



A CASE STUDY ON THYROTOXICOSIS

Dr. Someswar Deb¹, Dr. Thejaswini Karanth², Syed Saud Ahmed³

¹Doctor of Pharmacy, Department of Pharmacy Practice, Krupanidhi College of Pharmacy, Bangalore, India.

²Assistant Professor, Department of Pharmacy Practice, Krupanidhi College of Pharmacy, Bangalore, India.

³Clinical Pharmacist Intern, MVJ Medical College and Research Hospital, Bangalore, India.

ABSTRACT

Thyroid gland is a butterfly shaped organ located over the lower front of the neck and they produces several hormones that helps in proper working of our body. High level thyroid hormone in the body is referred as thyrotoxicosis, it also means a condition where there is a low level of thyroid stimulating hormone TSH in blood stream. Thyrotoxicosis is often called as hyperthyroidism but both of them slightly differ in their definition. Hyperthyroidism is a condition where thyroid gland produces too much of thyroxin hormone which is also one of the cause of thyrotoxicosis. A 57 year old female patient weighing 45 kg from semirural area was admitted to MVJ Medical College & Research Hospital with complaints of swelling of neck from 6 months without any pain and no difficulty in swallowing which was gradual in onset but progressed later. The patient also had the complaint of palpitation and cough with expectoration. Patient was diagnosed with hypothyroidism causing Thyrotoxicosis, and appropriate treatment was given to the patient and condition was improved at the time of discharge. From this case study it can be concluded that the combination therapy of appropriate medications and lifestyle modifications can provide promising results in improving Hyperthyroidism and thus can stop further complication of Thyrotoxicosis.

Key Words:- Thyroid gland, Thyrotoxicosis, Thyroid hormone, Hyperthyroidism.

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Corresponding Author

Dr. Someswar Deb

Doctor of Pharmacy, Department of pharmacy practice, Krupanidhi College of Pharmacy, Bangalore, India.

Email:- someswardeb7@gmail.com

INTRODUCTION

Thyroid gland is a butterfly shaped organ located over the lower front of the neck and they produces several hormones that helps in proper working of our body (Franklyn JA, Boelaert K, 2012). Excess thyroid hormone in the body is referred as thyrotoxicosis, it also means that the condition where there is a low level of thyroid stimulating hormone TSH in blood stream

(Woeber KA, 1992). Thyrotoxicosis is often called as hyperthyroidism but both of them slightly differ in their definition (Nayak B, Burman K, 2006). Hyperthyroidism is a condition where thyroid gland produces too much of thyroxin hormone which is also one of the cause of thyrotoxicosis (Marqusee E, *et. al.*, 1998).

There are several causes of leading to thyrotoxicosis out of which Graves' disease contributes to 75% (Parker JL, Lawson DH, 1973). Grave disease is an autoimmune disorder which is responsible for hyperthyroidism also (Vagenakis AG, *et. al.*, 1972). Nodule formation on thyroid will also affect the production of thyroid hormone, an ovarian tumor called as Struma ovarii which is made of thyroid tissue also causes thyrotoxicosis (Sterling K, *et. al.*, 1970). Any infection to thyroid gland leading to thyroiditis will lead to release of more hormones; sometime thyroid supplement taken for treatment of hypothyroidism may also lead to release of more thyroid hormones (Ross DS *et. al.*, 2016).

Symptoms of thyrotoxicosis include intolerance of heat, swelling of neck, anxiety, fatigue, palpitations, loss of weight, weakness in muscles, and irregular

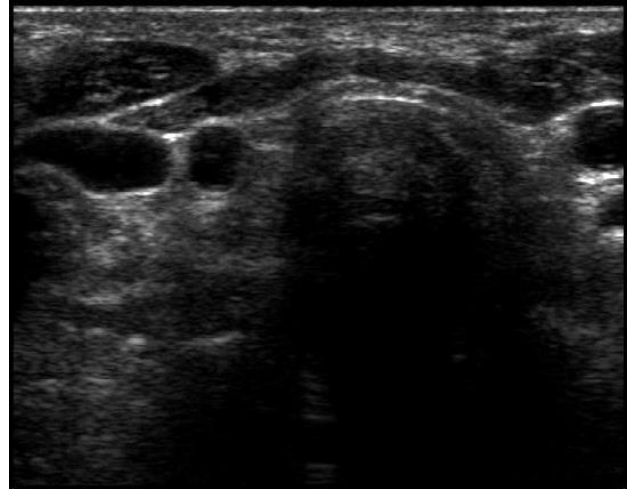
menstrual cycles in women. Graves' disease may cause red and watery eyes with bulged out and swollen lids (Bar-Sela S *et al.*, 1981) (Krassas GE *et al.*, 1994).

Figure 1: Swelling of neck



hygiene was found to be poor, no abnormality detected in oropharynx. Sinus tachycardia and sinus arrhythmia were detected in ECG.

Figure 2: Ultra sonography of neck



CASE PRESENTATION

A 57 year old female patient weighing 45 kg from semirural area was admitted to tertiary care hospital with complaints of swelling of neck from 6 months without any pain and no difficulty in swallowing which was gradual in onset but progressed later. The patient also had the complaint of palpitation and cough with expectoration. 2 episodes of loose stools was also experienced by the patient in morning.

