



RESEARCH ARTICLE

CORRELATION BETWEEN CLINICAL MANIFESTATIONS AND CD4 COUNT LEVEL IN SERO-POSITIVE HIV PATIENTS WITH TUBERCULOSIS.

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Manuscript Info

Manuscript History

Received: 10 December 2016

Final Accepted: 15 January 2017

Published: February 2017

Abstract

Aims & Objectives:

- 1.To study the various clinical manifestations of both pulmonary and extrapulmonary tuberculosis in HIV positive patients.
- 2.To observe the impact of CD4 count on the severity of manifestations of TB in HIV positive patients.
- 3.To determine the correlation between clinical manifestations and CD4 count level in seropositive HIV patients with tuberculosis.

Materials And Methods:

Study was conducted on 100 HIV sero-positive patients with TB (Pulmonary and Extra pulmonary)

Inclusion Criteria:

- Patients who were HIV sero-positive according to NACO guidelines.
- Patients diagnosed as new TB (Pulmonary and Extrapulmonary as per WHO criteria)

Exclusion Criteria:

- Patients with past H/O TB or diagnosed TB before being detected as HIV positive.
- Patients on long term immunosuppressive therapy or having co-existing immune-suppressive conditions.

Results:

- Mean CD4 count in the study was relatively higher at 289.96 ± 177.49 .
- Extra pulmonary TB was the most common type. Amongst the extrapulmonary TB, TB lymphadenitis was the most common in 40% followed by Pleural effusion in 20%.
- Amongst X-ray findings, Pleural effusion was most common followed by infiltrative lesions, mediastinal and hilar lymphadenopathy.
- Sputum positivity was relatively low.

Conclusions:

- Correlating CD4 levels with the various forms of TB and radiological manifestations of PTB, proves beyond doubt that sputum+ve PTB occurs at a much higher CD4 count followed by sputum-vePTB, EPTB, disseminated TB with gradually diminishing CD4 count.

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- Thus overall the significant correlation of CD4 count with clinical and radiological manifestations revealed in this study re-establishes CD4 count assay as a useful diagnostic tool, prognostic indicator and a guide to assessment of response to therapy.

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Introduction:-

Association between tuberculosis and HIV –HIV TB coinfection is an immediate, grave public health & socioeconomic problem in the developing countries.

Impact of HIV on TB –It worsens the tuberculosis situation by increased reactivation of latent tuberculosis infection in dually infected persons, favouring rapid progression of new infection.

CD-4 Cell:-

CD4 cells or the T- helper cells, are a type of WBC'S that fight infections.

HIV has a special predilection for CD4 cells.

Effect of HIV on CD4 cells is that it can destroy entire “families” of CD4 cells following which opportunistic infections take over.

Typical characteristic of tuberculosis is that it occurs throughout the course of HIV at all levels of CD4 counts.

Clinical Manifestations Of HIV-TB:-

Pulmonary involvement occurs in 75% of all HIV – TB coinfection.

Clinical manifestations depend on the level of immunosuppression . Typical manifestations occur when CD4 + T cell count > 200 cells/cumm. Atypical manifestations and extrapulmonary manifestations (ranging 46% to 79%) occur at CD4 cells + T cell count < 200 cells/ cumm.

Aims And Objectives:-

To study the various clinical manifestations of both pulmonary & extrapulmonary tuberculosis in HIV positive patients.

To observe the impact of CD4 count on the severity of manifestations of TB in HIV positive patients.

To determine the correlation between clinical manifestations & CD4 count level in seropositive HIV patients with tuberculosis (both pulmonary & extrapulmonary)

Methods:-

The study was conducted on 100 HIV sero-positive adult patients with tuberculosis (both pulmonary & extrapulmonary) who visited the department of Pulmonary Medicine (OPD & indoor)

Inclusion criteria –

Patients who were HIV seropositive as per NACO guidelines.

Patients who were diagnosed as new tuberculosis cases (both pulmonary & extrapulmonary) as per WHO criteria .

