

Original Research Article

To compare the prevalence of various thyroid disorders between T1DM and T2DM populations

Dr. Narayan Singh Vaish¹ (Associate Professor), Dr. Pawan Kumar Chilloria² (Associate Professor), Dr. Ankur Kumbhkar³ (Associate Professor), Dr. Jagat Bahadur Rawat⁴ (Assistant Professor) & Dr. Rakesh Romday⁵ (Professor)

Dept. of General Medicine, Amaltas Institute of Medical Sciences, Dewas, M.P.^{1,2,3,4&5}
Corresponding Author: Dr. Pawan Kumar Chilloria

Abstract:

Background & Method: The aim of this study is to compare the prevalence of various thyroid disorders between T1DM and T2DM populations. Present study is conducted at Amaltas Institute of Medical Sciences, Dewas, M.P.

Result: Out of 132 diabetic patients, 8.33% (11/132) were suffering from T1DM and 91.67% (121/132) from T2DM. Hyperthyroidism was the most prevalent disorder in T1DM patients, occurring in up to 18.18% of the total T1DM population [9.09% were having primary hyperthyroidism and 9.09% were having T3 toxicosis syndromes]. Males and females are equally affected (Both 9.09%). In T2DM patients, primary hypothyroidism was the most prevalent disorder, occurring in up to 7.44% of the total diabetic population, followed by subclinical hypothyroidism in 5.79%, subclinical hyperthyroidism in 4.13%, hyperthyroidism in 0.83%, and nonthyroid dysfunction in 0.83% patients.

Conclusion: The prevalence of hypothyroidism in the male population was 8% (4/50), subclinical hypothyroidism 4% (2/50), subclinical hyperthyroidism as 4% (2/50) and patients suffering from nonthyroid illness as 2% (1/50). The values in female population were as follows: the prevalence of hypothyroidism was 7.04% (5/71) that of subclinical hypothyroidism was 7.04% (5/71), hyperthyroidism 1.40% (1/71) and subclinical hyperthyroidism was 4.22% (3/71).

Keywords: prevalence, thyroid, T1DM and T2DM.

Study Designed: Observational Study.

1. INTRODUCTION

Diabetes is a major public health problem. The worldwide prevalence of diabetes mellitus has risen dramatically in past two decades. In 2007, worldwide prevalence of diabetes mellitus was 6% and that of Impaired glucose tolerance was 7.5%. Between 1995 and 2025 there is predicted to be a 35% increase in the world wide prevalence of diabetes¹⁶. It is estimated to affect 380 million people by the year 2025¹. It is one of those diseases that cannot be cured, but can only be controlled so as to prevent its long-term micro-vascular and macro-vascular

complications. The prevalence in the western countries is in-between 6.0-7.6% and those in the developing countries are also more than 6%¹⁶. In 2007, in South East Asia, prevalence of diabetes mellitus was 6.5% and that of Impaired glucose tolerance was 6%. India has nearly 44 million diabetics today which is chiefly contributed by the urban population¹⁰⁷. Various researchers in India have quoted that diabetes was present in 4.0-11.6% in urban and 2.4% in rural areas. Impaired fasting glycemia was present in 3.6-9.1%. Diabetes and its complications are common causes of medical admissions in Indian hospitals. Diabetes has been reported as to be one of the common disease of medical admissions in M Y Hospital in the years 2000-2007.

Diseases of the thyroid organ are likewise among the most plentiful endocrine problems on the planet, second just to diabetes². Hyperthyroidism and hypothyroidism happen in around 2% and 1% of the populace respectively².

The commonness of thyroid illness in patients with diabetes is essentially higher than that in the general population⁷. Notwithstanding the immune system connect between type 1 diabetes and thyroid sickness, and expanded predominance of thyroid brokenness during pregnancy, both diabetes mellitus and thyroid illnesses are viewed as more regularly in the older. In this way there ought to be high pervasiveness of thyroid brokenness both in the more youthful age gathering of type 1 diabetes as well as the old kind 2 diabetes. As per a few specialists, thyroid capability ought to be assessed yearly in patients with diabetes⁴.

2. MATERIAL & METHOD

Present study is conducted at Amaltas Institute of Medical Sciences, Dewas, M.P. catering to patients not only from the Dewas but also from adjoining area from July 2020 to June 2021. Hence a population taken from this hospital would be representative of most of the population in Dewas and adjoining areas.

Inclusion criteria:

- Patients attending with history of diabetes or were found to be diabetic on assessment at presentation.
- Patients admitted in the Hospital with history of diabetes or were found to be diabetic on assessment at presentation.
- Patients who were willing to participate in the study.

Exclusion criteria:

- Patients not willing to participate in the study.
- Patients who were on drugs that are known to modify the thyroid
- Functions (except patients who are already known to suffer from hypo/hyperthyroidism and are on appropriate treatment for the same), e.g. lithium, amiodarone, etc.

