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Evaluation of Thyroid Diseases in Government General Hospital, Guntur, AP, India

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Abstract: *Aim of the present study was to evaluate the pattern of thyroid diseases, clinical presentation, and demographic characteristics of cases in Government General Hospital (GGH), Guntur, Andhra Pradesh. Present study was conducted in the Department of General Medicine, GGH, Guntur, AP, India, over a period of one year from October 2013 to October 2014. Clinical data obtained from 40 cases and they were analyzed based on the age and sex distribution, their dietary habits, past history, provisional diagnosis on clinical examination basis. Cases of females (90%) predominated greatly in all ages. Iodine deficiency was not only the sole cause as revealed by dietary data. Hyperthyroidism (12.5%) is infrequent, less severe. Hypothyroidism (52.5%) and Goiter (27.5%) is a commonly prevailing disorder in our area. Autoimmune mechanisms may play an etiological role in a significant proportion of patients. Female predominance was marked. A high index of clinical awareness and education of primary health care workers will help a great deal in improving the ultimate outcome in cases with thyroid diseases/hypothyroidism. Further studies are required to characterize the reasons for this high prevalence. Iodine deficiency as well as thyroid dysfunction both be the focus of public health strategies in our area.*

Key Words: *Thyroid Diseases, Hypothyroidism, Goiter, Government General Hospital, Guntur.*

I. Introduction:

Almost one-third of the world's population lives in areas of iodine deficiency (1). In areas where the daily iodine intake is, 50 mg, goiter is usually endemic, and when the daily intake falls, 25 mg, congenital hypothyroidism is seen. The prevalence of goiter in areas of severe iodine deficiency can be as high as 80%. In India too, there is a significant burden of thyroid diseases. According to a projection from various studies on thyroid disease, it has been estimated that about 42 million people in India suffer from thyroid diseases (2).

Diet is the major source of iodine and lack of adequate iodine content in the food would result in iodine deficiency. This can be very detrimental especially to the developing fetus and young children. In adults, iodine deficiency can cause a variety of disorders such as goiter, hypothyroidism, and mental impairment (4). Thyroid diseases (hypothyroidism, hyperthyroidism, goiter/iodine deficiency disorders, Hashimoto's thyroiditis, and thyroid cancer) are different from other diseases in terms of their ease of diagnosis, accessibility of medical treatment, and the relative visibility that even a small swelling of the thyroid offers to the treating physician. Early diagnosis and treatment remains the cornerstone of management.

The endocrine system and particular endocrine organs, including the thyroid gland, undergo – similarly to other organ systems – crucial functional changes with aging. Numerous morphological and physiological changes of the thyroid during the process of aging are well known (5-7). A specificity of thyroid diseases in the elderly, differing essentially from that observed in younger subjects, relies on the presence of more subtle symptoms, which are often attributed to normal aging. Therefore, subclinical hypo- and hyperthyroidism, as well as thyroid neoplasms, the prevalence of which increases with age, require special attention in elderly subjects. Interestingly, altered thyroid function may contribute to the extended longevity. Aim of the present study was to evaluate the pattern of thyroid diseases in our area, their clinical presentation, demographic characteristics of cases with thyroid diseases.

II. Methodology

This study was conducted in the Department of General Medicine, Government General Hospital/Guntur Medical College, Guntur, AP, India, over a period of one year from October 2013 to October 2014. All the patients with thyroid related diseases, attending our OP was observed. A clinical examination was done. Clinical data obtained from 40 cases and they were analyzed based on the age, sex distribution, their dietary habits, past history, provisional diagnosis on clinical examination, treatment basis. Statistical Analysis: Results are presented as Number with Percentage.

III. Results

Age and sex distribution of cases with thyroid diseases were shown in table 1. The range was from 14 to 70 years. There were 36 female and 4 male cases. Most of the cases (45%, No=18) with thyroid disorders were between 41-60 years of age. Cases of females predominated greatly in all the age groups.

Table 1. Age and Sex distribution of Cases with Thyroid Disorders (Number with percentage):

S.No.	Age in years	Male 4 (10)	Female 36 (90)	Total No. 40
1.	0-20	0	3	3 (7.5)
2.	21-40	2	13	15 (37.5)
3.	41-60	1	17	18 (45)
4.	61 and above	1	3	4 (10)

Table 2 shows the thyroid related history of the study population. Diabetes mellitus (30%, No-12) and hypertensive (47.5%, No=19) cases were common concomitant diseases observed in the study population. 3 (7.5%) cases gave history of thyroid dysfunction including thyroid surgery. The prevalence of hypothyroidism in the overall study population was 21 (52.5%). A total of 5 (12.5%) cases were diagnosed with hyperthyroidism and 11 (27.5%) cases were diagnosed with goiter. In our study 5 (12.5%) cases were iodized salt users, 21 (52.5%) cases were rock salt users and 14 (35) cases were mixed users.

