www.jmscr.igmpublication.org
Impact Factor (SJIF): 6.379
Index Copernicus Value: 71.58
ISSN (e)-2347-176x ISSN (p) 2455-0450
crossrefDOI: https://dx.doi.org/10.18535/jmscr/v6i7.153

IGM Publication
Journal Of Medical Science And Clinical Research
An Official Publication Of IGM Publication

Prevalence of thyroid dysfunction in population of Shahjahanpur district: A study in tertiary care hospital

Authors
Niranjan Singh[1], Sandeep Kumar Sharma[2], K.V. Thimmaraju[3], Mona Tilak[4]
[1]Assistant Professor, Dept of Biochemistry, Varun Arjun Medical College, Banthra, Shahjahanpur, U.P. India
[2]Associate Professor, Dept of Biochemistry, Varun Arjun Medical College, Banthra, Shahjahanpur, U.P. India
[3]Professor, Department of Biochemistry, Varun Arjun Medical College, Banthra, Shahjahanpur, U.P. India
[4]Professor, Department of Biochemistry, Dr. D.Y.Patil Medical College Pune, Maharashtra India
Corresponding Author
Dr Sandeep Kumar Sharma
Associate Professor, Department of Biochemistry, Varun Arjun Medical College, Shahjahanpur, U.P. India
Tel: +91-8887941358, Email: *dr_sandeepsharma44@yahoo.com*

Abstract
Introduction: *Thyroid dysfunction is the most common endocrine disorder with around 42 million cases in India. The study was undertaken to assess the prevalence of thyroid dysfunction in Shahjahanpur district of Uttar Pradesh.*
Material & Methods: *A total of 723 subjects were included and they were evaluated for Thyroid function tests i.e. T3,T4 & TSH and were categorized as Euthyroid, Hypothyroid & Hyperthyroid. T3,T4 & TSH were estimated by Chemiluminescent immune-assay.*
Result: *Among 723 subjects, prevalence of thyroid dysfunction was 21.85% (158). We have seen more females having Hypothyroidism & Hyperthyroidism in comparision to males. Hypothyroidism has more prevalence (17.42%) in comparision to Hyperthyroidism (4.42%). 78% of the subjects were Euthyroid. Higher prevalence of Hypothyroidism was seen in subjects with age group 31-45 years (8.3%) & Hyperthyroidism in age group of 16-30 years(1.8%).*
Conclusion: *The findings of our study shows that Hypothyroidism is more prevalent than Hyperthyroidism with more preponderance in Females.*
Keyword: *Hyperthyroidism, hypothyroidism.*

Introduction

Thyroid dysfunction is one of the most common endocrine abnormality. Current study shows that 300 million people are suffering from thyroid dysfunction globally and 42 million cases are in India[1]. Thyroid dysfunction is due to alteration in serum TSH level with normal or abnormal thyroid hormones (T3 & T4). Various factors including geographic distribution, nutrition & diet affects prevalence of thyroid disorders. Hypothyroidism & Hyperthyroidism are two main thyroid disorders of which Hypothyroidism is much more common. Thyroid dysfunction is eight times more common in women than in men[2]. Thyroid

function test profile is most commonly used for screening of thyroid disorders.

Material & Methods

This study was conducted in the department of Biochemistry, Varunarjun Medical College, Banthra, Shahjahanpur (U.P). In this study subjects coming for Thyroid profile (T3,T4 & TSH) in Clinical Biochemistry Laboratory were enrolled from January 2016 to January 2017. A total of 723 individuals were enrolled for this study. Subjects with incomplete thyroid profile status were excluded from the study. 5mL venous blood was collected in plain vials and allowed to clot & later centrifuged at 3000rpm for 15 minutes. The serum obtained was assayed for T3,T4 & TSH by Chemiluminescent immuno assay. Subjects having normal T3, T4 & TSH were labelled as Euthyroid, subjects with low T3,T4 & high TSH were Hypothyroid & those having increased T3, T4 and decreased TSH were hyperthyroid. The reference intervals for T3,T4 &TSH in our Laboratory are T3 0.80-2.0 ng/mL , T4 5.10-14.10 µg/dL & TSH 0.27-4.20 µIU/mL.

Statistical analysis

Values are entered and analyzed by SPSS version 20. Data is represented as Mean ± SD & p value < 0.05 is considered significant.

