To Study Clinical Pattern of Extrapulmonary Tuberculosis in HIV Positive Patients

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ABSTRACT

BACKGROUND AND OBJECTIVES: The clinical presentation of TB in HIV seropositive patients is highly variable and depends upon the severity of immunosuppression. Though pulmonary TB (PTB) is the most common form, extra pulmonary tuberculosis is reported to occur more frequently at inaccessible sites. In this study will review clinical pattern of extra pulmonary tuberculosis in HIV Positive patient coming to ART Centre, New civil hospital Surat. This study is carried out to study clinical pattern of Extrapulmonary tuberculosis in HIV positive patients. METHODS: 100 HIV Positive indoor patients of more than 14 yrs with sign and symptoms of extrapulmonary tuberculosis were studied with clinical examination, laboratory, radiological and histopathological investigations depending on clinical presentation. Data were collected and analysed according to their age, sex, marital status, CD4 count, symptoms, clinical signs and laboratory, radiological and histopathological investigations then chi-square test was applied. RESULTS: On analysis, TB lymphadenitis was most common (43%), followed by abdominal koch’s (30%), pleural effusion (20%) and CNS tuberculosis (7%). Among them 11% cases were having both pulmonary and extra pulmonary involvement and 3% cases having milliary presentation. Most of the extrapulmonary tuberculosis were having <200 CD4 count. CONCLUSION: Chances of extrapulmonary tuberculosis in HIV positive patients are high in those who are having low CD4 count. Fever being the most common symptoms. Low CD4 favors atypical presentation in those associated pulmonary cases. On further evaluation, Mantoux test is having less sensitivity and radiological, histopathological investigations found to be more sensitivity and specificity.

Keywords: HIV, Extrapulmonary Tuberculosis, CD4 count, Mantoux test

INTRODUCTION

The effect of HIV/TB co infection is bi-directional: TB affects the natural history of HIV infection and HIV infection affects the presentation and outcome of TB. The clinical presentation of TB in HIV seropositive patients is highly variable and depends upon the severity of immunosuppression. Though pulmonary TB (PTB) is the most common form, extra pulmonary tuberculosis is reported to occur more frequently at inaccessible sites. Also the diagnosis of TB in HIV positive patients may put some difficulties, as the reliability of tuberculin test gets reduced due to HIV induced immunosuppression.

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In HIV infected person CD4 count in blood directly correlates with level of immunosuppression & hence acquisitions of various so called opportunistic infection of which TB is most common but presentation may differ, it also has prognostic value and therapeutic implication. The radiological findings are often nonspecific in patients having TB with HIV illness with sometimes normal chest X-rays, resulting in under diagnosis of TB in co-infected patients. Furthermore, sputum smears of AFB are negative more frequently in such patients making the diagnosis of TB unusually difficult. In developing countries like India, having limited health resources, early diagnosis followed by effective treatment of TB among co-infected patients is critical for curing TB and minimizing its deleterious effects on the course of HIV disease. But the early diagnosis of TB has become a main hurdle due to highly variable clinical – radiological presentation of the disease.
About up to 56% of the patients with HIV diseases in India are suffering from tuberculosis.\textsuperscript{20-28} In this study will review clinical pattern of extra pulmonary tuberculosis in HIV Positive patient coming to ART Centre, New civil hospital, Surat.

**MATERIALS AND METHODS**

This study was carried out in NCH Surat from July 2009 to Oct. 2011.

- **Inclusion Criteria**
  1. Person age /\geq 14 yrs.
  2. Both sexes.
  3. Extrapulmonary TB patients confirmed at ART centre, Surat.

- **Exclusion Criteria**
  - Person age < 14 YRS.
  - Tuberculosis without HIV infection.
  - HIV positive patient with only Pulmonary TB.
  - Pregnant women.

**In all cases following history noted:**

1. Detailed history regarding mode of onset of diseases, duration & progress.
2. Detailed past history for Blood transfusion, surgery, tuberculosis, major surgery.
3. Family history regarding TB, HIV.
5. Routine general & specific Investigation.\textsuperscript{29-33}

**A. Routine investigations include :**

1. Haemoglobin with ESR, Total count, Differential count, RFT, LFT.
2. Other Investigation like chest x – ray, ultrasonography, urine R/M, HIV,HBsAG, HCV, VDRL.

