

A man 56 years old suffers from thyroid crisis. Case Report in Sosodoro Djatikoesoemo Bojonegoro Hospital

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Abstract - Background: Thyroid crisis is one of endocrine disorder emergency with rare incident only about 10% but high mortality number about 20-30%. For making it easy to diagnosed, doctor can use Burch and Wartofsky score. Once a doctor assume that patient with thyroid crisis, it must be treated fast. **Case Report:** A 56 years old man was brought to the ER Sosodoro Djatikoesoemo Bojonegoro hospital by his family in a state of delirium on November 29th, 2017 evening. His family said that he had fever, nausea, and vomitus about 2 days. His awareness was being deteriorated since this morning. Glasgow Coma Scale was E2M5V3. His blood pressure was 140/90, heart rate 124 bpm irregular, respiratory rate 28x/minute, temperature 39,40C. His eyes looked slight exopthalmus and conjunctiva seemed jaundice. There was no stiff neck. There is a tumor around his median neck suspected from thyroid gland. This tumor palpated hard, about 9x3x2 cm, diffuse and not hot. Because this patient never go to the doctor before there was no medical history about this From chest auscultation there was no gallop, murmurs and rales. His abdomen was flat, no distention, normal bowel sound. His extremities was warm, capillary refill time < 2 second, and no lateralities. History of diabetes mellitus, hypertension and asthma were denied. His family said that this patient always ate much but his weight gain was drop. Electrocardiogram was performed to this patient and its result was atrial fibrillation with rapid ventricular response. This patient was diagnosed thyroid crisis considered with Burch and Wartofsky score about 85. In emergency department, this patient was treated with PTU 600 milligrams and propranolol 40 milligrams orally. Infusion line was installed with ringer acetate and dexamethasone 10 milligrams was injected. He also got oxygen 4lpm by nasal canul. Twelve hours after administering the drug, this patient was getting better.

Discussion: Thyroid crisis can be diagnosed by physical examination as it such an emergency condition. There will waste time if doctor waiting for the laboratory result. Early aggressive treatment can make patient's prognose better. Management for crisis thyroid is to decrease hormone's synthesis and excretion, to decrease thyroid's influence in peripheral system, and to treat trigger disease.

Keywords- endocrine, emergency, thyroid crisis, thyroid storm

1. BACKGROUND:

Thyroid crisis is one of endocrine disorder emergency with rare incident only about 10% but high mortality number about 20-30%.[1] Its sign and symptom can be fever, nausea and vomit, jaundice, deterioration of conscious level, heart failure even acute lung oedem. Thyroid crisis can be found in hyperthyroid patient with no or inadequate treatment, thyroid surgery, infection, Grave's disease, toxic multinodes struma, tiroiditis and diabetes mellitus.[2] This condition can be diagnosed by clinical sign and symptom only as laboratory assessment need much time to perform the result. For making it easy, doctor can use Burch and Wartofsky score. Once a doctor assume that patient with thyroid crisis, it must be treated fast.[3]

2. CASE REPORT:

A 56 years old man was brought to the ER Sosodoro Djatikoesoemo Bojonegoro hospital by his family in a state of delirium on November 29th, 2017 evening. His family said that he had fever, nausea, and vomitus about 2 days. His awareness was being deteriorated since this morning. Glasgow Coma Scale was E2M5V3. His blood pressure was 140/90, heart rate 124 bpm irregular, respiratory rate 28x/minute, temperature 39,40C. His eyes looked slight exoftalmus and conjunctiva seemed jaundice. There was no stiff neck. There is a tumor around his median neck suspected from thyroid gland. This tumor palpated hard, about 9x3x2 cm, diffuse and not hot. Because this patient never go to the doctor before there was no medical history about this From chest auscultation there was no gallop, murmurs and rales. His abdomen was flat, no distention, normal bowel sound. His extremities was warm, capillary refill time < 2 second, and no lateralities. History of diabetes mellitus, hypertension and asthma were denied. His family said that this patient always ate much but his weight gain was drop. Electrocardiogram was performed to this patient and its result was atrial fibrillation with rapid ventricular response. This patient was diagnosed thyroid crisis considered with Burch and Wartofsky score about 85.

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TABLE 1. PATIENT'S SCORE FOR BURCH AND WARTOFSKY

indicator	Patient's indicator	Scoring point
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temperature	39,40C	20
CNS effects	Delirium	20
Gastrointestinal-hepatic dysfunction	Jaundice	20
tachycardia	124bpm	15
Congestive heart failure	No	0
Atrial Fibrillation	Present	10
Precipitant history	Negative	0
Total		85

In emergency department, this patient was treated with PTU 600 milligrams and propranolol 40 milligrams orally. Infusion line was installed with ringer acetate and dexamethasone 10 milligrams was injected. He also got oxygen 4lpm by nasal canul.

