ABSTRACT

EVALUATION OF EFFECT OF BRAINSTEM EVOKED RESPONSE AUDIOMETRY IN SUBCLINICAL HYPOTHYROID PATIENTS IN CORRELATION WITH THYROGLOBULIN ANTIBODY, THYROID PEROXIDASE ANTIBODY AND LIPID PROFILE

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BACKGROUND

Hypothyroidism is one of the most important disorders of thyroid gland. It is known to be associated with impairment of hearing. Subclinical or early hypothyroidism is 14 times more common than overt hypothyroidism. There is increase in thyroid stimulating hormone (TSH) but free Triiodothyronine(T_3) and Thyroxine(T_4) levels are normal. In subclinical hypothyroidism, Hashimoto's thyroiditis is a cause for 50-80% of cases. Thyroid peroxidase antibodies (TPO) are present in >90% of patients with autoimmue hypothyroidism.

AIM OF THE STUDY

To evaluate audiologic function in subclinical hypothyroid patients by Brainstem evoked response audiometry(BERA)

OBJECTIVES

To assess the levels of TSH, Free T_3, and Free T_4 in newly diagnosed subclinical Hypothyroidism patients.

To measure Thyroglobulin antibody, Thyroid peroxidase antibody levels, Lipid profile and Brainstem evoked response audiometry if TSH>5.1mIU/L, $fT_4 \geq 0.93$ to 1.7 ng/dl, $fT_3 - \geq 3.1$ to 6.8pmol/L.

Compare all the parameters with healthy age and sex matched controls and to find the correlation of Brainstem evoked response audiometry with thyroid antibodies and lipid profile

MATERIALS AND METHODS

30 newly diagnosed patients with subclinical hypothyroidism were compared with 30 control subjects. Free T_3, Free T_4, TSH, Thyroglobulin antibody and Thyroid peroxidase antibody levels and lipid profile were measured by Electro chemiluminescence immuno assay. Brainstem evoked response audiometry was recorded by using computerised Neurostim, Medicaid system. Those who are presenting with elevated TSH, normal Free T_3 and Free T_4 were included in my study. Medical disorder, neurological disorder and pregnancy were exclusion criteria. The study was conducted in Institute of physiology and Experimental medicine and Medical Endocrine Clinic in Madras Medical College. The data was analyzed by Unpaired student 't' test.

RESULTS

Thyroid stimulating hormone, Body mass index, Thyroglobulin antibody and Thyroid peroxidase antibody, total cholesterol and low density lipoprotein(LDL)cholesterol were significantly (<0.05) different between subclinical hypothyroidism patients and control group. Wave V in BERA was significantly (<0.05) different between subclinical hypothyroidism patients and control group. There was a positive correlation between BERA wave v with Thyroglobulin antibody and Thyroid peroxidase antibody and negative correlation with total cholesterol and LDL cholesterol.

CONCLUSION

Autoimmunity is a cause for subclinical hypothyroidism which is clearly shown by elevated levels of Thyroglobulin antibody and Thyroid peroxidase antibody. Central nervous system and hearing is affected in subclinical hypothyroidism which is shown by changes in wave V in BERA. Elevated levels of antibody are a cause for changes in BERA it leads to central nervous system and hearing defect. By using simple non-invasive method (BERA) we can identify central nervous system dysfunction at earlier stages in subclinical Hypothyroidism.

KEY WORDS:

Subclinical hypothyroidism, Brainstem evoked response audiometry, Thyroglobulin antibody and Thyroid peroxidase antibody, Lipid profile.