**B. Specific investigation include:**

1. **MT Test:** 5 tuberculin units of purified protein derivative (PPD) 0.1 ml was given intradermally with tuberculin syringe with 26 or 27 gauge needle over flexor aspect of forearm. After 48 to 72 hrs, Reading was taken by trained person. \( \geq 5 \) mm is classified as positive in HIV patients.

2. **Sputum AFB:** done by Ziehl-Neelsen’s method. 2 sputum samples (1. Spot sample 2. Early morning sample) taken for examination.\textsuperscript{34}

3. **FNAC / Biopsy of Lymph node.**
4. **Pleural Fluid Analysis.**
5. **Ascitic fluid Analysis.**
6. **CSF Analysis.**
7. **CT SCAN/MRI.**
8. **CD4 Count.**

**OBSERVATIONS**

- **Figure 1:** Incidence of EXTRAPULMONARY TB in HIV positive patient according to age group

- **Table 2:** Incidence of EXTRAPULMONARY TB in HIV positive patient according to Sex

<table>
<thead>
<tr>
<th>Sex</th>
<th>No of Cases</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>68</td>
<td>68 %</td>
</tr>
<tr>
<td>Female</td>
<td>32</td>
<td>32 %</td>
</tr>
</tbody>
</table>

- **Figure 2**

- **Table 3 Marital status**

<table>
<thead>
<tr>
<th>Sr.No</th>
<th>Marital Status</th>
<th>No of Cases</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Married</td>
<td>80</td>
<td>80%</td>
</tr>
<tr>
<td>2</td>
<td>Unmarried</td>
<td>10</td>
<td>10%</td>
</tr>
<tr>
<td>3</td>
<td>Widows/ Divorced</td>
<td>10</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100</td>
<td>100%</td>
</tr>
</tbody>
</table>
Table 4 Probable route of HIV transmission

<table>
<thead>
<tr>
<th>Probable Route</th>
<th>No of Cases</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual</td>
<td>86</td>
<td>36%</td>
</tr>
<tr>
<td>Parental</td>
<td>10</td>
<td>10%</td>
</tr>
<tr>
<td>Undetermined (cutaneous, congenital, Others)</td>
<td>4</td>
<td>4%</td>
</tr>
</tbody>
</table>

Table 5 Presenting Symptoms

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Symptoms</th>
<th>No Of Patients</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cough</td>
<td>33</td>
<td>33%</td>
</tr>
<tr>
<td>2</td>
<td>Fever</td>
<td>87</td>
<td>87%</td>
</tr>
<tr>
<td>3</td>
<td>Chest Pain</td>
<td>05</td>
<td>05%</td>
</tr>
<tr>
<td>4</td>
<td>Breathlessness</td>
<td>20</td>
<td>20%</td>
</tr>
<tr>
<td>5</td>
<td>Weight Loss</td>
<td>51</td>
<td>51%</td>
</tr>
<tr>
<td>6</td>
<td>Anorexia</td>
<td>51</td>
<td>51%</td>
</tr>
<tr>
<td>7</td>
<td>Headache</td>
<td>04</td>
<td>04%</td>
</tr>
<tr>
<td>8</td>
<td>Convulsion</td>
<td>03</td>
<td>03%</td>
</tr>
<tr>
<td>9</td>
<td>Altered</td>
<td>04</td>
<td>04%</td>
</tr>
<tr>
<td>10</td>
<td>GI Disturbances</td>
<td>21</td>
<td>21%</td>
</tr>
<tr>
<td>11</td>
<td>Lymphadenopathy</td>
<td>17</td>
<td>17%</td>
</tr>
</tbody>
</table>

Table 6 General Examination

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>General Examination</th>
<th>No of Patients</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pallor</td>
<td>42</td>
<td>42%</td>
</tr>
<tr>
<td>2</td>
<td>Icterus</td>
<td>03</td>
<td>03%</td>
</tr>
<tr>
<td>3</td>
<td>Clubbing</td>
<td>14</td>
<td>14%</td>
</tr>
<tr>
<td>4</td>
<td>Lymphadenopathy</td>
<td>21</td>
<td>21%</td>
</tr>
<tr>
<td>5</td>
<td>Pedal Oedema</td>
<td>13</td>
<td>13%</td>
</tr>
<tr>
<td>6</td>
<td>Oral Candidiasis</td>
<td>16</td>
<td>16%</td>
</tr>
<tr>
<td>7</td>
<td>Others (herpes labialis,Papular eruption,Oral ulceration)</td>
<td>03</td>
<td>03%</td>
</tr>
</tbody>
</table>

