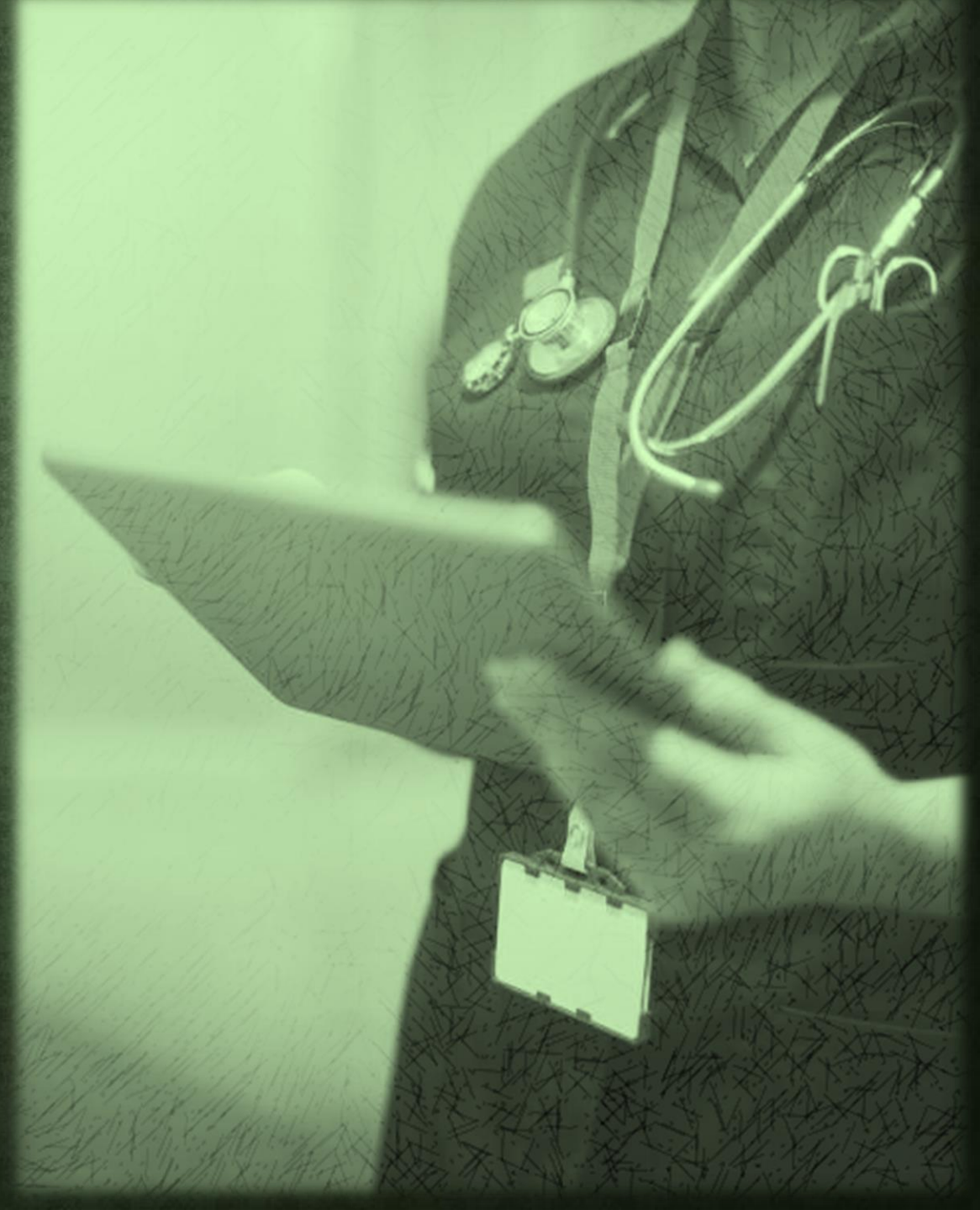
