

EVIDENCE-BASED PRACTICE RECOMMENDATIONS

Identifying And Treating Thyroid Storm And Myxedema Coma In The Emergency Department

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This issue of Emergency Medicine Practice reviews the fundamental principles of the management of thyroid emergencies using a focused, evidence-based approach to the literature. For a more detailed discussion of this topic, including figures and tables, clinical pathways, and other considerations not noted here, please see the complete issue at www.ebmedicine.net/topics.

Key Points	Comments
Keep myxedema coma in mind in patients with underlying thyroid disease, geriatric patients, and women with respiratory distress, hypothermia, or altered mental status. ²	Myxedema coma has a broad differential diagnosis, including hypoglycemia, hypoxia, sepsis, hypothermia, conversion disorder, cerebrovascular accident, acute myocardial infarction, intracranial hemorrhage, panhypopituitarism, adrenal insufficiency, hyponatremia, and gastrointestinal bleeding.
Search for a precipitating event. ³⁰ Dual diagnoses are common.	Factors precipitating thyroid decompensation include cold weather, infection, medication nonadherence, acute congestive heart failure, myocardial infarction, stroke, new medications, intoxication, and thyroid ablation.
Myxedema coma and thyroid storm are clinical diagnoses. Take action based on the history and constellation of signs and symptoms.	If myxedema coma is based on available history and physical examination, start thyroid replacement therapy. ⁶⁴ The clinical improvement in patients with myxedema coma is prolonged. Delaying treatment not only increases the risk of mortality but also increases the duration of the stay in the ICU.
Patients may deteriorate quickly despite critical interventions. Be prepared for hemodynamic and respiratory compromise despite aggressive supportive care.	Emergently intubate patients with respiratory failure, those unable to protect their own airway, and those for whom the predicted clinical course is poor. In patients with large goiters and a hyperdynamic state, upper airway edema and a large anterior neck mass inhibit direct laryngoscopy and passage of the endotracheal tube, presenting special considerations. ¹¹⁴⁻¹¹⁶
In thyroid storm, initial thyroid laboratory test results will be normal. ^{43,44}	Ordering complex endocrinologic tests from the ED should be avoided as these tests will be repeated in the course of the patient's hospitalization.
Keep in mind that a number of serious illnesses mimic and coexist with thyroid storm.	The differential diagnosis includes delirium of any etiology, hypoglycemia, hypoxia, sepsis, encephalitis/meningitis, hypertensive encephalopathy, alcohol withdrawal, benzodiazepine/barbiturate withdrawal, opioid withdrawal, and heat stroke.
Focus initial efforts in the emergency department on respiratory and cardiovascular stabilization. In addition, start cardiac monitoring, begin continuous pulse oximetry, determine blood glucose levels and core temperature, and establish intravenous access.	Note that patients presenting with an altered level of consciousness may require emergency definitive airway control.
Include a thorough past medical history, including questions about recent medication changes, recent anesthesia, infectious prodromes, radiologic imaging that required an oral or intravenous iodinated contrast agent, and thyroid manipulation.	Some of the most important historical facts to elicit are recent precipitants, such as exposure to cold, infection, major life stress, and trauma.
Target essential concerns during the physical examination. Patients with profound thyrotoxicosis classically present febrile, tachycardic, and tremulous.	The patient's age plays a significant role in the clinical signs likely to be present. Weight loss and atrial fibrillation have been found to be the most common clinical findings of hyperthyroidism in patients older than 50 years. ^{19,20,22,23}

* See reverse side for reference citations.

REFERENCES

These references are excerpted from the original manuscript. For additional references and information on this topic, see the full text article at ebmedicine.net.

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