On physical examination it was found that P+I-C-C-L-E, CVS: S1, S2 (+), diffuse neck swelling without tenderness, no abnormalities were detected in CNS, oral

Ultra sonography of neck was done for patient and it was found that patient had Thyroiditis and Lymphadenopathy. During admission patient had complaints of loss of weigh & considering major complaints and physical examination patient underwent many lab tests and USG of neck. Based on all the results Patient was diagnosed with Hyperthyroidism with Thyrotoxicosis.

Table 1: On daily basis vitals were measured

VITALS	Day 1	Day 2	Day 3	Day 4
BP(mmHg)	120/70	130/60	134/60	130/70
RR	20	18	18	18
PULSE	120	102	78	80
TEMP(F)	99.4	98.8	98.2	98.2

Table 2: Several laboratory investigations were done for the patient

Test	Normal Values	
Hb%	12-18 gm/dl	11.2
P.C(LAKHS/ML)	1.5-4.5 lakh/cumm	2lac
WBC	5000-11000cells/cumm	8100
LYMPHOCYTES	20-50%	40
NEUTROPHILS	40-75%	60
ESR	0-20 mm/hr	8
S.UREA	20-50 mg/dl	21
S.CREATININE	0.6-1.3 mg/dl	0.6
URIC ACID	3.5-5.2 mg/dl	3.7
SODIUM	136-145meq/L	135

Table 3: Thyroid hormone test was conducted

Parameter	Value
Triiodothyronine (T3)	<0.01
Thyroxine (T4)	29
TSH	>800

Table 4: Treatment started with several medication and continued up to 4 days

Medication	Dosage	Direction
Tab Inderal	Propranolol	20 mg 1-0-0
Tab. Carbimazole	Carbimazole	20 mg 1-1-1
Tab. Petril.MD	Clonazepam	0.25 mg 0-0-1
Tab. Redotil	Racecadotril	100mg 1-1-1
Tab.Sporolac	Lactobacillus	1-1-1
Syp.Ascoril	Ambrocol30mg/5ml +Guaiifenesin50mg/5ml +Levosolbutamol1mg/5ml	1-1-1

Table 5: Discharge medication chart

Medication	Dosage	Direction
Tab Inderal	20 mg ,1-0-0	Continue till two weeks
Tab. Carbimazole	20 mg, 1-1-1	Continue till two weeks
Syp.Ascoril	1-1-1	Continue till two weeks
Tab.Sporolac	1-1-1	Continue till one week

Various drug interactions were found and accordingly interventions were also provided:

- Propranolol + furosemide EFFECT = Concurrent use of furosemide and propranolol may results in hypotension, bradycardia
- SEVERITY = Moderate
- Monitor for hypotension and /or Bradychardia

Clinical pharmacist intervention:

- In hematological finding it was found that patient is suffering from anemia, since the patient is 50 years old female patient detailed MCH & MCHC test could have been done to rule out the type of anemia and should have been treated for same.
- Most of the medications might cause gastric irritation as their side effects PPIs or H2 blockers could have been prescribed.

The patient showed improvement after 4 days and was discharged and medications were given, a follow-up was done after a span of 2 weeks.

Post follow up the patient was found to recover mostly and was advised to take rest and was also provided with required counselling about medications, diet and also gave counselling regarding the lifestyle management:

DISCUSSION

In this case patient had most of the symptoms related to hyperthyroidism leading to Thyrotoxicosis. After physical examination and many laboratory examinations, & ultrasonography of neck diagnosed the patient with Hyperthyroidism leading to Thyrotoxicosis, Treatments were given with goals to reduce over activity of the thyroid hormones and to reduce symptoms like cough and loose stool. Blood pressure of the patient was found to be slightly high hence Tab. Inderal which belongs to category of the beta blockers was given, Tab. Carbimazole is an antithyroid medicine and was given to treat over reactive thyroid gland. Tab Petril MD was given to patient to treat the anxiety of the patient, Tab. Redotil and Tab. Sporlac was given to treat loose stools experience by the patient before admitting. Syrup. Ascoril was given to treat the cough with expectoration. In Thyrotoxicosis patients may suffer from many symptoms like anxiety, mood swing, fatigue, weakness, swollen thyroid weight loss and in some cases weight gain, hence it is very important to provide counselling to the patient regarding the life style modifications such as food habits, like lowering intake of salt, avoiding dairy product for at least 4 months as it can worsen the condition, caffeine containing foods and spicy foods must be avoided. Foods which are rich in vitamin c and vitamin B must be included in diet in order to speed up

recovery, fresh vegetables and protein rich food like egg can also be included in diet.

Physical exercises like yoga brisk walking for 30 minutes will also help in maintaining body weight and helps in proper digestion and metabolism which are effected due to thyrotoxicosis.

CONCLUSION

The study shows that certain medications prescribed will help to reduce the over activity of the thyroid gland thus helps to reduce excess hormones which causes thyrotoxicosis. The reported case was immediately admitted to the hospitals and required

treatments were provided, along with proper dietary counselling and life style management which showed improvement in the patients' health. After 4 days of hospitalization patient condition was found to be stable and patient was discharged and medications were prescribed along with counselling. Timely given treatment avoided further complication of thyrotoxicosis.

List of All Abbreviations

ECG: Electro cardio gram

USG: Ultra sonography

CNS: central nervous system

CVS: Cardio vascular system

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