ORIGINAL RESEARCH PAPER | Medical Science | Volume : 6 | Issue : 9 | September 2016 | ISSN - 2249-555X | IF : 3.919 | IC Value : 74.50

A Study on Thyroid Profile in HIV Infected Patients

KEYWORDS: HIV, subclinical hypothyroidism, Thyroid function test

Saradha
Professor, Department of Biochemistry, Tirunelveli Medical College Hospital, Tamilnadu India

Ezhil Ramya J
Associate Professor, Department of Pharmacology, Tirunelveli Medical College Hospital, Tamilnadu India

*** Heber Anandan**
Senior Clinical Scientist, Clinical Research Department, Dr.Agarwal's Healthcare Limited, Tamilnadu, India.
* Corresponding Author

Revathi
CRR Intern, Tirunelveli Medical College Hospital, Tamilnadu India

ABSTRACT ***Introduction:*** *HIV infected patients are often encountered with abnormal thyroid function test results. During anti retroviral therapy, 2 generally asymptomatic conditions are prevalent, which include:- subclinical hypothyroidism and isolated low free thyroxine levels. Grave's disease is also common among HIV infected individuals. So this statistical study will probe into the abnormality in thyroid function in HIV infected subjects.*

Aim: *To study the prevalence of abnormal thyroid function among HIV patients*

Materials and methods: *50 fasting blood samples were collected from HIV infected patients and were taken to the Central Laboratory for doing Thyroid Function Tests, and the results were tabulated and statistically analysed.*

Results: *Out of 50 samples subjected to thyroid function tests, 84% showed euthyroid status, 10% showed subclinical hypothyroidism, 2% showed hypothyroidism, 2% showed subclinical hyperthyroidism, 2% showed isolated low thyroxine levels.*

Conclusion: *Abnormal thyroid function test results were found in few HIV infected patients. Subclinical hypothyroidism was found to be associated with anti-retroviral therapy, especially with stavudine intake.*

Introduction

Endocrine changes in the form of thyroid, adrenal, gonadal, bone, and metabolic dysfunction, have all been reported in both early and late stages of HIV infection.[1] Researches done earlier have proved that abnormal TFT results are often found in HIV infected subjects. Euthyroid sick syndrome, which is a non-thyroidal illness, is seen in patients with advanced Acquired Immunodeficiency Syndrome.[2] In patients taking anti-retroviral therapy, subclinical hypothyroidism and isolated low thyroxine levels are prevalent. Grave's disease may occur during immune reconstitution. In the past few years, several cases of thyroid dysfunction have been observed, suggesting the possible effect of HIV or anti-retroviral drugs on the endocrine system[3]. Testing for thyroid disease in HIV patients should begin with the measurement of TSH level. However, there insufficient evidence to suggest routine thyroid screening in asymptomatic HIV infected individuals.

Aim

- To study the prevalence of abnormal thyroid function among HIV patients

Materials and Methods:

Prospective observational study was done in Department of Medicine and ART Centre, Tirunelveli Medical College Hospital. Institutional ethics committee approval and informed consent from patients were obtained. Patients with signs and symptoms suggestive of Human Immunodeficiency Virus infection blood samples were collected from patients after 8 to 12 hours of fasting. TSH, T3 and T4, Total cholesterol level examined.

Results:

