



THYROID STORM: A CASE REPORT

Emergency Medicine

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KEYWORDS

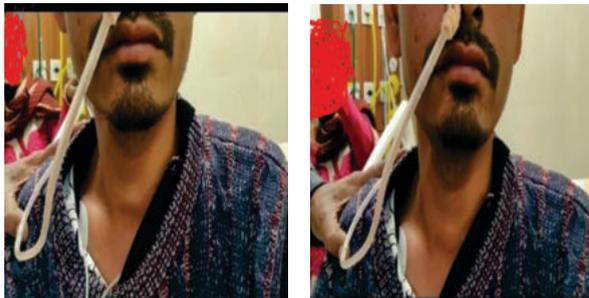
INTRODUCTION:

Thyroid storm is an acute life-threatening complication of Hyperthyroidism. Typical symptoms are due to hypermetabolic state induced by excessive thyroid hormone synthesis which include high grade fever, tachycardia, vomiting, diarrhoea, heat intolerance and palpitations etc.(1)

Case-

A 30 years old male patient with diagnosed case of hyperthyroidism since 1 ½ years was brought to the emergency room with c/o palpation, difficulty in swallowing associated with vomiting, high grade fever, headache, dryness of mouth since last 2 hours. Physical examination showed high temperature, tachycardia, thyroid swelling, hand tremors, moist and warm skin, hyperreflexia. On elaborating further history, the patient was diagnosed as hyperthyroidism before 1 ½ years and was on treatment. Since last 1 year he has fluctuating status of hyperthyroidism and hypothyroidism. In emergency room, strong suspicious of thyroid storm was made based on history and clinical findings which was supported by TSH value of 0.01, free T3 >20, free T4 9.37 and ANTI TPO:183.6. The patient was treated with primary treatment in form of ABC (airway, breathing, circulation) stabilization And intravenous steroid(hydrocortisone 300 MG stat followed by 100 MG IV TDS), beta blocker(Tab propranolol 40MG every 4 hourly), propylthiouracil(Tab propylthiouracil 1000 MG given Stat PO followed by 250 MG every 4 hourly), lugol solution 6-10 drops PO every 6-8 hourly and other supportive treatment. During course of hospitalization USG thyroid done which was s/o both glands and isthmus appear enlarged in size, altered echo pattern and increased vascularity. The entire hospital stay was uneventful. Then the patient was discharged in a hemodynamically stable condition.

Images Showing Movement of Thyroid Gland During Deglutition



DISCUSSION(3)

SIGN & SYMPTOMS OF THYROID STORM

Fever
Nausea
Vomiting
Diarrhea
Abdominal pain
Jaundice
Tachycardia
Pedal oedema
Bibasal crepitation
Pulmonary oedema
Atrial fibrillation
Agitation
Extreme lethargy
Delirium

Psychosis
Seizures
coma

Burch And Wartofsky Diagnostic Parameter Scoring Point For Thyroid Storm(3)

THYROID STORM
CARDIOVASCULAR(TACHYCARDIA,AFIB, CHF)
GASTROINTESTINAL-HEPATIC(DIARRHEA, ABDOMINAL PAIN,JAUNDICE)
CNS(AGITATION--SEIZURE/COMA)
PRECIPITATING HISTORY (STORM PREVIOUSLY)
THERMOREGULATORY DYSFUNCTION (TEMPERATURE)
SCORED TOTALED: THYROID STORM :>44 IMPENDING STORM:25-44 STORM UNLIKELY :<25

Medication Use For Thyroid Storm

Treatment of thyroid storm consists of supportive measures like intravenous (IV) fluids, oxygen, cooling blankets, acetaminophen, as well as specific measures to treat hyperthyroidism. If any precipitating factors, for example, infection, are present, that needs to be taken care of. Patients with thyroid storm must be admitted to the intensive care unit with close cardiac monitoring and ventilatory support if needed.[5][6]

Specific Strategic Steps for Treatment

1. Therapy to control increased adrenergic tone: Beta-blocker
2. Therapy to reduce thyroid hormone synthesis: Thionamide
3. Therapy to reduce the release of thyroid hormone: Iodine solution
4. Therapy to block peripheral conversion of T4 to T3: Iodinated radioccontrast agent, glucocorticoid, PTU, propranolol
5. Therapy to reduce enterohepatic recycling of thyroid hormone: Bile acid sequestrant

CONCLUSION:

Thyroid storm is a life threatening health condition that is associated with untreated or undertreated hyperthyroidism which leads to acute heart failure and pulmonary edema(3). The diagnosis of Thyroid Storm is clinical, so as an emergency physician it is very crucial to diagnose it in early stage and to start immediate treatment to reduce mortality. (2)

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- 5) Ross DS, Burch HB, Cooper DS, Greenlee MC, Laurberg P, Maia AL, Rivkees SA, Samuels M, Sosa JA, Stan MN, Walter MA. 2016 American Thyroid Association Guidelines for Diagnosis and Management of Hyperthyroidism and Other Causes of Thyrotoxicosis. *Thyroid*. 2016 Oct;26(10):1343-1421. [PubMed]
- 6) Sarlis NJ, Gourgiotis L. Thyroid emergencies. *Rev Endocr Metab Disord*. 2003 May;4(2):129-36. [PubMed]