INTERNATIONAL JOURNAL OF CURRENT MEDICAL AND PHARMACEUTICAL RESEARCH
ISSN: 2395-6429, Impact Factor: 4.656
Available Online at www.journalcmpr.com
Volume 7; Issue 12(A); December 2021; Page No. 6053-6055
DOI: http://dx.doi.org/10.24327/23956429.ijcmpr20211075

Research Article

PREVALENCE OF SUBCLINICAL HYPOTHYROIDISM IN HIV/AIDS PATIENTS – A CROSS SECTIONAL STUDY

Akash Jaiswal., Ajay Pathak and Kavita Jain

LN Medical College

ARTICLE INFO

Article History:
Received 13th September, 2021
Received in revised form 11th October, 2021
Accepted 8th November, 2021
Published online 28th December, 2021

Key words:
Human immunodeficiency virus, acquired immunodeficiency syndrome, Subclinical Hypothyroidism, Thyroid function tests.

ABSTRACT

Background –Prevalence of overt thyroid disease in human immunodeficiency virus (HIV) infected or acquired immunodeficiency syndrome (AIDS) patients is apparently similar to general population. Subclinical hypothyroidism is reportedly more common in HIV/AIDS patients. This issue is being explored in the present study.

Aim and Objective -To assess the prevalence of clinical and subclinical thyroid dysfunction in HIV/AIDS patients.

Materials and methods –It is a cross sectional study conducted on 150 HIV/AIDS patients. Thyroid function tests (TFT) were analyzed in each of the cases.

Results – Thirty two percent patients had thyroid abnormalities. Twenty-eight patients (18.66 %) were diagnosed to have subclinical hypothyroidism. Seventeen patients (11.33%) patients were associated clinical hypothyroidism, two patients (1.33) had subclinical hyperthyroidism and one patient (0.66) had clinical hyperthyroidism.

Conclusion – Prevalence of subclinical hypothyroidism is higher in HIV/AIDS patients in comparison to general population. Further studies on a larger cohort is needed prior to make any recommendation for screening.

INTRODUCTION

In the past several years, multiple endocrine problems, particularly related to thyroid and adrenal glands, have been reported in human immunodeficiency virus (HIV)infected or acquired immunodeficiency syndrome (AIDS) patients possibly either because of direct effect of HIV or due to highly active antiretroviral therapy (HAART).[1,2] Although the prevalence of overt thyroid disease is not apparently increased in HIV/AIDS patients, specific patterns of abnormal thyroid function test findings are more frequently identified among HIV-infected patients. Among patients with AIDS, nonthyroidal illness (i.e. euthyroid sick syndrome) is common. During HAART, the prevalence of asymptomatic conditions like subclinical hypothyroidism, which is defined by isolated elevation of thyroid-stimulating hormone (TSH) and Grave's disease is increased. In addition, Graves' disease, which is marked by low thyroid stimulating hormone and elevated thyroxine levels, may occur during immune reconstitution. Among individuals infected with HIV, 1%–2% experience overt thyroid disease, and 35% may have subtleabnormalitiesin thyroid function test findings.[3]In HIV/AIDS patients, relatively higher prevalence of subclinical thyroid dysfunction has been reported in last few years.[4] Although pathological correlation is not established between HIV or HAART and thyroid dysfunction, various conflicting data has been published in last few decades [5-7] Thyroid function testing (TFT) is adequate for diagnosis of thyroid related disorders in patients with thyroidspecific symptoms or nonspecific systemic clinical features. However, role of TFT as a screeningtool in HIV/AIDS patients is controversial.TFT screening is not routinely recommended in HIV/AIDS patients but may be justified because of higher prevalence of subclinical hypothyroidism in HIV/AIDS patients. At this point, there is insufficient evidence to support routine screening in all HIV/AIDS infected individuals. Here we report prevalence of subclinical hypothyroidism in HIV/AIDS patients.

MATERIALS AND METHODS

It is a cross sectional observational study, which was conducted in150 patients, between May 2019toMay2021, who attended medicine and Gastroenterology OPD at ILS hospital Agartala and detected positive HIV1 or HIV2 antigen by Elisa test during screening.