Exclusion criteria :

Patients with past history of tuberculosis or diagnosed tuberculosis before being detected as HIV positive.

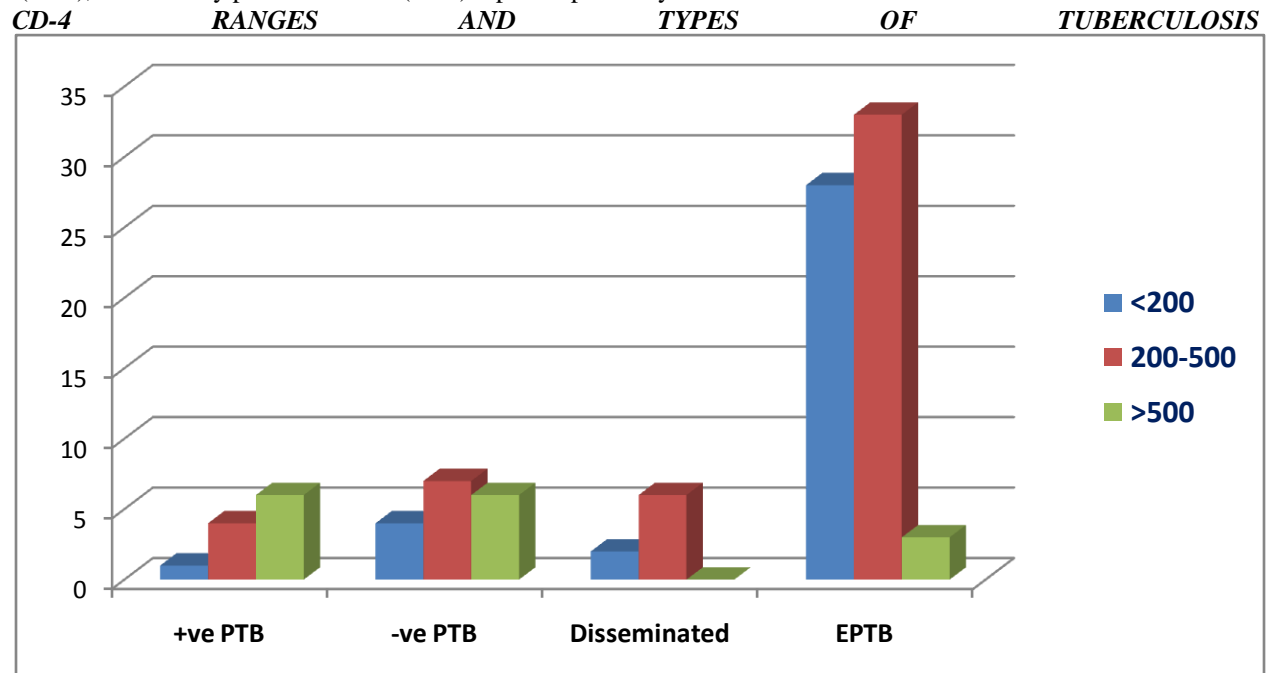
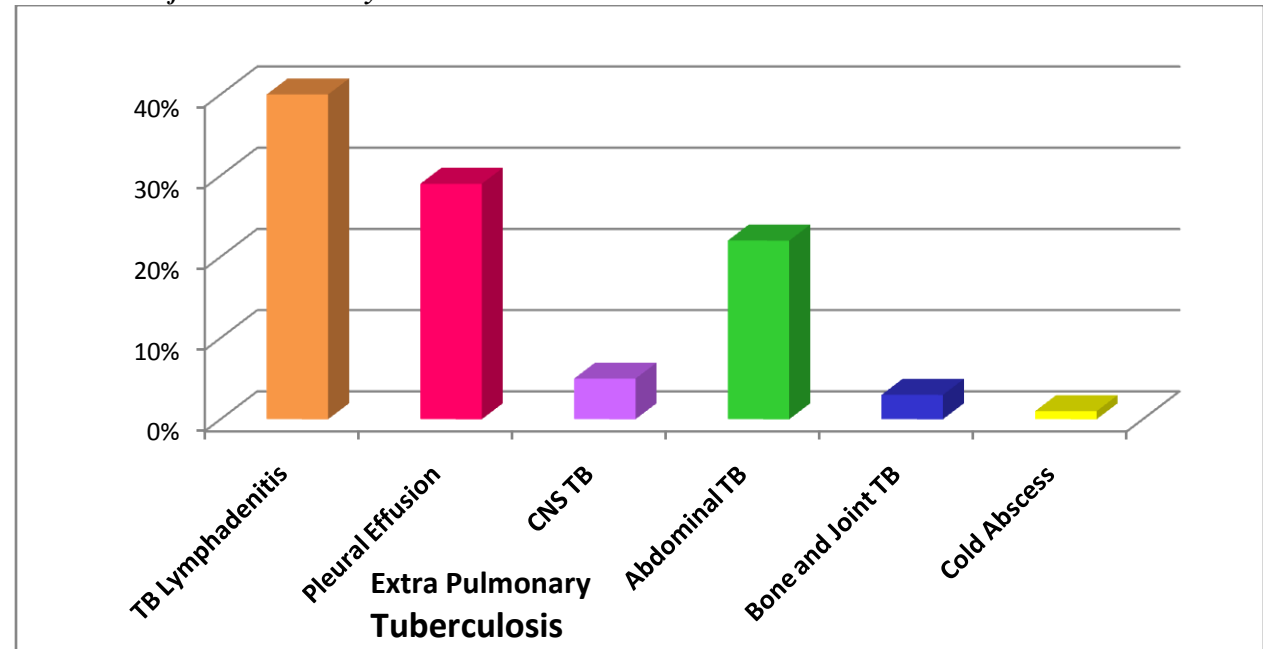
Patients on long term immunosuppression therapy or co-existing immunosuppressive conditions .