Table 7 Systemic Examination

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Systemic Examination</th>
<th>No of Patients</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Crepitations</td>
<td>18</td>
<td>18%</td>
</tr>
<tr>
<td>2</td>
<td>Signs of Pleural Effusion</td>
<td>19</td>
<td>19%</td>
</tr>
<tr>
<td>3</td>
<td>Hepato-Splenomegaly</td>
<td>17</td>
<td>17%</td>
</tr>
<tr>
<td>4</td>
<td>Ascites</td>
<td>06</td>
<td>06%</td>
</tr>
<tr>
<td>5</td>
<td>CNS abnormality</td>
<td>07</td>
<td>07%</td>
</tr>
</tbody>
</table>

Table 8 Clinical Diagnosis

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Clinical Diagnosis</th>
<th>No of Patients</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Splenic TB</td>
<td>23</td>
<td>23%</td>
</tr>
<tr>
<td>2</td>
<td>TB Lymphadenitis</td>
<td>43</td>
<td>43%</td>
</tr>
<tr>
<td>3</td>
<td>Pleural Effusion</td>
<td>20</td>
<td>20%</td>
</tr>
<tr>
<td>4</td>
<td>TB Meningitis</td>
<td>07</td>
<td>07%</td>
</tr>
<tr>
<td>5</td>
<td>Military TB</td>
<td>03</td>
<td>03%</td>
</tr>
<tr>
<td>6</td>
<td>Ascites</td>
<td>06</td>
<td>06%</td>
</tr>
<tr>
<td>7</td>
<td>Intestinal TB</td>
<td>09</td>
<td>09%</td>
</tr>
<tr>
<td>8</td>
<td>Asso. Pulmonary TB</td>
<td>13</td>
<td>13%</td>
</tr>
<tr>
<td>9</td>
<td>Disseminated TB</td>
<td>11</td>
<td>11%</td>
</tr>
</tbody>
</table>
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Table 9 CD4 Status

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>CD4 Count</th>
<th>No of Patients</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&lt; 100</td>
<td>24</td>
<td>24%</td>
</tr>
<tr>
<td>2</td>
<td>100-199</td>
<td>40</td>
<td>40%</td>
</tr>
<tr>
<td>3</td>
<td>200-499</td>
<td>23</td>
<td>23%</td>
</tr>
<tr>
<td>4</td>
<td>&gt;= 500</td>
<td>03</td>
<td>03%</td>
</tr>
</tbody>
</table>

Table 10 Mantoux Test Reaction

<table>
<thead>
<tr>
<th>Sr.No</th>
<th>MT Test (mm)</th>
<th>No. Of Patient</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Positive (&gt;5mm)</td>
<td>18</td>
<td>18%</td>
</tr>
<tr>
<td>2</td>
<td>Negative (&lt;5mm)</td>
<td>82</td>
<td>82%</td>
</tr>
</tbody>
</table>

Table 11 Sputum for AFB Examination

<table>
<thead>
<tr>
<th>Sr.No</th>
<th>SP. AFB</th>
<th>No. of Patient</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Positive</td>
<td>12</td>
<td>12%</td>
</tr>
<tr>
<td>2</td>
<td>Negative</td>
<td>88</td>
<td>88%</td>
</tr>
</tbody>
</table>

Table 12 Various presentations of Abdominal Tuberculosis

<table>
<thead>
<tr>
<th>Presentation</th>
<th>No. of Patient</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdominal lymphadenopathy</td>
<td>30</td>
<td>30%</td>
</tr>
<tr>
<td>Spleen &amp; Liver granuloma</td>
<td>25</td>
<td>25%</td>
</tr>
<tr>
<td>Intestinal TB</td>
<td>9</td>
<td>9%</td>
</tr>
<tr>
<td>Ascites</td>
<td>6</td>
<td>6%</td>
</tr>
</tbody>
</table>

Table 13 Correlation between MT test and CD4 status

<table>
<thead>
<tr>
<th>CD4</th>
<th>MT test Positive</th>
<th>MT test Negative</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;200</td>
<td>3</td>
<td>66</td>
<td>69</td>
</tr>
<tr>
<td>&gt;200</td>
<td>15</td>
<td>16</td>
<td>31</td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
<td>82</td>
<td>100</td>
</tr>
</tbody>
</table>

