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Original Research Article

Assessment of knowledge, awareness, practices and misconceptions among hypothyroid and hyperthyroid patients

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ABSTRACT

Background: In chronic illness there is a greater need for patient education to manage their symptoms, prevent complications, and have better therapeutic outcome and increase quality of life. Among chronic illnesses thyroid disorders are more common in the world. Our study aimed to assess knowledge, awareness, practices and misconceptions in thyroid patients in order to estimate the need of patient education and also counsel the patients for the same using counselling aids.
Methods: A descriptive cross sectional study was conducted among 300 subjects in a secondary care hospital for a period of 6 months (February 2017- July 2017). The interviews were conducted in semi private areas in the hospital after taking informed consent by using a structured questionnaire which has been established for its validity and reliability. The results were calculated using descriptive statistical methods (frequency, percentage and mean).
Results: Among the participants 23.33% were co-morbidities, majority of patients (83%) do not have family history. Only 32% of the participants have good knowledge, 52.66% have average knowledge and 15.33% patients have poor knowledge about symptoms. Though the knowledge on the dietary factors is considerable in participants, 31.95% of hypothyroid, 58.82% of hyperthyroid patients followed inappropriate dietary habits. 86.3% believed that patients with thyroid disorders need to take medications for their lifetime.
Conclusions: The results conclude the need for patient education in thyroid disorders and also a need for clinical pharmacists in hospital setup to fill the gap between physician and patient to provide patient education and clarify misconceptions.

Keywords: Hypothyroidism, Hyperthyroidism, Knowledge, Misconceptions, Patient education

INTRODUCTION

Chronic diseases are often associated with long term morbidity necessitating reduction in morbidity as an important goal. So patient education about their condition, coping skills and lifestyle modifications, helps them manage their symptoms, prevent complications and have better therapeutic outcomes ultimately reducing morbidity.[1] Thyroid disorders are one among common chronic conditions worldwide. In India too, there is a significant burden of thyroid disorders. According to projections from various studies it has been estimated that about 42 million people in India suffer from thyroid diseases.[1] Among the thyroid disorders in India hypothyroidism and hyperthyroidism are more prevalent.[2-4]

Thyroid is one of the major endocrine glands. Its hormones affect the function of every organ system Triiodothyronine (T_3) and thyroxine (T_4) are the two biologically active thyroid hormones produced by the thyroid gland in response to hormones released by the

pituitary and hypothalamus.[1] The TRH stimulates release of thyrotropin (TSH) from the pituitary in response to low circulating levels of thyroid hormone. The release of hormones operates by feedback mechanism.[5] The two important thyroid disorders that we focused on in our study are hypothyroidism and hyperthyroidism.

Hypothyroidism is defined as clinical and bio clinical syndrome resulting from decreased thyroid hormone production.[6] Hypothyroidism is a common condition of thyroid hormone deficiency, which is readily diagnosed and managed but potentially fatal in severe cases if untreated. The term hyperthyroidism refers to any condition in which there is too much thyroid hormone present in the thyroid. In other words, the thyroid gland is overactive. It is characterized by increased metabolism of all the body systems. Any genetic, social or environmental factors can cause thyroid disorders which may include family history, smoking, alcohol consumption, dietary habits and all.[7] Unmanaged and untreated thyroid disorders leads to life threatening and serious complications like cardiovascular diseases, infertility, complications during pregnancy neurological complications myxoedema coma For overall complications.[8-11]

Knowing about risk factors, symptoms and complications can help to avoid complications and manage symptoms. Misconceptions always result in psychological stress and increase unnecessary anxiety in patients, correcting the misconceptions is as equally important as providing patient education, it directly contributes to patients psychological wellbeing.

Measuring the knowledge, awareness, practices in the patients helps the health care team to understand the need of patient education and the ways to effectively plan the interactive sessions with the patients. General awareness about hypothyroidism in India is poor with half of the population having incorrect knowledge, beliefs and practices regarding hypothyroidism.[12]

We made our study a tool to identify the need for patient education in Hanamkonda city. Scientific evidence regarding the social and lifestyle in the case of thyroid disorders are not well noted in the public, so we evaluated the knowledge and practices of a few lifestyle and social habits which have sound scientific evidence. We also provided education and counseled patients about their disease using the pamphlets in the local language.

METHODS

A descriptive, cross sectional study along with patient counseling was conducted in Diabetes, in a Secondary care hospital during a period of February 2017 to July 2017. A total of 300 subjects participated in this study.

Inclusion criteria

The study included both male and female out patients with hypothyroidism or hyperthyroidism above 18 years of age attending the study site.

Exclusion criteria

Patients<18 years of age, pediatric patients and patients with other thyroid disorders other than hypothyroidism and hyperthyroidism were excluded from the study.

