rifampin and isoniazid, arising 1-6 months after starting therapy, more commonly in slow acetylators).

Conclusions

Pulmonary tuberculosis is more prevalent in the age group 30-49 years. It is more prevalent in males than in females with a ratio of M:F::2.5:1. Among the selected patients radiologically far advanced lesion was noted in 2/3 rd cases. On random selection of 52 bacteriologically positive pulmonary tuberculosis patients 12 were found to be "repeatably positive" to

RETRO-TEK H.I.V-1 E.L.I.S.A. test for detection of antibodies to H.I.V. proteins. Thus 23.1% seroprevalence was noted in pulmonary tuberculosis patients. In H.I.V-1 seropositive pulmonary tuberculosis patients majority presented in 20-29 years age group with equal distribution between males and females (M:F::1:1). Symptomatically and clinically both H.I.V. seropositive and seronegative pulmonary tuberculosis patients presented similarly. 2 out 12 cases of H.I.V-1 seropositive pulmonary tuberculosis patients presented with infra-hilar pulmonary tuberculosis. Anti-tuberculosis treatment with 2EHRZ+4HR was found to be equally efficacious in both H.I.V-1 seropositive and seronegative pulmonary tuberculosis patients. Sputum smear conversion for A.F.B. bacilli was not influenced by H.I.V-1 infection. Transmission of H.I.V-1 infection is probably due to heterosexual mode of transmission with promiscuous social habits being a high risk factor.

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