Laboratory result revealed that he has a hyperthyroid. His free T3 was 19.31pmol/L, free T4 was >100 pmol/L, total bilirubin 1,25 mg/dl, direct bilirubin 0,35 mg/dl, SGOT 56 U/L, SGPT 33 U/L, Ureum 52 mg/dl, creatinin serum 0,70 mg/dl, haemoglobin17,3 g/dl, WBC 7500 /μL, platelets 205000 /μL.

Twelve hours after administering the drug, this patient was getting better. He became conscious. He could sit and speak well. His rapid heart rate decreased. His temperature 37,40C, blood pressure 110/70 mmHg. Electrocardiograph result was atrial fibrillation with 77 bpm. In ward, this patient got normal saline infusion 1500cc/24h, PTU 200 mg/8h, propranolol 40 mg/8h, dexamethasone injection 10 mg/12h. This patient discharged from hospital after 3 days care in ward.

3. DISCUSSION:

Thyroid crisis can be diagnosed by physical examination as it such an emergency condition. There will waste time if doctor waiting for the laboratory result. Early aggressive treatment can make patient's prognose better. Management for crisis thyroid is to decrease hormone's synthesis and excretion, to decrease thyroid's influence in peripheral system, and to treat trigger disease. Definitive therapy for hyperthyroid should be given if emergency condition has been treated.[1,2,4] Drug should be choosed consider to hyperthyroid condition as any drug can worsen this condition.

Score from Burch and Wartofsky can be used to make the diagnosed. Patient with thyroid crisis will get score more than 45.

TABLE 2. BURCH AND WARTOFSKY SCORE

Criteria	score
Temperature 37,2oC - 37,7 oC	5

37,8 oC - 38,2 oC	10
38,3 oC - 38,8 oC	15
38,9 oC - 39,3 oC	20
39,4 oC - 39,9 oC	25
More than 40 oC	30
Central Nervous System	
Agitation	10
Delirium	20
Coma	30
Gastrointestinal and hepatic disfunction	
Diarrhea, nausea, vomiting, abdominal pain	10
Jaundice	20
Cardiovascular dysfunction	
Heart rate 90-109 bpm	5
Heart rate 110-119 bpm	10
Heart rate 120-129 bpm	15
Heart rate 130-139 bpm	20
Heart rate ≥ 140 bpm	25
Congestive Heart Failure	
Mild (limbs oedema)	5
Moderate (basal ronkhi)	10
Severe (lung oedema)	15
Atrial Fibrillation	
No	0
Yes	10
Precipitant History	
No	0
Yes	10

Note: >45 highly suggestive, 25-44 suggestive of impending storm, <25 unlikely thyroid storm

Metimazol (MMI) or Propiltiourasil (PTU) is drug for inhibit thyroid hormon's synthesis. PTU is drug of choice because it can inhibit T4 convert to T3. But, agranulocytosis and thrombocytopenia can occur as side effect of PTU. This Patient has no leucopenia and thrombocytopenia (7500 /μL WBC with 51,7% for neutrophil and 205 x 103/μL) so PTU can be given continuously. PTU should be given with loading dose 600 mg orally or by nasogastric tube and continue with 200-300 mg every 4-6 hours.[4] Lugol Solution or Kalium Iodida can be given one hour after administering PTU to inhibit hormone's secretion but hospital don't have this drug.

Glucocorticoid have important role in treatment of thyroid crisis. It can decrease uptake of iodium and antibody triggered by thyroid hormone. In addition, hydrocortisone and dexamethasone can decrease T4 convert to T3. They also proven as drug that fix autoimun process in Grave's disease.[1,4,5] Intravenous glucocorticoid dose for thyroid crisis is 100 mg every 6-8 hours. If patient get better, he will get prednisone 5-7,5 mg/day or dexamethasone 0,75-1,25 mg/day given once a day in the morning or divided dose which is morning bigger than evening dose.[6-10] Patient was given dexamethasone 10 mg every 12 hours.

Beta blocker is used to inhibit peripheral effect from thyroid hormones especially propranolol also can inhibit T4 convert to T3. Propranolol should be given 60-80 mg every 4 hours orally or by nasogastric tube.[6,7] This patient got propranolol 40 mg every 8 hours. Paracetamol was given to this patient to treat hyperpyrexia. We can't use aspirin because it can increase concentration of free T4 and T3.[6,7]

To treat arrhythmia, we can use digoxin better than amiodarone. Because metabolism of amiodarone is iodine. It can increase synthesis of thyroid hormones. Amiodarone also can destroy thyroid so that increase secretion of preformed thyroid hormones.[12]

4. CONCLUSION:

Thyroid crisis can be diagnosed only with physical examination by using Burch and Wartofsky score. As an emergency condition doctor should not waiting for laboratory result. Early aggressive therapy can make this disease's outcome better.

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