Pre study

During our clinical rotations in the Endocrinology Department at Samraksha Super Specialty Hospital. We interacted with patients of thyroid disorders and noticed some controversy in knowledge awareness, practices, in them. We also noticed some misconceptions so we planned for a study on assessment of knowledge awareness, practices and misconceptions.

A structured questionnaire was prepared by referring to previous literature and inferring our interaction with patients. The reliability of the questionnaire was checked by inter-rater agreement and test-retest evaluation; it is validated by face validity and pre-testing (among 50 participants). Interviews with structured questionnaires were conducted by trained investigators in the local language after obtaining the informed consent from the subjects.

Participants were randomly selected and surveyed. The interviews were conducted in the semi-private area. After the interview, the gaps in the assessment were explained, their queries were answered and information leaflets containing necessary information about symptoms, food and lifestyle habits in local and English language were given to the patients.

Statistical analysis

The collected data was analyzed using Microsoft-excel 7.0. The info graphics were done by using Microsoft excel. Descriptive statistical analysis (frequency, percentage and mean) were performed.

RESULTS

In our study a total of 300 samples were interviewed, which include 272 females and 28 males with 88.3% hypothyroid patients (females and male) 11.66% hyperthyroid the highest (28.33%) percentage of subjects were within an age group of 23-29 years (Table 1, 2). 75% of our subjects were literates and most of them are from rural areas (53.34%) (Table 3, 4). Though it was always assumed family history as major risk factors our study showed the greatest percentage (83%) of our subjects are without family history (Table 5).

Table 1: Gender wise distribution.

Gender	Frequency (N)	Percentage (%)
Male	28	9.33
Female	272	90.67

Table 2: Age wise distribution.

Age in years	Frequency	Percentage
16-22	45	15
23-29	85	28.33
30-36	52	17.33
37-43	51	17
44-50	44	14.66
51-57	10	3.33
58-64	10	3.33
65-71	1	0.33
72-78	2	0.66

Table 3: Literacy rate.

Education	Frequency	Percentage
Primary	27	9
Secondary	67	22.33
Higher secondary	34	11.33
Graduation	69	23
Post graduation	28	9.33
Illiterate	75	25

Table 4: Locality wise distribution.

Locality	Frequency	Percentage
Urban	140	46.66
Rural	160	53.34

Table 5: Family history.

	Frequency	Percentage
No family history	249	83
Family history present	51	17

Table 6: Social history.

Habits	Frequency	Percentage
Vegetarian	15	5
Mixed diet	272	90.6
Alcoholic	8	2.66
Smoker	1	0.33
Tobacco	1	0.33
Both alcoholic and smoker	3	1

While analyzing the social history 90.6% followed mixed diet 5% were vegetarians, 2.6% of people are alcoholics, 0.33% are smokers, 0.33% are tobacco chewers and 1% of subjects had both the habit of smoking and alcohol consumption (Table 6). The knowledge assessment of terminology and screening are clearly summarized in Figure 1.

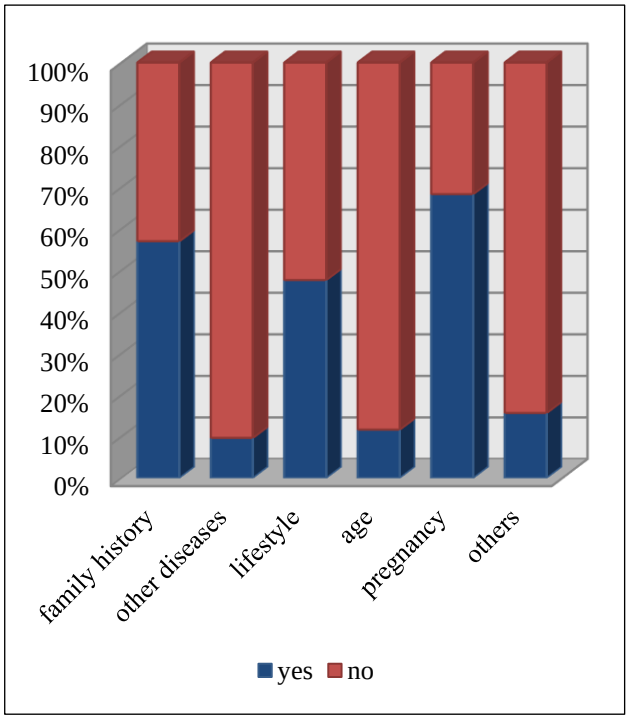

Figure 1: Distribution of subjects based on their views about risk factors.

Table 7: Distribution of subjects based on knowledge related to terminology.