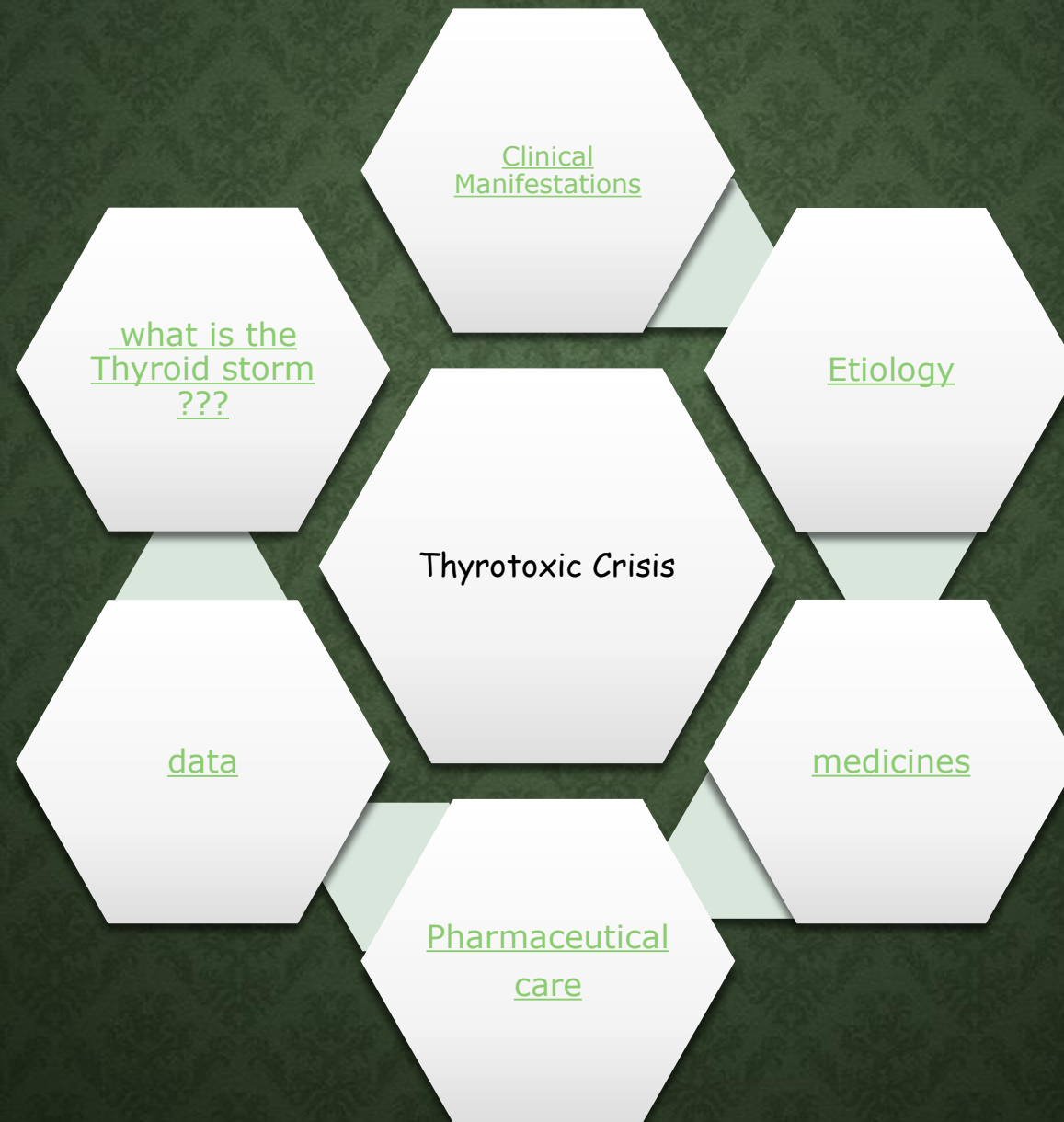