Figure 8

Figure 9

Figure 10
To Study Clinical Pattern of Extrapulmonary Tuberculosis in HIV Positive Patients

Table 14 Correlation between Sputum AFB and CD4 status

<table>
<thead>
<tr>
<th>CD4 &lt; 200</th>
<th>Sputum AFB Positive</th>
<th>Sputum AFB Negative</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD4 &lt; 200</td>
<td>5</td>
<td>64</td>
<td>69</td>
</tr>
<tr>
<td>CD4 &gt; 200</td>
<td>7</td>
<td>24</td>
<td>31</td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td>88</td>
<td>100</td>
</tr>
</tbody>
</table>

Figure 14 Sputum AFB

DISCUSSION

From table 1: Comparison of Age Incidence
Incidences were maximum in age group 31-40 years at 51% of 100 cases, 28% in age group of 21-30 years. It was less in age group of 41-50 years and > 50 years, 15% and 4% respectively. In various study incidences were found maximum in 21-40 yrs. In Rajasekaran et al study it was 84.6%, in Tambum Study it was 74.94%, in Praveen kumar et al it was 69.04% while in R. Prasad et al it was 87.1%. According to Zuber Ahmed et al and K.C. Mohanty study, maximum incidence (43%) of cases were found in age group of 20-40 yrs followed by 41-60 yrs. This is probably due to the reason that this age group is generally found to be sexually active and active transmission of HIV and tuberculosis is most common opportunistic infection in HIV positive patients. HIV infection increases the risk of developing active TB.

From table 2: Comparison of Sex Incidence
It is seen that 68% patient were male and 32% patient were female. This striking male predominance has also been noted by Rajasekaran et al in 74.4%, Tambum Study in 79.25%, Praveen kumar et al in 90.5% and R. Prasad et al in 80.6%. Zuber Ahmed et al reported male: female ratio is around 4.8:1. Male predominance seen in above study. Because of migratory population, living alone, leading to more unprotected multiple sexual relations. Sexual exposure is very high in this population.

From table 3: Comparison of Marital Status
In present study, most of the patients were married (80%) and others were unmarried (10%) & widows/divorced (10%). As seen from the table, majority (80%) of patients were married which is comparable to study by Swaminathan et al which had 67% married patients and Sandip Thakrar et al which had 76% married patients in their study. Unmarried patients accounted for 10% in present study and 22% and 16% respectively in other above two studies. Widow/Divorced living alone were 10% in present study, 11% in Swaminathan et al study and 8% in Sandip Thakrar et al study.

From table 4: Comparison of Mode Of HIV Transmission
In present study, transmission of HIV via sexual route was the most common finding accounting 86% while only 10% of patient had probability of transmission parenally; rest in one patient transmission route was undetermined and similar trend was found in other study i.e. Rajasekaran et al found it in 94.9%, Praveen kumar et in 97.6%, Zuber Ahmed et al in 95.6% and R. Prasad et al in 80.6%.

From table 5: Comparison of Distribution of Symptoms
Most common presenting symptom in patients were fever (87%), wt. loss (51%), anorexia (51%) and less common symptoms were cough (33%), breathlessness (20%), abdominal discomfort (21%), chest pain (5%), headache (4%). Zuber Ahmed et al study also shows most common presenting symptoms in decreasing order of frequency were fever, anorexia, cough, weight loss, weakness, dyspnea, haemoptysis. In study of Kramer and others, Mohanty et al, Gupta et al, fever was the most common complaint. Thus presenting symptoms of tuberculosis in HIV patients are not different from those in non-HIV Infected persons. In patient with relatively high CD4 Count, typical sign & symptoms like fever, cough,
dyspnoea, wt. loss & night sweat develop. In patients with low CD4 Count, atypical presentation is more common. 