Questions	Answers	Frequency	Percentage
What is thyroid?	Organ	79	26.33
	Disease	69	23
	Not known	152	50.66
What is hypothyroid-dism?	Increase	28	9.33
	Decrease	55	18.33
	Not known	217	72.33
What is hyperthyr-oidism?	Increase	58	19.33
	Decrease	24	8
	Not known	218	72.66
TSH abnormality means?	↑ is hypo ↓is hyper	22	7.33
	↑ is hyper ↓is hypo	10	3.33
	Not known	268	89.33

We found that 59.66% had no idea on T3 and T4. 26.33% gave a correct answer that thyroid is an organ, 23% believed that thyroid is a disease and 50.66% were not aware of the term 'Thyroid'. Assessment regarding basic screening tests shows that 59.66% were not aware of T_3, T4 and 51.66% were not aware of TSH.

Our study shows only 32% of participants have good knowledge, 52.66% of participants have average knowledge and 15.33% patients have poor knowledge about symptoms. 6% of the subjects believed that thyroid is a tumor, 15.66% felt that throat pain is always a sign for thyroid disorder, 86.3% believed that patients with thyroid disorders need to take medications life long, 29.66% said that they can stop thyroid medications once the hormone levels are normal. Only 4% had a misconception that thyroid disorders are contagious, 18% assumed that thyroid disorders can be treated only with iodized salt, 51% had an opinion that thyroid disorders make patient infertile and 19% believed that alternative medicines like Ayurveda/Unani/Siddha can cure thyroid disorders.

Table 8: Distribution of subjects for knowledge & awareness of symptoms.

Symptoms	Answers	Frequency	Percentage
Weight gain/ weight loss	Y	277	92.33
	N	23	7.66
Sore throat/neck pain /joint pain	Y	254	84.66
	N	46	15.33
Depression /anxiety	Y	186	62
	N	114	38
Irregular menstrual cycle	Y	240	80
	N	60	20
Voice change/ hoarseness	Y	216	72
	N	84	28
Hair fall	Y	260	86.66
	N	40	13.33
Infertility	Y	220	73.33
	N	80	26.66
Constipation	Y	155	51.66
	N	145	48.33
Skin problems	Y	119	39.66
	N	181	60.33
Par aesthesia	Y	198	66
	N	102	34
Hearing problems	Y	82	27.33
	N	218	72.66
Memory loss	Y	166	55.33
	N	134	44.66
Heat sensitivity /cold sensitivity	Y	116	38.66
	N	184	61.33
Trembling in hands	Y	151	50.33
	N	149	49.66
Palpitations	Y	209	69.66
	N	91	31.33
Fatigue	Y	254	84.66
	N	46	15.33

Table 9: Practices in daily life of our subjects.

Questions	Answers	Frequency	%
Timing of medication			
Hypo	<1hr	113	45.4
	≥1hr	136	54.6
Hyper	After meals	27	84.36
	Before meal	5	15.63
Frequent check up?	3 months or less	135	48.04
	>3 months	146	51.95

Continued.

Questions	Answers	Frequency	%
Foods	Answer	Frequency	%
Hypo: cabbage, cauliflower, soya beans, peas	Y	85	31.95
	N	181	68.04
Hyper: cool drinks, coffee junk foods, alcohol, tea	Y	20	58.82
	N	14	41.17
Effect?	Y	189	63
	N	47	15.66
	NK	64	21.33
Do you drink alcohol?	Y	11	3.66
	N	289	96.33
Effect?	Y	107	35.66
	N	21	7
	NK	172	57.33
Do you smoke?	Y	4	1.33
	N	296	98.66
Effect?	Y	78	26
	N	15	5
	NK	207	69
Do u do regular exercise or yoga?	Y	73	24.33
	N	227	75.66
Effect?	Y	193	64.33
	N	28	9.33
	NK	79	26.33
Do you take junk food?	Y	38	12.66
	N	262	87.33
Effect?	Y	212	70.66
	N	24	8
	NK	64	21.33

Table 10: Distribution of subjects based on misconceptions.