Out of the total 50 samples, 64% were of males and 36% were of females. Out of 50 samples, 84% showed euthyroidism, 10% showed subclinical hypothyroidism, 2% showed hypothyroidism, 2% showed subclinical hyperthyroidism and 2% showed isolated low thyroxine levels. Out of the total 8 samples that showed abnormal thyroid function, 62.5% were of males and 37.5% were of females. Out of 50 subjects, 37 (74%) were on ART and 13 (26%) were not on ART. Out of the 37 subjects who were on ART, 7 (18.9%) showed high T4, 2 (5.4%) showed low T4, 5 (13.5%) showed high TSH. Out of 13 subjects who were not on ART, 5 (38.46%) showed high T4, 2 (15.38%) showed high TSH and 1 (7.69%) showed low TSH. From this it becomes evident that abnormalities in thyroid function is more prevalent among subjects who are on ART[6,7]. Out of 50 samples taken, 11 (22%) had very low CD4 count, 10 (20%) had low CD4 count, 17 (34%) had moderate CD4 count and 12 (24%) had normal CD4 count. Out of 11 samples showing very low CD4 count- [high T4-2 (18.2%), low T4-1 (9%), high TSH-2 (18.2%)]. Out of 10 samples showing low CD4 count- [low T4-1 (10%), high T4-2 (20%), high TSH-3 (30%)]. Out of 17 samples showing moderate CD4 count- [high T4- 5 (29.4%), low TSH- 1 (5.89%), high TSH- 1 (5.89%)]. Out of 12 samples showing normal CD4 count- [high T4- 4 (33.33%), high TSH- 1 (8.33%). From this we infer that abnormal thyroid values are common among those subjects with moderate CD4 count, followed by those with low and very low CD4 count respectively.

Discussion:

Overt hypothyroidism: Results from failure of thyroid to

Volume : 6 | Issue : 9 | September 2016 | ISSN - 2249-555X | IF : 3.919 | IC Value : 74.50

synthesise and secrete adequate T4, despite of adequate TSH stimulation. As a result, there will be elevated TSH levels and decreased T4 levels. Out of 50 samples, 1 sample gave similar result which can add evident to study done by Noureldeen AF et al, 7% of HIV cases shown increased TSH level.[4] Subclinical hypothyroidism: Is characterised by a mildly elevated TSH level with a normal T4 concentration and either no or mild nonspecific symptoms. Out of 50 samples, 5 samples gave similar result which is near to the result of 8.5% patients had subclinical hypothyroidism in study done by Grappin et al.[5] Subclinical hyperthyroidism: Characterised by low TSH levels, normal T4 and T3 and the absence of thyrotoxicosis[6,7], although patients may have subtle symptoms of hyperthyroidism. Out of 50 samples 1 sample gave similar result. Hyperthyroidism: Characterised by decreased TSH level and elevated T3 and T4 levels. None of the samples gave similar result. Isolated low T4 levels: Characterised by low serum T4 levels and normal TSH levels. Common in those taking HAART (highly active retro-viral therapy.

Conclusion:

Abnormal thyroid function test results are common among HIV infected individuals. Presence of subclinical hypothyroidism in patients on ART, especially those taking Stavudine stands out in this statistical study. Currently there is insufficient evidence in favour of screening for thyroid abnormalities among symptomless HIV patients. Larger studies are required to examine the epidemiology and health consequences of mild thyroid dysfunction in HIV infected patients and for better screening and treatment guidelines.

References:

1. Grinspoon SK. Melmed S, Polonsky KS, Larsen PR, Kronenberg HM. William textbook of Endocrinology. 12th ed. Philadelphia: Saunders Elsevier; 2011. Endocrinology of HIV and AIDS; pp. 1675–96.
2. Tripathy SK, Agrawala RK, Baliarsinha AK. Endocrine alterations in HIV-infected patients. Indian Journal of Endocrinology and Metabolism. 2015;19(1):143-147. doi:10.4103/2230-8210.146870.
3. Heufelder AHofbauer L. Human immunodeficiency virus infection and the thyroid gland. European Journal of Endocrinology. 1996;134(6):NP-674.
4. Noureldeen A, Qusti S, Khoja G. Thyroid function in newly diagnosed HIV-infected patients. Toxicology and Industrial Health. 2012;30(10):919-925.
5. Grappin M, Piroth L, Verges B, Sgro C, Mack G, Buisson M et al. Increased prevalence of subclinical hypothyroidism in HIV patients treated with highly active antiretroviral therapy. AIDS. 2000;14(8):1070.
6. Verger.B. Subclinical hypothyroidism in HIV.Presse Med 1990;19:1267-1270
7. Lambert.M. Thyroid dysfunction in HIV infection 1994;8:825-50
8. Madeddu G, Spanu A, Chessa F, Calia G, Lovigu C, Solinas P et al. Thyroid function in human immunodeficiency virus patients treated with highly active antiretroviral therapy (HAART): a longitudinal study. Clin Endocrinol. 2006;0(0):060222010233012.