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A Study to Assess Prevalence of Thyroid Dysfunction in Art Naive Seropositive Hiv Patients.

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Abstract
Introduction: *Several endrocrinopathies have been reported to be associated with HIV infection when the CD4 count is low. Abnormal thyroid function test results are seen among Human immunodefinciency virus (HIV) infected patients and is caused by various mechanisms*
such as infiltration of the gland by opportunistic infections or a Systemic manifestation
of the infection itself.
Materials And Methods: *Study was conducted among 50 patients with SeropositiveHIV, attending the Department of Medicine & ART Centre in GovtRajaji Hospital, Madurai. Detailed history and Clinical examination done.CD4 Count and T3, T4, TSH were estimated.*
Results: *Out of the 50 patients studied 48% were males and 52% were females. The age group ranged from 20 years to above 50 years of age.The CD4 count ranged from less than*
100 to more than 500. It was seen that in 80% of the population had T4 levels between 5-12.0
and 42% had TSH levels between 0.5 to 5 whereas 48% of the studied population had an increased TSH above 5. It was seen that 100% of the patients with CD4 count less than 100
had an increased TSH of above 5 and 94% of the patients with CD4 between 100-200 had TSH above 5.
Conclusion: *thyroid dysfunction has a significant association with HIV infection and a*
hypothyroid state occurs in HIVinfection as the disease progresses. Hence we have concluded
that all individuals with CD4 count less than 200 should be screened for hypothyroidsm.

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I. Introduction

Materials & Methods: The study objectives were : 1) To study the prevalence of thyroid dysfunction in ART naïve seropositive HIV patients.2)To study the correlation between thyroid dysfunction
And CD4 cell count.

Study design: Prospective, descriptive analytical study.

Study setting: The study was conducted at Government Rajaji Hospital from January 2015 to August 2015.

Study population: This Study is to be conducted among 50 patients with Seropositive HIV, attending the Department of Medicine & ART Centre in Govt.Rajaji Hospital, Madurai.

Inclusion criteria : All HIV positive adult patients (Serology positive) attending ART centre and also among in-patients of Department of Medicine, both sex,Age>18 years.

Exclusion criteria :Patients on ART, Known cases of thyroid disorder, Patients on drugs altering thyroid metabolism hormone lithium, Amiodarone, CBZ, Phenytoin, interferon, along with stavudine based anti-retroviral drugs., All Diabetics, Abnormal Liver function tests with SGOT/SGPT levels greater than 3 times normal range, and Renal function tests abnormalities with serum Creatinine more than 1.6 mg%.

Study Procedure:

A previously designed profoma was used to collect the demographic and clinical details of the patients. A thorough clinical examination was done.CD4 count was taken for the seropositive patients. Thyroid function test was done at the time of diagnosis before starting ART. Ethical consideration: The study was approved by by Government Rajaji Hospital Ethics Committee. Informed consent was obtained before enrolling subjects to the study.

II. Results

A total of 50 patients was recruited to the study. The values of age distribution among the various categories are presented in Table 1.The mean age of the study sample was 36.5 years. Out of the 50 individuals 22% were between 20-30 years of age, 42% between 31-40 years and 28% between 40 to 50 years.There were 28 (56%) males and 22(44%) females.patients were categorised based on their CD 4 counts <100,100-200,200-500,>500. Thyroid function tests were done to all patients. The thyroid profile studies in these patients revealed majority of the T3 and T4 value were in the normal range 70-190 (94%) and T4 5.0-
12.0 (80%) however large portion of the TSH values were above normal range>5.0 (58%) (p=<0.001).

Table 1 : Age distribution of patients studied Age in years Number of patients Percent

20-30	17	34
31-40	20	40
41-50	9	18
>51 S	4	8

Total 50 100

Comments : Mean + SD : 36.50 + 10.25 ; Maximum – 54 years ;
Minimum – 20 years

Table 2 : CD4 count distribution of patients studied CD4 count Number of patients Percent

CD4 COUNT	Number of patients	Percent
>100-200.	18	36
<100	7	14
200-500	14	0
>500	9	0

Total 50 100.

Table 3 : Thyroid parameters of patients studied Thyroid Parameters No of patients (n=50) %

T3	**47**	**94**
<70	1	2.0
70-150	47	94.0
>150	2	4.0
T4		
<5	10	20.0
5-12	40	80.0
>12	0	0
TSH		
<0.5	0	0
0.5 -5	21	42
>5	29	58

Table4: Co relation of T3, T4 and TSH with CD4 count

variables			CD4 count			
	<100(n=7)	100-200(n=8)	201-500(n=16)	>500(n=9)	Total n=50	'p'value
T3	89.00+26.81	112.56+20.28	128.31+17.83	107.2+6.42	113.34+22.35	0.056
T4	5.16+2.51	7.63+2.35	9.20+1.43	9.42+1.53	8.11+2.39	<0.001**
TSH	9.75+0.398	8.14+0.32	3.99+0.95	3.48+0.95	6.43+1.06	<0.001**

III. Discussion

In a study done by Marco Bongiviani et al on 35 HIV positive and Sonia Beltran et al on 697 individuals showed results similar to that of ours where most of them were having a high TSH values but T3 and T4 were normal amongst these individuals. The CD4 count in our study had a wide variation from less than 100 to more than 500. When thyroid profile was co related with CD4 count it showed that people with higher CD4 count were having normal thyroid profile values than people with lower CD4 count. Jain G et al also showed that males and females were equally affected with subclinical hypothyroidism in HIV.

People with CD4 count between 100-200 were having a mean TSH value of 8.15+/-0.32 and people with CD4 less than <100 were having TSH values 9.75+/- 0.39 (p=<0.001). When CD4 was co related in males and females it showed that both males and females were affected equally with p=<.001. Marco Bongiviani study revealed increased prevalence of clinical hypothyroidism in both HIV individuals on HAART and those who were not on HAART. Collazos et al found a correlation between FT4 levels and CD4 cell counts in patient treated with HAART. Majority of the patients had CD4 count >200 cells /mm.

IV. Limitation

One limitation of the study was that sub group analysis could not be done as this was based on small population. Also the period of follow up was short and we could not look for other outcomes.

V. Conclusion

Thyroid dysfunction is found in significant association with HIV infection and the severity of which increases as the HIV disease progresses. Male and females suffering from HIV show equal incidence of thyroid dysfunction. All individuals with CD4 count less than 200 should be screened for hypothyroidism.

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Conflict Of Interest : Nil

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