

Thyroid dysfunction in type 2 diabetes mellitus: A retrospective study

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ABSTRACT

Introduction: Type 2 diabetes mellitus (DM) is a growing problem in our country and we have observed that many patients are associated with thyroid dysfunction later in their life. However, the prevalence of thyroid dysfunction in these patients has not been investigated. **Aims and Objectives:** To find the prevalence of thyroid dysfunction in type 2 DM in Manipur, India. **Materials and Methods:** In this retrospective study, data of 202 Type 2 DM patients who attended the diabetic clinic of the Regional Institute of Medical Sciences, Imphal from January 2011 to July 2012, and whose thyroid stimulating hormone (TSH) level was investigated were included. The inclusion criteria are known cases of type 2 DM. Exclusion criteria are patients with previous history of hypothyroidism and those on drugs affecting the thyroid profile. **Results:** Out the 202 type 2 DM patients for the study of which 61 are males and 141 are females, 139 (68.8%) are euthyroid, 33 (16.3%) have subclinical hypothyroidism (10 males and 23 females), 23 (11.4%) have hypothyroidism (6 males and 17 females), 4 (2%) have subclinical hyperthyroidism and 3 (1.5%) are hyperthyroidism cases. Maximum cases were of hypothyroidism (subclinical and clinical) seen in the age group of 45-64 years. Patients with BMI > 25 were at increased risk of having hypothyroidism ($P < 0.016$). **Conclusion:** Prevalence of hypothyroidism is quite high in type 2 DM patients above 45 years and more so if their BMI is over 25.

Key words: TSH, thyroid dysfunction, type 2 DM

Type 2 diabetes mellitus (DM) is a growing problem in our country and we have observed that many patients are associated with thyroid dysfunction later in their life. However, the prevalence of thyroid dysfunction in these patients has not been investigated in this part of the country. Our aim is find the prevalence of thyroid dysfunction in type 2 DM retrospectively through the data available in our centre of type 2 DM patients who attended the diabetic clinic from January '11 to July '12. TSH value investigated patients were only included provided they had no history of previous thyroid dysfunction. Age, sex, height, and weight and TSH value was noted from the records. TSH estimation values were done by chemiluminescent immunoassay method (normal range: 0.25-5 uIU). All the calculations

and statistics were done using SPSS software version 16.

Our findings suggested that out of the 202 type 2 DM patients included in the study, 61 are males and 141 are females. The mean duration of type 2 DM is 62 months (just more than 5 years). It is found that 139 (68.8%) are euthyroid, 33 (16.3%) have subclinical hypothyroidism, 23 (11.4%) have clinical hypothyroidism, 4 (2%) have subclinical hyperthyroidism and 3 (1.5%) are hyperthyroidism cases. Maximum patients with thyroid dysfunction were found to be hypothyroid (subclinical and clinical), 10 male patients in the subclinical, 6 in the clinical category and 23 female patients in the subclinical and 17 in the clinical category. Most of the patients with detected thyroid dysfunction were seen in the age group of 45-64 years. Patients with BMI > 25 were at increased risk of having thyroid dysfunction ($P < 0.016$).

This study showed a high prevalence of thyroid dysfunction in type 2 DM (31.2%) in comparison with other studies done in other parts of the world except in one study done in Spain by Diez *et al.*^[1] who found an overall prevalence of

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thyroid dysfunction in 32.4% of type 2 diabetics patients. A study by Perros *et al.*^[2] showed a prevalence of 13.4% in diabetics, though the prevalence was more in female type 1 diabetics. A study in Jordan by Radaideh *et al.*^[3] found the overall prevalence of thyroid disease in type 2 DM to be 12.5% and 6.6% in the control group and the most common is subclinical Hypothyroidism. In another study by Akbar *et al.*^[4] in Saudi Arabia the association between thyroid dysfunction, thyroid autoimmunity, and Type 2 DM was investigated and found that thyroid autoimmunity in diabetics was 10% and in the control it was 5%, while thyroid dysfunction was found in 16% diabetics and 7% control. In a study done in Greece the prevalence of thyroid dysfunction in type 2 DM was found to be 12.3% with a higher prevalence in females.^[5] The reason for high prevalence observed in our study is unknown as it is beyond the scope of this study. However, in conclusion, based on our finding we can say that the prevalence of thyroid disorder is quite high in type 2 DM and most of them have subclinical hypothyroidism, and most of these patients were above 45 years of age. Prevalence was higher

in female patients and patients with BMI higher than 25 were at increased risk.

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