History was taken to identify any possible symptoms related to hypothyroidism or hyperthyroidism and demographic data was collected during screening. Patients between age 18to70years were included in the study. Patients with diabetes, liver, renalorcardiac disorders, pregnancy, patients on oral contraceptive pills, statins and other medications that alter thyroid functions and lipid levels were excluded from the study. Those patients who were under treatment for any thyroid disorder were also excluded from the study. Informed consent was taken from all the study participants. Thyroid

Corresponding author:* **Akash Jaiswal
LN Medical College

profile of all patients (thyroid stimulating hormone {TSH}, free triiodothyronine{FT3}, free thyroxine{FT4})were assessed. Subclinical hypothyroidism was defined as TSH levels>4mIU/L with normal FT3 (range 3.1–6.5 pmol/L) and FT4 (range0.8–1.9ng/dL) levels in accordance with other reports on HIV/AIDS patients.[6] Chemiluminescenceimmuneassay was used for detection of thyroid function.

Statistical Analysis

The data collected was entered in MS Excel-2010 and statistical analysis was performed with the help of Epi Info (TM) 7.2.2.2 which is a trademark of the Centre for Disease Control and Prevention (CDC). Baseline characteristics of the study participants was expressed in percentage. Student's 't' test used to analyse differences in baseline characteristics of the study group. Chi-square test used to analyse the association between HIV infection and thyroid dysfunction.

RESULTS

Demographic characteristics are described in Table 1. In the study, 150 patients were included (70 males and 80 females). Most common age group for HIV population was 30-40 years comprising approximately 35 % of total HIV/AIDS patients, in which females were commoner than males.

Prevalence of thyroid dysfunction in HIV/AIDS has been described (Table 2, Figure 1) In total, 102 (68%) patients were found to be in euthyroid state and rest 48 (32%) patients were found to have thyroid abnormalities. Twenty eight patients (18.66%) were diagnosed to have subclinical hypothyroidism, seventeen patients (11.33%) patients were found to have clinical hypothyroidism, two patients (1.33%) had subclinical hyperthyroidism, and one patient (0.66%) had clinical hyperthyroidism.

DISCUSSION

In the present study,150 patients diagnosed with HIV infection during screening at hospital and fulfilling inclusion criteria were included. Majority of the patients in our study were in the age group 30-40years comprising 52 patients {34.66%} patients. Agrawal *et al*[8] reported data of 52 HIV infected cases with a mean age of 34 years for male patients and 31.4 years for female patients. Hakim *et al*[9]published data of 157 HIV infected patients. Mean age was 34.4 years for males and 31.6years for females in his study.

We found that 68 % of HIV infected patients were in euthyroid state and 32% patients were associated with abnormal thyroid profile. Madge *et al*[10] investigated the prevalence of overt and subclinical thyroid disease in HIV positive patients in London teaching hospital and determined the occurrence of thyroid dysfunction. Twenty five percent patients in his study were found to have thyroid abnormality.

In our study, prevalence of subclinical hypothyroidism was found 18.6%. Quirino *et al*[6] conducted study over 190 HIV infected patients and found prevalence of subclinical hypothyroidism to be 14.4%. In another cross sectional study, Beltran *et al*[6] determined the prevalence and risk factors for hypothyroidism in 350 HIV patients and showed 16% patients of subclinical hypothyroidism. Meena *et al*[11] evaluated the endocrine function in 150 HIV male infected patients and found 30% cases to have subclinical hypothyroidism. Merenich *et al*[12]mentioned 8 % prevalence of subclinical hypothyroidism in study on 46 HIV patients. Madge *et al*[10]reported 4% prevalence of subclinical hypothyroidism in HIV candidates. This lower prevalence can be explained by different sample size. Prevalence may also be affected by duration of infection in patients included in the study.

The prevalence of clinical hypothyroidism in our study was 11.33%. Olivieri *et al*[13] studied 119 HIV infected patients and found primary hypothyroidism in 10% patients at symptomatic stages. Meena *et al*[11] reported 10% overt hypothyroidism in 150 male HIV patients. In a retrospective analysis, Madge *et al*[10]showed 2.5% prevalence of overt hypothyroidism. Another study of 350 HIV infected patients by Beltran *et al*[6]mentioned 2.6% prevalence of clinical hypothyroidism.