Table 2. Thyroid related history of the study population (Number = 40, with Percentage)

Common concurrent conditions	Diabetes Mellitus	12 (30)
	Hypertension	19 (47.5)
History of thyroid diseases	Hypothyroid	21 (52.5)
	Hyperthyroid	5 (12.5)
	Goiter	11 (27.5)
	Thyroid malignancy	3 (7.5)
	History of thyroid surgery	3 (7.5)
Salt Usage	Iodized salt	5 (12.5)
	Rock salt	21 (52.5)
	Mixed usage	14 (35)

IV. Discussion

Iodine is the most important micronutrient affecting the thyroid gland. Iodine levels have major role in the etiology of goiter, thyroid functional disorders as well as thyroid autoimmunity (1, 13). Iodine deficiency is the commonest cause of goiter worldwide, though its prevalence is decreasing due to the salt iodization program (1).

Most of the cases (45%, No=18) with thyroid disorders were between 41-60 years of age. Cases of females predominated greatly in all the age groups. The process of aging strongly affects entire endocrine system. Consistently, aging also impacts thyroid gland. One should emphasize that thyroid diseases-associated symptoms in the elderly people are very similar to symptoms of the normal aging. Therefore, broadening the knowledge on alterations in thyroid function, which may be observed during aging, appears to be very important and constitutes a challenge for thyroid researchers, given that some specific thyroid dysfunctions may contribute to lifespan extension (3).

Current practices in the management of thyroid diseases, including active screening of endocrine function among cases at greater risks and an emphasis on regular monitoring of the thyroid status and dose adjustments to provide effective therapy in those with established diagnosis. In general, India is now considered to be in the post-iodization phase (8). Our results suggest that, the prevalence of hypothyroidism in adults is high in this area. Coastal areas in our study lead us to speculate whether iodine deficiency may continue to play a role in hypothyroidism. Increasing exposure to thyroid disruptors including industrial and agricultural contaminants has been identified as a growing health concern throughout India (9).

In the present study, 47.5% of cases suffering with hypertension or having a history of hypertension did not associate significantly with iodine nutritional status in both men and women, however, dietary salt restriction among cases with hypertension may be significantly associated with iodine deficiency. Such a direct negative relation between blood pressure and iodine levels has not been demonstrated in earlier studies, though iodine deficiency has been attributed as a risk factor for hypertension and other cardiovascular disease by some authors (11). About five decades ago, iodine had a therapeutic role in hypertension treatment until the intervention of newer drugs (12). However, these findings highlight the need for recommending alternative sources of iodine for subjects on salt restriction as well as evaluating iodine deficiency in a new perspective as a probable modifiable risk factor for hypertension.

In the present study, we assessed the prevalence of thyroid diseases; particularly hypothyroidism was found to be a common form of thyroid dysfunction affecting 52.5% of the study population. Most of the hypothyroidism cases were diagnosed for the first time during the course of study related screening. This suggest that a significant proportion of cases may go undetected even as it continues to impair the daily quality of life, work performance and finance of an individual.

In our series 11 (27.5%) cases were suffering with goiter. The most common thyroid disease in the community is simple (diffuse) physiological goiter. In Germany, an area of relative iodine deficiency, thyroid nodules or goiter were found were found in 33% of 96278 working adults aged 18-65 years screened by an ultrasound scan (14).

IV. 1. In our study have important limitations: Firstly, it was done in Government General Hospital, Guntur, AP, India, and the prevalence of hypothyroidism in remains unknown. Secondly, from the consumption of iodized salt, the study presumed that the target population was iodine sufficient, without testing for reliable markers such as iodine content in salt samples or urinary iodine excretion (10). Thus, with regard to the cause of hypothyroidism, there may be etiological factors other than the iodization status. This poses a public health concern and an important challenge to the policy makers and health professionals.

V. Conclusion:

Female predominance was marked. Iodine deficiency was not only the sole cause as revealed by dietary data. Hyperthyroidism is infrequent, less severe. Hypothyroidism is a commonly prevailing disorder in our area. Autoimmune mechanisms may play an etiological role in a significant proportion of patients. Iodine intake ceases to be etiological contender for thyroid disorders in our areas. Identification of multiple risk factors and plausible underlying mechanisms is warranted. A high index of clinical awareness and education of primary health care workers will help a great deal in improving the ultimate outcome in cases with thyroid disorders/hypothyroidism. Further studies are required to characterize the reasons for this high prevalence. Iodine deficiency as well as thyroid dysfunction should both be the focus of public health strategies in susceptible populations.

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