Results:-

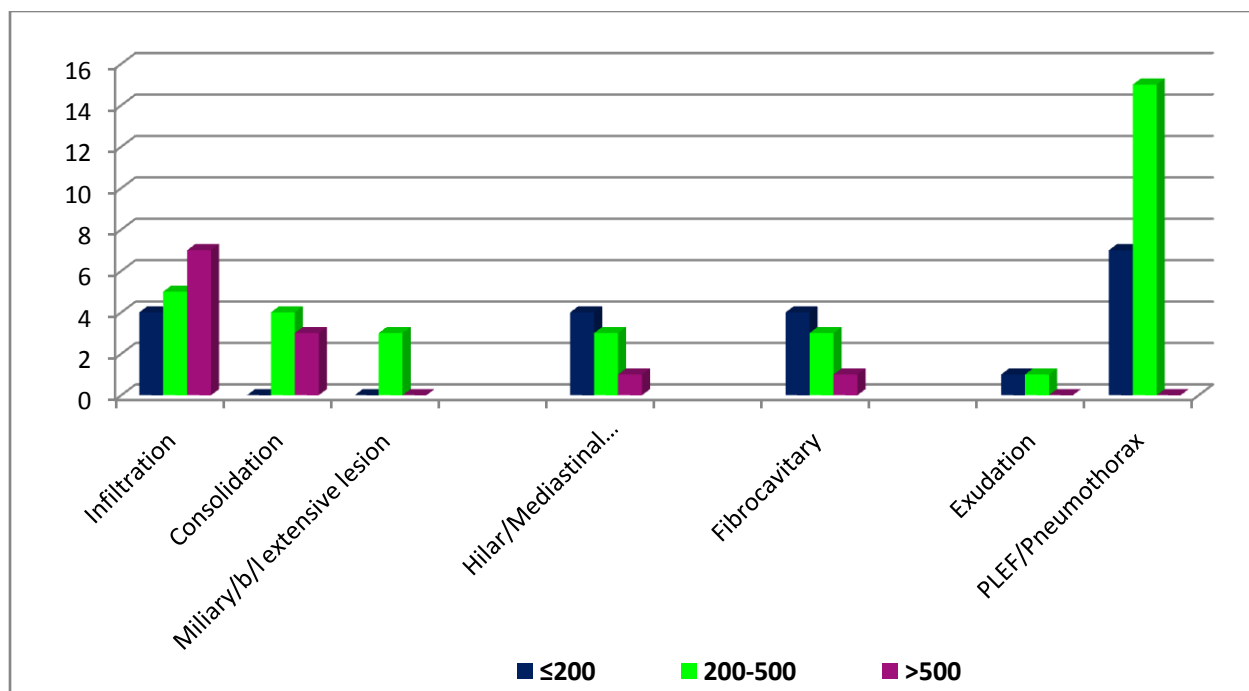
Mean CD4 count was high at 289.96 ± 177.49 .