The prevalence of subclinical hyperthyroidism in present study was1.33%. Beltran *et al*[6] found subclinical hyperthyroidism in only 2 patients (0.57 %) out of 350 patients. We found clinical hyperthyroidism in only 0.6 % HIV/AIDS patients. Nelson *et al*[14]reported incidence of hyperthyroidism was 3.4 per 10,000 patient years.A thorough literature search and results of our study has made us lead to a conclusion that prevalence of thyroid dysfunction is higher in HIV/AIDS infected patients as compared to general population. Although routine screening of all HIV patients for TFT is not currently recommended, it can be justified by prevalent subclinical hypothyroidism in this population.

CONCLUSION

Thyroid dysfunction is common in HIV/AIDS patients. Subclinical hypothyroidism is apparently most commonly seen thyroid abnormality in HIV infected patients. Our study concludes that screening of TFT is in all HIV patients should be done. Few studies showed contradictory results regarding prevalence of thyroid dysfunction in HIV patients, therefore study on a larger cohort is required before making any recommendations.

References

1. Raffi F, Brisseau JM, Planchon B *et al*. Endocrine function in 98 HIV-infected patients: a prospective study. AIDS 1991; 5: 729–33.
2. Dobs AS, Dempsey MA, Ladenson PW *et al*. Endocrine disorders in men infected with human immunodeficiency virus. Am J Med 1988; 84: 611–16.
3. AIDS in India, Bureau of Hygiene and Tropical Diseases{1986} AIDS newsletter Issue 1,January 30th
4. Helfand M. Screening for subclinical thyroid disfunction in nonpregnant adults: a summary of the evidence for the US Preventive Services Task Force. Ann Intern Med 2004; 140: 128–41.
5. Grappin M, Piroth L, Verges B *et al*. Increased prevalence of subclinical hypothyroidism in HIV patients treated with highly active antiretroviral therapy. AIDS 2000; 14: 1070–2.
6. Beltran S, Lescure FX, Desailloud R *et al*. Increased prevalence of hypothyroidism among human immunodeficiency virus-infected patients: a need for screening. Clin Infect Dis 2003; 37: 579–83.
7. Quirino T, Bongiovanni M, Ricci E *et al*. Hypothyroidism in HIV-infected patients who have or have not received HAART. Clin Infect Dis 2004; 38: 596–7.

8. Agrawal P, Sharma A,Bhardwaj A,Raina, myocardial dysfunction in human immunodeficiency virus infection.nov2009 vol 57.
9. Hakim J, MatengaA, SiziyaA, myocardialdys functionin HIV infection. ZIMBABWE.1996.76:161-165
10. Madge S, Smith C, Lampe F, Thomas M, Johnson M, *et al*: No association between HIV disease and its treatment and thyroid function. HIV Med 2006: 7(supp 1):23 abstract P49
11. Meena LP, Rai M, Singh SK, Chakravarthy J, Singh A, Goel R, Pathak A, Sundar S. Endocrine changes in male hiv patients.JAPI:2011:59:1-3.
12. Merenich JA, McDermott MT, Asp AA *et al*. Evidence of endocrine involvement early in the course of human immunodeficiency virus infection. J Clin Endocrinol Metab 1990; 70: 566–71.
13. Oliviery A, Battysty M, Fazzini P,1993.Thyroid dysfunction related to immunodeficiency syndrome virus, J Clin Invest,16,1407-1413.
14. Nelson M, Powles T, Zeitlin A: Thyroid dysfunction and relationship to antiretroviral therapy in HIV positive individuals in the HAARTera J Acquired Immunodeficiency Syndromes 2009:50:113-114.

How to cite this article:

Akash Jaiswal *et al (*2021) 'Prevalence of Subclinical Hypothyroidism in HIV/AIDS Patients – A Cross Sectional Study', *International Journal of Current Medical and Pharmaceutical Research,* 07(12), pp 6053-6055.

****