3. RESULTS

TABLE 1: Age-wise distribution of thyroid profile in the entire study population.

AGE GROUP	Euthyroid	Hypothyroid	Hyperthyroid	Subclinical Hypothyroid	Subclinical hyperthyroid	T3 toxicosis	NTI	TOTAL
<20	2		1					3

20-29	2							2
30-39	7	1				1		9
40-49	23	4		1				28
50-59	34	3		3	2			42
60-69	27	1	1	3			1	33
70-79	9				2			11
80 & above	3				1			4
TOTAL	107	9	2	7	5	1	1	132

Out of 132 diabetic patients, 81.06% (107/132) were found to be euthyroid, 6.82% (9/132) were hypothyroid, 1.5% (2/132) were hyperthyroid, 5.30% (7/132) were subclinical hypothyroid, 3.79% (5/132) were subclinical hyperthyroid ,0.76% (1/132) were suffering from T3 Toxicosis and another 0.76% (1/132) were suffering from Non thyroidal illness.

TABLE 2: Distribution of thyroid profile in the according to type of diabetes mellitus

TYPE OF DIABETES MELLITUS	Euthyroid	Hypothyroid	Hyperthyroid	Sub-clinical Hypothyroid	Sub-clinical Hyperthyroid	T3 toxicosis	NTI	TOTAL
T1DM	9 (81.82%)		1 (9.09%)			1 (9.09%)		11 (8.33%)
T2DM	98 (80.99%)	9 (7.43%)	1 (0.83%)	7 (5.79%)	5 (4.13%)		1 (0.83%)	121 (91.67%)

Out of 132 diabetic patients, 8.33% (11/132) were suffering from T1DM and 91.67% (121/132) from T2DM. Hyperthyroidism was the most prevalent disorder in T1DM patients, occurring in up to 18.18% of the total T1DM population [9.09% were having

primary hyperthyroidism and 9.09% were having T3 toxicosis syndromes]. Males and females are equally affected (Both 9.09%). In T2DM patients, primary hypothyroidism was the most prevalent disorder, occurring in up to 7.44% of the total diabetic population, followed by subclinical hypothyroidism in 5.79%, subclinical hyperthyroidism in 4.13%, hyperthyroidism in 0.83%, and nonthyroid dysfunction in 0.83% patients.

4. DISCUSSION

In the biggest review done in this field, Perros et al⁴ distributed that the commonness of complete thyroid sicknesses could be basically as high as 31.4%, particularly in the Kind 1 diabetic females. However, they have likewise recognized that the predominance can likewise be pretty much as low as 6.9% as in Kind 2 diabetic guys. They additionally inferred that the most widely recognized brokenness that was distinguished was subclinical hypothyroidism, trailed by obvious hypothyroidism, trailed by hyperthyroidism and subclinical hyperthyroidism being the most un-pervasive of the thyroid problems. Notwithstanding, Dube et al⁶ from India revealed up to 30% commonness of thyroid brokenness in NIDDM patients between the age gatherings of 35-50 years. K Babu⁵ likewise from India detailed just 21% pervasiveness of thyroid illness in T2DM patients. As per them the most predominant problem is hypothyroidism (13.2%), trailed by hyperthyroidism (8.8%), trailed by wiped out euthyroid cases. In every one of the examinations the females were found to experience the ill effects of hypothyroidism as well as subclinical hypothyroidism more than their male counterparts^{7&8}.

In our review, essential hypothyroidism was the most common problem in diabetic patients, happening in up to 6.82% of the complete diabetic populace, trailed by subclinical hypothyroidism in 5.30%, subclinical hyperthyroidism in 3.79%, hyperthyroidism in 2.27%, and nonthyroid brokenness in 0.76% patients⁹. Out of these, the commonness of hypothyroidism in the male populace was 7.02% (4/57), subclinical hypothyroidism 3.51% (2/57), hyperthyroidism 1.75% (1/57), subclinical hyperthyroidism as 3.51% (2/57) and patients experiencing nonthyroid ailment as 1.75% (1/57). The qualities in female populace were as per the following: the commonness of hypothyroidism was 6.67% (5/75), that of subclinical hypothyroidism was 6.67% (5/75), hyperthyroidism was 1.33% (1/75) and subclinical hyperthyroidism was 4.00% (3/75) and those experiencing T3 toxicosis were 1.33% (1/75)¹⁰.

5. CONCLUSION

The prevalence of hypothyroidism in the male population was 8% (4/50), subclinical hypothyroidism 4% (2/50), subclinical hyperthyroidism as 4% (2/50) and patients suffering from nonthyroid illness as 2% (1/50). The values in female population were as follows: the prevalence of hypothyroidism was 7.04% (5/71) that of subclinical hypothyroidism was 7.04% (5/71), hyperthyroidism 1.40% (1/71) and subclinical hyperthyroidism was 4.22% (3/71).

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