Extrapulmonary tuberculosis was the most common type of TB.

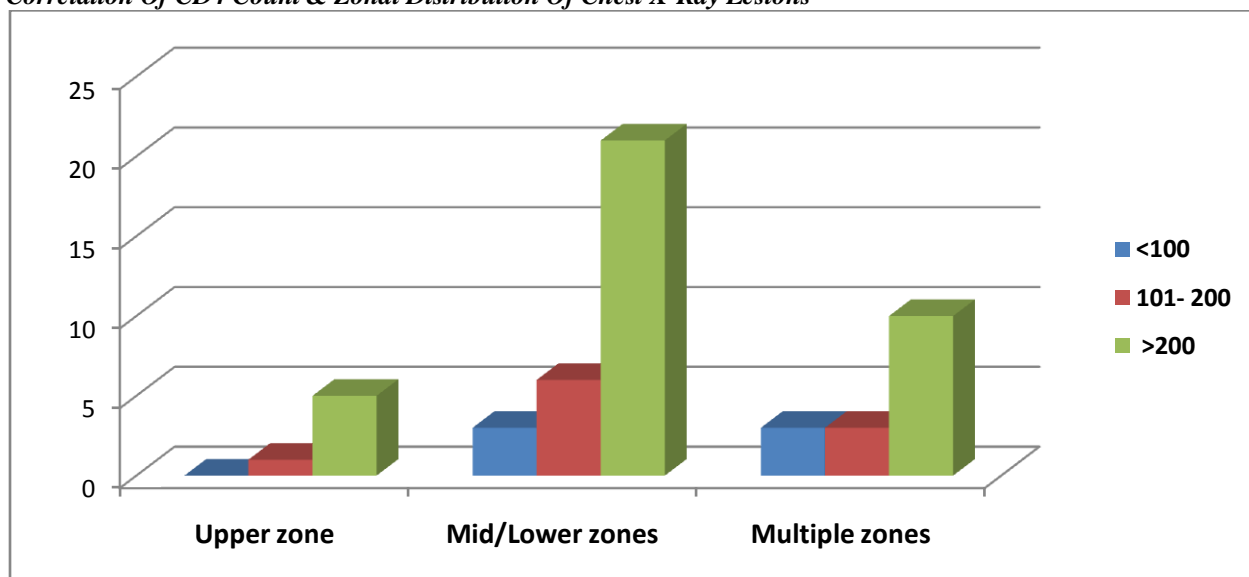
Amongst the extrapulmonary tuberculosis, tuberculosis lymphadenitis was the most common (40%), followed by pleural effusion (29%). Sputum positivity was low.