Questions	Answers	Frequency	%
Is thyroid a tumor?	Y	18	6
	N	233	77.66
	NK	49	16.33
Is throat pain always a sign for thyroid?	Y	47	15.66
	N	206	68.66
	NK	47	15.66
Do patients with thyroid disorders need to take lifelong medications?	Y	259	86.33
	N	22	7.33
	NK	19	6.33
Can we stop medication once thyroid hormones are normal?	Y	89	29.66
	N	145	48.33
	NK	66	22
Do you feel thyroid is contagious?	Y	12	4
	N	255	85
	NK	33	11
Can thyroid be treated with only iodized salt?	Y	54	18
	N	99	33
	NK	147	49
Does thyroid make patient infertile?	Y	153	51
	N	77	25.66
	NK	70	23.33

DISCUSSION

We conducted assessment studies on knowledge, awareness, practices and misconceptions in hypothyroid and hyperthyroid male and female patients attending a secondary care hospital unlike Singh et al, Rai et al, which were conducted among patients with thyroid swelling attending a fine needle aspiration in cytology clinic and normal female residents in four different localities in central India respectively.[13,14] Our target population was similar to that of Maheshwari et al, which included both hypothyroid and hyperthyroid patients except that they included only females and it was an interventional study which compared assessments before and after patient counselling.[15]

Our questionnaire shows some similarities with Kannan et al, Rai et al, Singh et al, and Maheswari et al, we also added questions about age of onset of disease, the reasons for patients to undergo thyroid test first time, patients opinion on the risk factor, timing of medication which was also a part of questionnaire in Goel et al, regularity of checkup with physician, awareness about practices in daily life.[16,17] Few misconceptions in our questionnaire were similar with previous studies Singh et al, Kannan et al, and other misconceptions were framed from our pre-study experience during interactions with the patients. We conducted interviews by verbally translating the structured questionnaire to local language similar to Maheswari et al.

Dietary factors like goitrogens (peas), fatty foods (ice creams, junk foods), soy and soy products affect the function of the thyroid gland as per studies of Jagminder Bajaj et al.[18] We evaluated the knowledge and found that 63% of participants believed that diet has an impact on the function of thyroid gland. 70.66% believed that junk food can alter thyroid function. According to Singh et al, alcohol consumption affects the functioning of the thyroid gland, and 35.66% of subjects in our study believe it.[19] A review of Sawicka-Gutaj et al, suggests that smoking alters the levels of thyroid hormones, 26% of participants in our study believed smoking has an effect on the thyroid gland.[20] Bansal et al, displays an adjuvant effect of physical exercise with hormonal replacement on better functions of the thyroid gland.[21] In this study, 64.33% felt that physical exercise or yoga can affect the function of the thyroid gland.

Among participants 57% believed family history of thyroid disorders could be the cause of any thyroid disorder, 9.66% felt that other autoimmune diseases like rheumatoid arthritis precipitates thyroid disorders, 47.66% believed lifestyles changes can alter thyroid functioning, 11.66% felt increased age can be the reason for thyroid disorder. 68.33% know that in pregnancy there are greater chances of fluctuations in thyroid hormones. 15.66% believed that there could be other reasons like stress and iodine deficiency for thyroid disorders. Among the participants in our study, literates were having more knowledge (69.7%) than illiterates (44.58%).

In hypothyroidism and hyperthyroidism timing of medication is important to normalize pathological conditions. In our evaluation, we found that 42%of the subjects were taking medications at an inappropriate time. Inferring our practical experience and also physician's opinion, thyroid patients need to visit the hospital at least for every 3 months. This study projects that the frequency of hospital visits for 51.95% of participants is greater than 3 months which may result in negative outcomes. Even though the knowledge of the dietary factors is considerable in participants, 31.95% of hypothyroid, 58.82% of hyperthyroid patients followed inappropriate dietary habits. Although knowledge about alcoholism and smoking in participants is very less it was found that alcoholics (3.66%) and smokers (1.33%) were markedly low and only 24.33% of people have regular exercises despite a considerable number (64.33%) of people knowing its effect.

In our study overall percentages of misconceptions were low, and a substantial percentage of participants were with appropriate practices and a significant percentage of people lack knowledge regarding terminology, symptoms and diagnosis. Our study showed the need for education to patients to have better knowledge, awareness, practices and no misconceptions about their disorder thus helping them to have a better patient outcome, improved quality of life and decrease morbidity and mortality.

This lack of patient education implies the need for the clinical pharmacist, in every healthcare setup.

This study has some limitations. The study was conducted in limited number of patients. It included only patients with hypothyroidism and hyper thyroidism. The awareness programme conducted was limted to few small villages. The descriptive analysis of thyroid patients in agricultural population was a pilot study.

CONCLUSION

Finally the results of our study concludes that there is a greater need of patient education regarding thyroid disorders in order to have better patient outcomes, identify and prevent complications. There is also a need of clinical pharmacist in hospital setup to fill the gap of communication due to busy schedule between physician and patient in order to educate them in regard to their disease condition and clarify the misconceptions. The descriptive pilot study conducted showed considerable number of patients with thyroid disorders in agricultural population exposing to pesticides, however there is also a greater need to justify and relate the pesticide exposure as risk factor to thyroid disorders in agriculture population through future studies. We also found a need of education in farmers regarding the precautions to be taken while pesticide usuage.

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