THYROTOXIC CRISIS

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Instructor: mr.rasoli





Clinical Manifestations

what is the Thyroid storm
???

Etiology

Thyrotoxic Crisis

data

medicines

Pharmaceutical care

THYROID STORM ???

Thyroid storm (thyrotoxic crisis) is a form of severe hyperthyroidism usually of abrupt onset. Untreated it is almost always fatal but with a proper treatment the mortality rate is reduced substantially.

The patient with thyroid storm or crisis is critically ill and requires astute observation and aggressive and supportive nursing care during and after the acute stage of illness



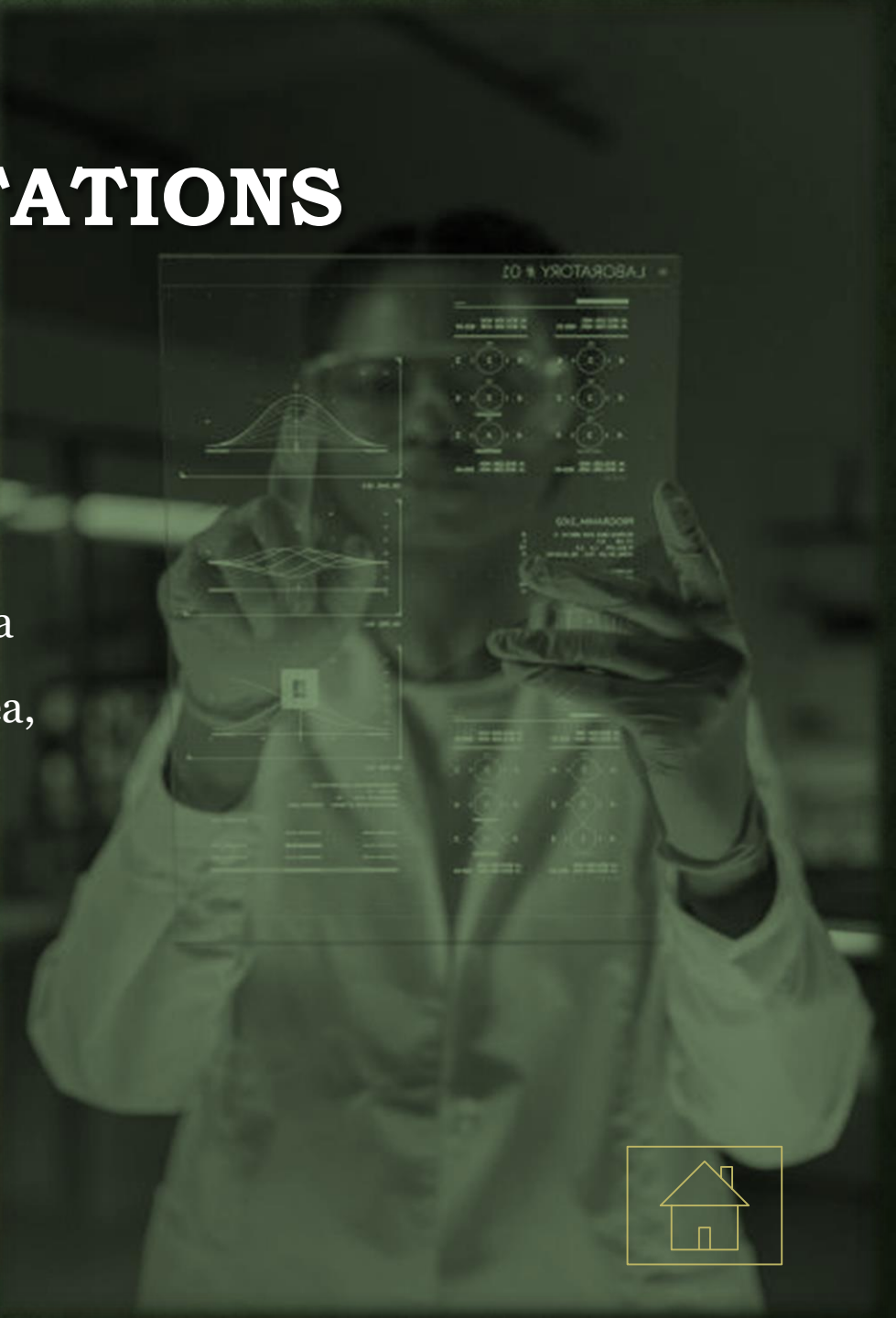
ETIOLOGY

Life-threatening thyroid storm is usually precipitated by stress, such as injury, infection, thyroid and non thyroid surgery, tooth extraction, insulin reaction, diabetic ketoacidosis, pregnancy, digitalis intoxication, abrupt withdrawal of antithyroid medications, extreme emotional stress, or vigorous palpation of the thyroid. These factors can precipitate thyroid storm in the partially controlled or completely untreated patient with hyperthyroidism. Current methods of diagnosis and treatment for hyperthyroidism have greatly decreased the incidence of thyroid storm, making it uncommon today.