Result

In our study of Thyroid dysfunction a total of 723 subjects were studied for Thyroid profile from January 2016 to January 2017. The prevalence of Thyroid disorder was found to be 21.85% (158) in the study population. 78% (565) of the subjects were found to be euthyroid. Among thyroid dysfunction 17.42% (126) subjects were Hypothyroid and 4.42% (32) were Hyperthyroid. Out of 126 Hypothyroid subjects 88.88% (112) were Females and only 11.11% (14) were Males, and in 32 Hyperthyroid subjects 87.5% (28) were Females and 12.5% (4) were males.

Table I: Sex and percentage distribution of Thyroid dysfunction status

Thyroid status	Number of Subjects	Percentage(%)	Female	Male
Euthyroid	565	78%	486	79
Hypothyroid	126	17.42%	112	14
Hyperthyroid	32	4.42%	28	4

Table II: Age wise distribution of Thyroid dysfunction

Thyroid status	Age < 15 years	16-30 yrs	31-45 yrs	46-60 yrs	>60 yrs
Euthyroidism	22(3.0%)	207(28.4%)	236(32.5%)	83(11.5%)	16(2.2%)
Hypothyroidism	04(0.6%)	35(4.8%)	60(8.3%)	21(2.9%)	06(0.8%)
Hyperthyroidism	02(0.3%)	13(1.8%)	10(1.4%)	06(0.8%)	01(0.1%)

Discussion

Thyroid dysfunction is among the most common endocrine disease in India. It's prevalence is found to be high 21.85% in our study area. A study conducted by Flynn RW et.al showed that thyroid dysfunction increases with age and females were affected two to eight times more than males for Hypothyroidism & Hyperthyroidism[3], which is in accordance to our study that shows females are more vulnerable for thyroid dysfunction than males. Study by Pradip Kumar S et.al shows that prevalence of Hypothyroidism was 25.7% (232) among 232 hypothyroid cases, 181 (78.02%) were females & 51 (21.98%) were males. The maximum number of patients belonged to the age group 36-45 years with clear female preponderence[4]. Similar to our study which shows prevalence of Hypothyroidism to be 17.42% (126) among 126 hypothyroid subjects, 112 (88.9%) were females & 14 (11.1%) were males with clear female preponderance. As in other studies, hypothyroidism tends to increase with age and is more common in females[5,6]. Our finding also shows that maximum number of

patients belonged to the age group of 31-45 years in our study.

Conclusion

Our study shows increased prevalence of thyroid dysfunction in our area with increased number of cases of Hypothyroidism in contrast to Hyperthyroidism with increased female preponderance and it's incidence increases with age. Further epidemiological studies are needed for accurate prevalence & associated etiological factors in our study region.

References

1. Nimmy N J, Aneesh PM, Narmadha MP, Udupi RH, Binu KM.A survey on prevalence of Thyroid Disorders Induced by demography and Food habits in South Indian Population. Ind J Pharm Prac 2012;5: 49-52
2. Peter PAS eds. Epidemiology of Thyroid Dysfunction –hypothyroidism & hyperthyroidism. Thyroid International 2009;2: 1-16
3. Flynn RW, Mac Donald TM,Morris AD,Junq RT,Leese TP. The thyroid epidemiology, audit,and research study: thyroid dysfunction in the general population. J Clin Endocrinol Metab.2004;89(8):3879-3884
4. Pradip Kumar S,Baijayanti B, Soma G. Thyroid stimulating hormone measurement as the confirmatory diagnosis of Hypothyroidism: A Study from a tertiary-care teaching hospital, Kolkatta. Indian J Community Med.2007;32(2):139-140
5. Laurberg P, Pedersen KM, Hreidarson A, Sigfusson N,Iversen E, Knudsen PR." Iodine intake and the pattern of thyroid disorders: a comparative epidemiological study of thyroid abnormalities in the elderly in Iceland and in Jutland, Denmark". The Journal of Clinical Endocrinology and Metabolism. 1998;83 (3):765-769
6. International Council for Control of Iodine Deficiency Disorders. UNICEF. World Health Organization. Assessment of Iodine deficiency disorders and monitoring their elimination: a guide for programme managers.2nd ed. Geneva: World Health Organization;2001.