**Distribution Of Extra Pulmonary Tuberculosis**

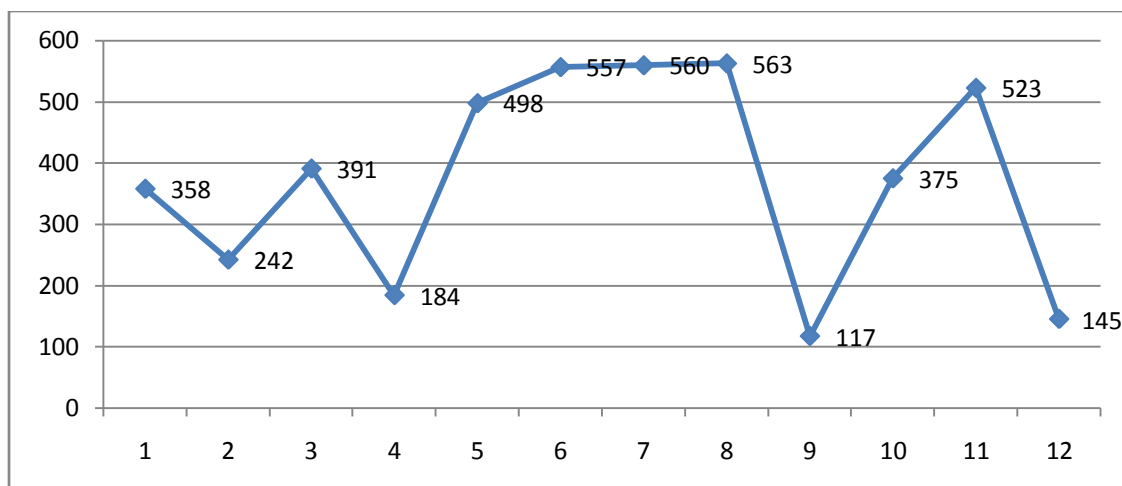
CD-4 Count And Chest X-Ray Distribution Of Lesions



Correlation Of CD4 Count & Zonal Distribution Of Chest X-Ray Lesions



Correlation Between Sputum Positivity With CD-4 Count



Salient Features On Discussion:-

Maximum number of patients were in the productive age bracket of 20 to 50 years.

The study marked an extremely skewed sex ratio. The percentage of female seropositivity was much less (18%) as compared to males (82%).

As regards occupation, the maximum number of patients were drivers. No occupation or class is absolutely immune.

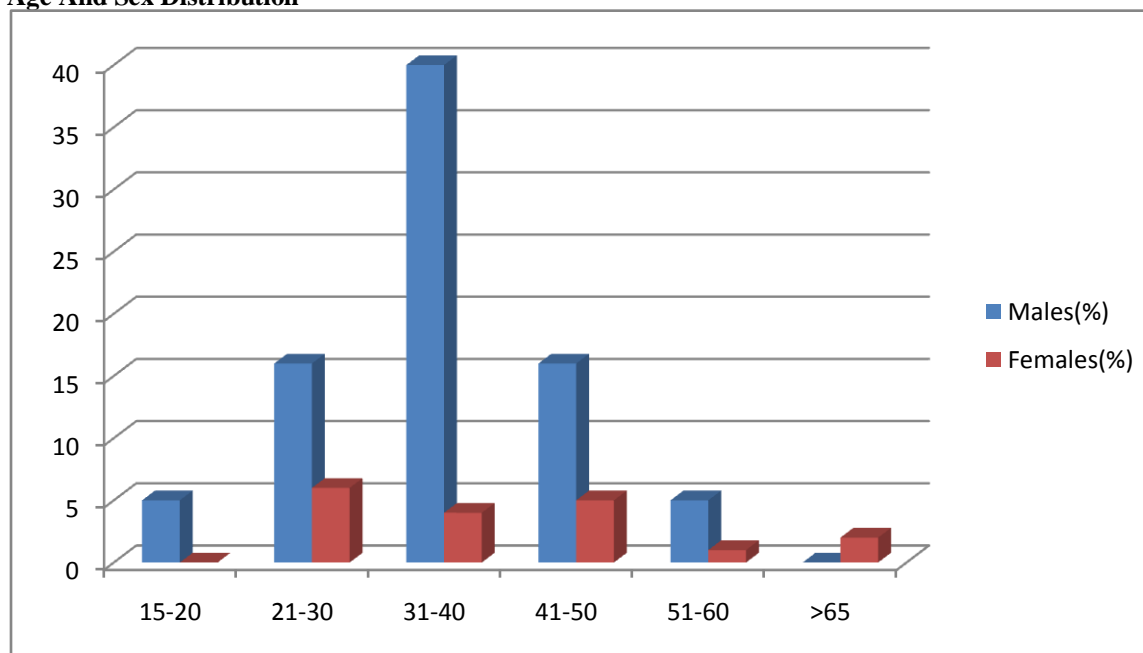
Symptoms: weight loss & fever were the most common symptoms.