**From table 6: Comparision of General Clinical Signs**

Common physical findings were pallor (42%), lymphadenopathy (21%), and oral candidiasis (16%). In Kramer study common physical findings were oral candidiasis (44%), malnutrition (40%), lymphadenopathy (26%). In the current study, pallor (42%) was the most common physical sign found which is similar finding by Sandip Thakar et al (44%), pallor most probably was due to nutritional (iron) deficiency, chronic illness, drug (zidovudine) toxicity etc. External lymphadenopathy (cervical most common) was found in 21% cases in current study, in 34% cases in Sandip Thakar et al study, in 29% cases in Swami-nathan et al study, 11.9% cases in Praveen kumar et al study and in only 7.88% in cases in Tambrum et al study. Oral thrush had seen in 44% in current study is consistent with other study having seen in between 28% to 48%. Skin and nail changes (including papulo-pruritic eruptions, clubbing, herpes labialis and herpes zoster etc.) has noted in 3% cases in current study & Praveen kumar et al (2.4%) study, while higher frequency had been noted in other series. SandipThakar et al (26%), Tambrum et al (52%), Swami-nathan et al (18%), the reported lower frequency may be due to variation in opportunistic infections and regional factor. Pedal oedema noted in 13% in current study which has noted at higher frequency in SandipThakar et al (18%) and Swami-nathan et al(9%) study. The variation may be due to difference in nutritional status and diet, geographical area, HIV stage at the time of study. Icterus found in current study (3%) is similar to found by Sandip Thakar et al (6%), a higher (18%) frequency noted by Tambrum et al may be due to higher incidence of patient under antituberculous treatment.

**From table 7: Comparision of Systemic Examination.**

In presenting study, sign of pleural effusion was the most common finding accounting for 19%. Other findings were splenomegaly (17%) crepitations (18%), ascites (7%) and CNS abnormalities (7%). Splenomegaly was due to granulomatous involvement of spleen. An incidence of pleural effusion has noted in present study (19%) and Sandip Thakar et al study (20%). A percentage (7%) of CNS TB (meningitis) was found in current study while other study has reported it in range from 2.4% in Praveen Kumar et al study to 6.13% in Tambrum et al study.

**From table 8: Comparision Of clinical Diagnosis**

In our study, TB Lymphadenitis was the most common clinical findings accounting for 43% followed by splenic tuberculosis (23%), pleural effusion (20%), TB meningitis (7%), ascites (6%), intestinal TB (9%) and disseminated TB (11%) of cases. Pulmonary TB was found to be found to be associated in 13% of cases. By correlating this study with Zuber Ahmed’s study, in extrapulmonary involvement Lymphatic system was most commonly involved in 18% followed by pleural involvement in 14% cases. Same trend was also seen on Sandip Thakar et al, Tambrum et al, Praveen Kumar et al studies. Among the 17 cases of external lymphadenopathy, AFB bacilli were seen along caseating granulomatous lesion in 6 cases. A clinical finding of tuberculosis in HIV positive patient show variation and generally shows different patterns as CD4 Count. With high CD4 Count, typical pulmonary reactivation occurs. Among the EPTB cases, As seen clearly that abdomen TB (including ascites, liver/spleen, lymph node) was quite common in present study, This may be due to phase of HIV infection and number of CD4 count may also influence the trend. 

**From table 9: Comparision Of CD4 +T Cell Count With Clinical Manifestation**

Among the patient with extra pulmonary tuberculosis, greater % of the patients had low CD4 Count (< 200/cu.mm. (40% cases) followed by CD4 Count < 100 (24% cases), CD4 Count 200-499 (23% cases) and CD4 Count >500 (3% cases). 

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Mean CD4 Count is 174. Its correlates with Zuber Ahmed study, patient’s clinical, Radiological and bacteriological manifestations vary with the level of immunosuppression and CD4 Count. Extrapulmonary tuberculosis was more common in patients with advanced immunosuppression. This suggest patient with immunosuppression manifested by CD4 Count < 200/cu.mm present with atypical form.

From table 10: Comparison Of Distribution Of Mantoux Reaction

In present study, 82 % HIV Positive patient were nonreactive to MT test while 18 % cases were MT Test positive. In Canessa study, 92 % patients were MT Test negative. In Zuber Ahmed study, tuberculin test was nonreactive in 52 % cases. Sandip Thakrar et al (67.86%), Tambrum study et al (52%), Swaminathan et al (59%) and Praveen kumar et al (95.2%) had also noted in majority of patients MT negativity Tuberculin test is a delayed type hypersensitivity reaction that indicates cell mediated immunity against TB. Immunosuppression in HIV Positive patient reflects negative MT Test. Tuberculin reactivity varied inversely with CD4 Count. A positive response to tuberculin test is generally seen when patient is in early course of HIV infection Positive test indicates TB infection but negative test does not rule out TB infection.

