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HIV CO-INFECTION WITH TUBERCULOSIS

Microbiology

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ABSTRACT

The coinfection of Tuberculosis and HIV is one of the major global challenge. TB is the leading cause of HIV related morbidity and mortality. **Materials and methods**: A total number of 11284 patients were included in our study who attended ICTC centre, GGH, Kakinada. After taking informed consent from all patients' blood samples were collected and processed by three types of kits comb-AIDS-Rs advantage-ST, Meriscreen HIV 1-2 WB, Signal HIV. TB screening by CBNAAT at DTC centre and CD4 T-lymphocyte count at department of microbiology, GGH, Kakinada. **Results:** out of all patients males were (6621) 58.67% with 31-40 years age group 25% were predominant. A total number of (613) 5% were seropositive belongs to urban area 84.8%. Out of 613 seropositives (163) 26.5% were TB positive out of which (150) 92.02% were <200 CD4 count. **Conclusion**: TB is the most common opportunistic infection in all HIV positive individuals. Tuberculosis can occur at any level of depletion of CD4 count. Since TB-HIV fuel each other and proper effective management are essential to reduce morbidity and mortality.

KEYWORDS

HIV/TB co infection , CD4 count

INTRODUCTION:

The co-infection of tuberculosis and HIV is one of the major global health challenges is the present time. [1]

TB is most common contagious infection in HIV, immunocompromised patients leading to death.[2]

HIV promotes progression of latent or recent infection of Mycobacterium tuberculosis to active disease and also increases the rate of occurrence of TB.[3]

The combination of both diseases became dreadful as HIV declines the human immunity while TB becomes progressive due to defective immune system. [4]

HIV and TB are closely interlinked. Untreated HIV infection leads to progressive immunodeficiency and increased susceptibility to infections including TB.[3]

TB is the leading cause of HIV related morbidity and mortality.[5] HIV infected people develop TB while others do not get because HIV positive is not only the factor for being infected with TB. There are other factors contribute to the TB/HIV co-infection like smoking, alcohol intake, education status.[6,7,8]

The largest increase in TB cases has occurred among people aged 25-40 years.

TB is the most common opportunistic infection among AIDS patients than general population.

This study is focussed to know about coinfection of tuberculosis in HIV infected patients and its correlation with CD4 count.[9]

As HIV-TB coinfection leads to increased morbidity and mortality diagnosis of HIV-TB co-infection should be done at the earliest and there by proper treatment, by sending the seropositive patients for the ART treatment.

Adequate care by monitoring the seropositive patients CD4 count every 6 months [6] and support to be given all patients with HIV/AIDS.

MATERIALS AND METHODS:-

The study was done among patients attending ICTC from outpatient and inpatient wards of government general hospital, Kakinada for a period of one year.

Inclusion criteria

1. Persons willingly undergone HIV screening test.
2. Sex workers.
3. Truckers, highway drivers.

Exclusion Criteria

1. Patients who had other causes of immune suppression such as diabetes, lymphoma, leukaemia, visceral malignancy, malnutrition, on immune suppressive drugs were excluded.

After taking informed consent from each patient blood samples were collected and processed according to standard techniques.

HIV screening is done by COMB-AIDS -Rs Advantage –ST, Meriscreen HIV 1-2 WB, Signal After completion of screening test patients attended DTC to detect pulmonary tuberculosis by CBNAAT.

All seropositive patients should attend ART centre to undergo CD4 T-lymphocyte count by flow cytometry partec . As per NACO guidelines all seropositive patients who had undergone CD4 count have to take ART even though the count is below or above 200 cells/µl.

RESULTS

A total number of 11284 included in our study group who attended ICTC for a period of one year. Out of these 58.67% were (6621) males with highest proportion than females 41.31 %(4662).

According to age wise distribution, highest number of persons includes 31-40 years (25%), followed by 41-50years (21.26%).

According to screening test 5% (613) people were positive for HIV 95% (10671) was negative.

Based on geographical distribution 84.8 %(520) were from urban areas and 15.17 %(93) were from rural areas.

A total number of 163 (26.5%) were positive for Pulmonary tuberculosis. Out of these 150 (92.02%) patients were comes under below 200 and 13 (7.97%) were above200.

Out of 613 seropositive persons 425(69%) were <200 CD_4 count and 188 (31%) were >200 CD_4count.

Low CD_4 T-lymphocyte count was the strongest clinical predictor of TB/HIV co infection.

As per NACO guidelines that in spite of above or below 200 CD4 count every patient has to take ART as a supportive treatment.

DISCUSSION

Pulmonary tuberculosis is the most common co infection in

HIV/AIDS patients. TB and HIV fuel each other hence untreated HIV/TB co infection further increases the morbidity and mortality in HIV/AIDS patients. so early diagnosis is very necessary to prevent mortality and morbidity.

In the present study the prevalence of TB/HIV co infection in adults was 11.18% which was higher in Ethiopia[7] (27.7%). Most of the seropositive cases belongs to urban area 84.8% which was similar to that of Ethiopia[7] 82.8%, most of them are males 28.2% in contrast to Ethiopia females are predominant 69%.

On analyzing CD4 count the mean CD4 count of <200, 425 out of 613 cases is 102.94 and >200 in 188 out of 613 is 504.02.

150(92.07%) cases had <200 CD4 200cells/µl. Count while 13(7.92%) Patients had CD4 T-lymphocyte count >200cells/µl.

The p value is <0.001 which is highly significant. This is consistent with the observation of post FA, Wood R et.al in South Africa and Marchie TT, et.al.

There is a significant relationship and correlation between immune status of HIV patients and infectivity of Tuberculosis.

Infect tuberculosis can develop at any CD4 count. If the CD4 count is moderately low pulmonary tuberculosis is common.

Table 1.Correlation between CD4 count and TB positivity

CD4 COUNT	TB(+VE)	TB (-VE)	TOTAL
>200	13	175	188
<200	150	275	425
TOTAL	163	450	613

P = <0.001

CONCLUSION

TB is the most common opportunistic infection in all HIV positive individuals. Hence all patients should be screened for TB and all TB patients should be screened for HIV status.

All people living with HIV should be screened for TB and analysis of CD4 count is highly recommended during treatment and follows up.

Tuberculosis can occur at any level of depletions of CD4 count. Since TB-HIV fuel each other, early diagnosis and proper effective management are essential to reduce the morbidity and mortality.

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