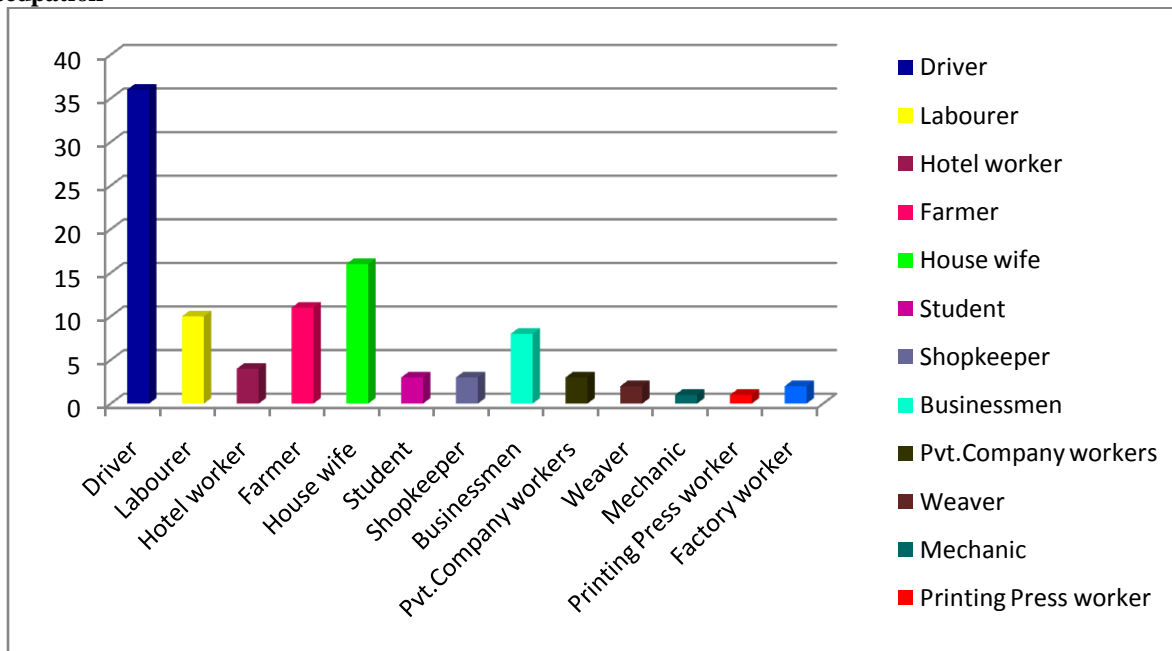
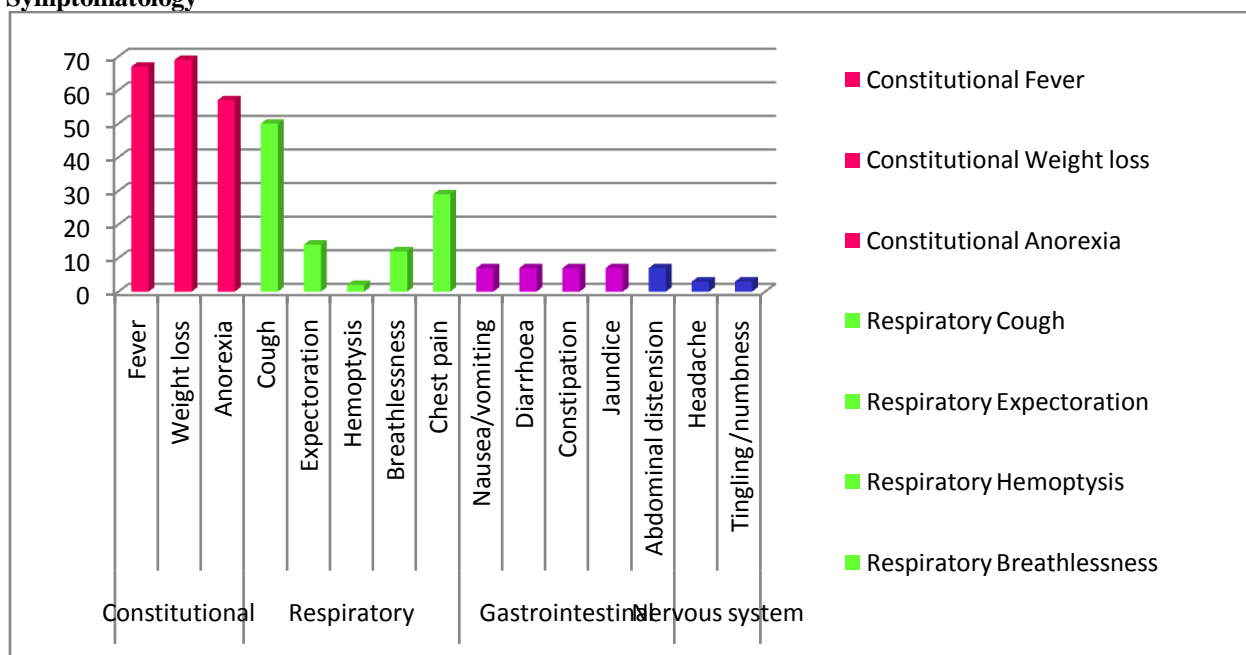
Signs : anemia was the most common sign .