From table 11: Comparison of smear AFB Positivity In Associated Pulmonary TB Cases

Among associated pulmonary TB cases, 12% cases were found to be sputum AFB positive and 88% cases were negative. Other study has also noted a higher rate of smear negativity ranging from 67.7% in Raja-sekaran et al to 84.7% in Deoskar et al study, 52 % in Mohanty et al study.

In HIV Positive patient, there have been found to be lower yield of AFB smear because:

1. HIV Positive patient extract slightly lower organism per ml of sputum than HIV negative patient.

2. Sensitivity of smear is greater in cavitarylesion, in less immunosuppression stage.

3. HIV Positive patient presenting with adenopathy and pleural effusion were sputum negative.

From table 12: Comparison of various presentations Of Abdominal Tuberculosis.

In the present study, patients of abdominal tuberculosis in isolation as well in disseminated form which was diagnosed by ultra-sonography of the abdomen which shows that up to 30 % had multiple retroperitoneal lymphadenopathy, 25% had splenic & hepatic granuloma. Ascites was found in 6% cases. Splenic infiltrate was there in 23 % cases. In contrast to non-HIV patient where bowels are commonly affected, Intestinal TB account for 9% cases.46-48

From table 13: Correlation between MT test and CD4 Count.

In the present study, by doing statistical analysis, correlation is found SIGNIFICANT (P<0.00001, chi-square =28.11) which suggest that the patient with low CD4 count has higher chances of negative MT test.

From table 14: Correlation between Sputum AFB and CD4 Count.

In the present study, by doing statistical analysis, correlation is found SIGNIFICANT (P<0.029, chi-square = 4.76) which suggest that the patient with low CD4 count has higher chances of having sputum AFB negative result.

CONCLUSION

In the present study of 100 HIV Positive patients with extra pulmonary tuberculosis were studied, the summary of which is as follows: The majority of patients (68 %) were male and most (79%) of patients were in sexually active age group of 21-40 years. The majority of patients (80%) were married and living with their spouse while 20% were living alone (being unmarried/widow/divorcee).In the majority of patients, probable route of HIV transmission was sexual route (86%), parenteral route was probable in 10% cases. Fever (87%), weight loss(51%), diarrhoea(21%) along with anorexia(51%) in majority were the common
general complaints while cough (33%), breathlessness (20%), and chest pain (5%) were the common presenting respiratory symptoms. Among the other CNS symptoms (11%) were less common. Among the general clinical signs, pallor (42%), oral thrush (16%) and external lymphadenopathy (21%) were common. Among 100 patients, 34% were already being HIV positive with variable duration between 2 months to 10 years while 66% were diagnosed as HIV positive for the first time after TB diagnosis. Of all 100 patients, 32% had past history of TB. CD4 count had wide range from 15 to 655 with mean CD4 of (174). Incidence of sputum AFB negativity was greater than positivity (88% versus 12%) among PTB cases. With CD4 >200, positivity was higher and with CD4 <200, negativity was higher. Among chest X-ray lesion, pleural effusion (20%) and miliary pattern (3%) were found. Among the patients with associated pulmonary TB cases (17%), B/L infiltration and L/Z consolidation were seen in 10% & 7% cases respectively. Atypical X-ray presentation of PTB cases was far common than typical especially with lower CD4 number. Incidence of positive Monteux test (>5 mm induration) was significantly low (18%) while majority had negative MT (82%). In the MT positive group (18%), patients with higher CD4 of >200 had higher rate of positivity than patients with lower CD4 of <200. So, MT cannot be used to diagnose TB in HIV infected person. Of the EPTB cases, TB lymphadenitis was the commonest (43%) followed by splenic TB (23%) and pleural effusion (20%). CNS TB accounted for 7% of all EPTB cases. Miliary TB account for 3% cases. Among lymph node tuberculosis, peripheral and retroperitoneal lymph node enlargement found to be most common. Multiple hypoechoic lesions in spleen on USG are highly suggestive of tuberculosis. Splenic involvement is associated with greater immunosuppression than those without splenic involvement. Disseminated TB was seen in 11% cases. The majority (40%) had CD4 between 100-200. Disseminated TB was common to be found with less CD4 count. Ultrasonography of abdomen was very useful to diagnose occult abdominal TB. In the USG abdomen finding, Abdominal lymphadenopathy was seen in 30% cases and hepatic & splenic granuloma in 25% cases, intestinal TB in 9% cases and ascites 6%.50

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