

# **A STUDY OF THYROID DYSFUNCTION AND ITS ASSOCIATED RISK FACTORS AMONG TYPE 2 DIABETES MELLITUS PATIENTS**

## **ABSTRACT**

Thyroid diseases and diabetes mellitus are the two most common endocrine disorders encountered in clinical practice. Both these disorders have been shown to mutually influence each other and relationships between both conditions have long been reported. Thyroid hormones play a vital role in the regulation of carbohydrate metabolism and pancreatic function, and on the other, diabetes mellitus affects thyroid hormone levels to variable extents. Thyroid disease must be screened annually in diabetic patients to detect asymptomatic thyroid dysfunction. Diabetes mellitus and thyroid dysfunction can be found to exist together where thyroid disease can affect glucose metabolism and the untreated thyroid dysfunction can affect the control of diabetes.

**Objectives:** The present study was intended to explore a study of thyroid dysfunction and its associated risk factors among individuals in type 2 diabetes mellitus.

**Materials and Methods:** A cross-sectional study was conducted among all individuals in type 2 diabetes on treatment for 3 years with age group of more than 30 to 50 years and the total 100 number of subjects taken up for the study those who attending the outpatient Department of Karpaga Vinayaga Institute of Medical Sciences, Madhuranthagam. The assessment parameters for this study based on their life style factors and biochemical analysis such as FBS, PPBS , HbA1C, Lipid profile, Renal function test, Thyroid profile (ELISA).

**Statistical Analysis:** The data were analyzed by using standard Mean deviation student's T test and Univariate analysis. In all cases,  $p < 0.05$  was considered as statistically significant.

**Results:** From the assessment status of diabetics, males have uncontrolled diabetes when compared to females and p value is  $< 0.05$  and it is statistically significant.

Assessment of thyroid dysfunction in diabetics showed that males with thyroid dysfunction in the age group of 30-40 years are less when compared to females in the same age group. P value is  $< 0.05$  and is statistically significant . But incidence of thyroid dysfunction in type 2 DM is higher in the age group of 41-50 years in both genders when compared to age group of 30-40 years. Correlation between thyroid dysfunction and diabetes in males and females among various age groups showed that thyroid dysfunction in females is greater even if they have controlled diabetes when compared to males. But thyroid dysfunction in males with uncontrolled diabetes is higher than females with uncontrolled diabetes. Incidence of thyroid dysfunction in females is higher even if they have controlled diabetes. This may be linked with their reproductive age and p value is  $< 0.05$  and it is statistically significant. Comparison of incidence of renal failure in diabetics shows 8% of the males have renal failure and 4% of females have renal failure, indicates greater incidence of renal failure among males. Incidence of hypertriglyceridemia (triglycerides) is higher in males when compared to females and p value is  $< 0.05$  and it is statistically significant. Incidence of hypercholesterolemia (total cholesterol) is higher in females than males in the age group of 41-50 years and p value is  $< 0.05$  and it is statistically significant.

Co-incidence of thyroid dysfunction with hyperlipidemia is higher in male diabetic patients when compared to female diabetics.

**Conclusion:** Assessment of Thyroid profile in the present study showed that thyroid dysfunction is greater in females even if they had controlled diabetes when compared to males. Thyroid dysfunction is higher in uncontrolled diabetic males when compared to females with uncontrolled diabetes. It seems that incidence of thyroid dysfunction is more in females even if they had controlled diabetes. This may be associated with their reproductive age. The present study showed that the prevalence of thyroid dysfunction among Indian diabetic patients attending an outpatient clinic was 12.3%.

Co-incidence of thyroid dysfunction with hyperlipidemia and renal failure is higher in male diabetics when compared to female diabetics. Hence, it is concluded that thyroid dysfunction is positively associated with hyperlipidemia and renal dysfunction in type 2 DM. Regular evaluation of thyroid profile, lipid, profile and renal parameters is highly beneficial in type 2 DM patients and regular treatment of thyroid dysfunction with hyperlipidemia may reduce the risk of development of cardiovascular and renal complications in type 2 DM patients. Further research is needed to elucidate the exact molecular mechanism behind the link between hyperlipidemia and thyroid hormone dysfunction in type 2 DM and the life style modification also to be assessed

**Key words :** Hyperlipidemia, Thyroid dysfunction, Thyroid hormones, type 2 DM.