Radioimaging : normal chest X-ray was seen in majority of patients which made it imperative for a culmination of clinical experience, knowledge, bacteriologic & other relevant tests for prompt diagnosis .

Tuberculin sensitivity was high due to greater number of patients, higher mean CD4 count, early diagnosis & prompt initiation of treatment .

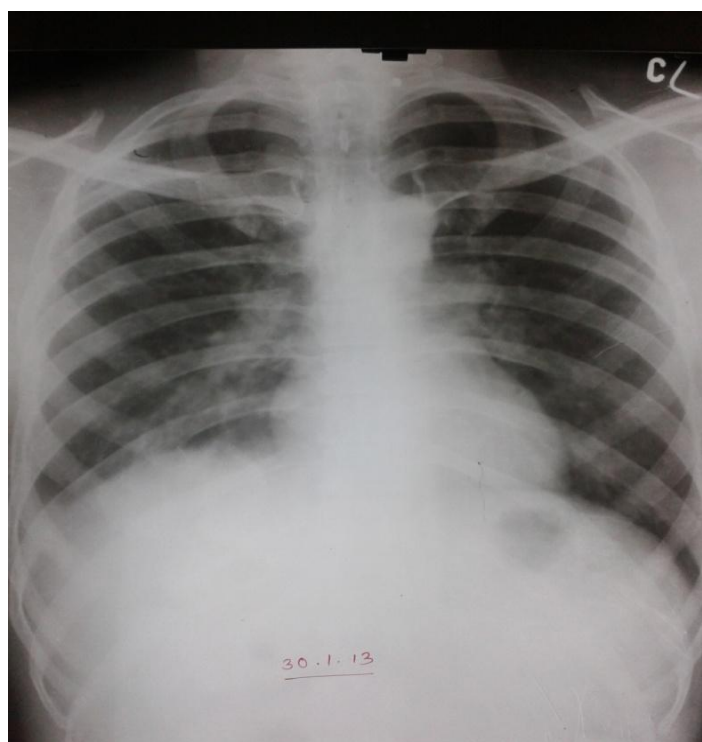
Age And Sex Distribution



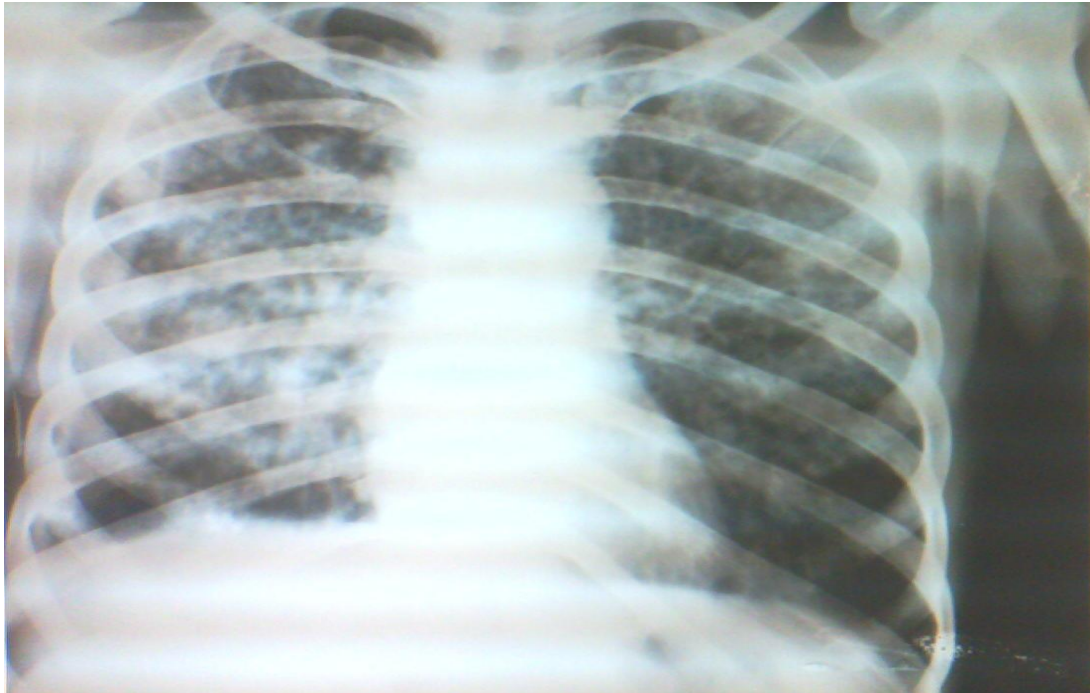
Occupation**Symptomatology**



CECT Thorax Of A Patient Showing Right Hilar Lymphadenopathy with Right Pleural Effusion.



Chest X-Ray PA View Of A HIV Seropositive Patient Showing Bilateral Hilar Lymphadenopathy With Right Sided Minimal Pleural Effusion.



Chest X-Ray PA View Of A HIV Seropositive Patient Showing Bilateral Infiltrative And Fibrocavitary Lesions.

Conclusion:-

Correlating CD4 count level with the various forms of tuberculosis and radiological manifestations of pulmonary tuberculosis, proves beyond doubt that sputum +ve pulmonary tuberculosis occurs at a much higher mean CD4 count (444.09 ± 144.57) followed by sputum -ve pulmonary tuberculosis (399.44 ± 234.07), extrapulmonary tuberculosis (245.56 ± 149.41) & disseminated tuberculosis (240.0 ± 79.24) with gradually diminishing mean CD4 count level.

Typical radiological manifestations of upper zone affection, fibrocavitary lesions & single hemithorax affection occur at a relatively greater percentage at a higher value of CD4 count.

Atypical manifestations of middle/lower/multiple zone affection, miliary lesions & hilar lymphadenopathy occur at a lower CD4 count level.

Thus overall a significant correlation of CD4 count was established with the severity of clinical and radiological manifestations in HIV- TB coinfection.

CD4 count assay is an important diagnostic tool, prognostic indicator & assessment of response to therapy of unequivocal importance.

References:-

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