CLINICAL MANIFESTATIONS

- ✓ Thyroid storm is characterized by:
- ✓ Hyperpyrexia (high fever), $>38.5^{\circ}\text{C}$ ($>101.3^{\circ}\text{F}$)
- ✓ Extreme tachycardia (>130 bpm)
- ✓ Exaggerated symptoms of hyperthyroidism with disturbances of a
- ✓ major system—for example, gastrointestinal (weight loss, diarrhea,
- ✓ abdominal pain) or cardiovascular (edema, chest pain, dyspnea,
- ✓ palpitations)
- ✓ Altered neurologic or mental state, which frequently appears as
- ✓ delirium psychosis, somnolence, or coma



MEDICINES

Aspirin and other NSAIDs: These medications can help to reduce fever and pain associated with thyroid storm but are avoided as they can displace thyroid hormones from their binding protein and increase free thyroid hormone circulation, potentially worsening the condition.

- ✓ Hydrocortisone is prescribed to treat shock or adrenal insufficiency.
 - ✓ acetaminophen
 - ✓ -Propylthiouracil or methimazole is given to impede formation of thyroid hormone and block conversion of T₄ to T₃, the more active form of thyroid hormone.
 - ✓ Iodine is given to decrease output of T₄ from the thyroid gland
- cardiac problems such as atrial fibrillation, arrhythmias, and heart failure, sympatholytic agents may be given. Propranolol, combined with digitalis, has been effective in reducing severe cardiac symptoms.



Humidified oxygen is given to improve tissue oxygenation and meet the high metabolic demands. Arterial blood gas levels or pulse oximetry may be used to monitor respiratory status.

IV fluids containing dextrose are given to replace liver glycogen stores that have been decreased in the patient who is hyperthyroid.

✓ Beta-blockers: These medications are used to control the symptoms associated with thyroid storm, such as increased heart rate and blood pressure, but should be avoided in people who have asthma, heart failure, or certain types of heart block



PHARMACEUTICAL CARE

Patients who receive radioactive iodine should be informed that they can contaminate their household and other people through saliva, urine, or radiation emitting from their body. They should avoid sexual contact, sleeping in the same bed with other people, having close contact with children and pregnant women, and sharing utensils and cups. The patient should follow the instructions provided regarding the time restrictions for these cautions because they are dose related

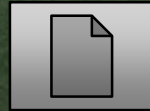
Use atenolol or metoprolol instead of propranolol in patients with Peripheral Vascular Disease.



The burch-wartofsky point scale. The point scale is widely used as a diagnostic tool for thyroid storms

Temperature °F (°C)		Heart Rate (Beats/Min)	
99–99.9 (37.2–37.7)	5	<90	0
100–100.9 (37.8–38.2)	10	90–109	5
101–101.9 (38.3–38.8)	15	110–119	10
102–102.9 (38.9–39.2)	20	120–129	15
103–103.9 (39.3–39.9)	25	130–139	20
≥104.0 (≥40.0)	30	≥140	25
Central Nervous System Effects		Atrial fibrillation	10
Absent	0	Congestive Heart Failure	
Mild (agitation)	10	Absent	0
Moderate (delirium, psychosis)	20	Mild (pedal edema)	5
Severe (seizures, coma)	30	Moderate (bibasilar rales)	10
Gastrointestinal-Hepatic Dysfunction		Severe (pulmonary edema)	15
Absent	0	Precipitating History	
Moderate (diarrhea, nausea/vomiting, abdominal pain)	10	Negative	0
Severe (unexplained jaundice)	20	Positive	10
Total: <25 less likely, 25–45 impending thyroid storm, >45 thyroid storm			

THANK YOU FOR YOUR ATTENTION



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