

Hypothyroidism Severe

A plain-English guide for you and your family

WHAT IS HAPPENING

Your thyroid gland sits in the front of your neck and makes thyroid hormone — the fuel that keeps every cell in your body running at the right speed. It controls how fast your heart beats, how warm you stay, how your brain thinks, and how your organs do their jobs. Now picture what happens when that fuel runs dangerously low. Severe hypothyroidism — also called myxedema coma — happens when something pushes an already weak thyroid over the edge: an infection like pneumonia, sudden cold exposure, strong sedatives or pain medicines, a heart attack, or suddenly stopping thyroid pills. Without enough thyroid hormone, every system in your body starts to slow down and shut off. Your body temperature drops because cells can't burn fuel to make heat. Your heart beats slow and weak because it doesn't have the spark it needs. Your breathing turns shallow because your lungs and brain aren't getting the signal to work harder. Your kidneys can't hold onto sodium, so salt leaks out and your blood becomes diluted. Blood sugar falls because cells aren't using fuel the right way. Your brain — cold, low on salt, low on sugar — gets foggy, and the person slips into confusion or even a coma. Reflexes disappear because nerve signals crawl in slow motion. This is not one organ failing — it is the whole body running out of gas. The good news: if doctors catch it fast and give thyroid hormone through an IV, plus a steroid to protect the adrenal glands and careful support to keep you warm and stable, most people can pull through. But this is a true emergency — every hour counts.

What you might feel

- Puffy face and swollen eyelids
- Body temperature drops (hypothermia)
- Heart rate slows way down (bradycardia)
- Extreme tiredness and confusion (altered mental status)
- Very slow reflexes (delayed relaxation phase)
- Thick, dry skin and hair loss
- Trouble breathing (hypoventilation)
- Severe constipation or belly swelling

- Low blood sodium (hyponatremia)
- Scar on the front of the neck

Call the doctor right away if...

- Body temperature below 95°F (35°C) or person feels ice-cold to touch
- Confusion, extreme sleepiness, or won't wake up (myxedema coma)
- Breathing is very slow or shallow, lips turning blue
- Heart rate under 50 beats per minute or blood pressure dropping
- Recent infection, surgery, or missed many doses of thyroid medicine

What the care team will do

- Secure the airway and monitor respiratory rate every 15 minutes; keep intubation equipment at bedside
- Place the patient on continuous cardiac monitoring and check vital signs every 15 minutes, watching for a slow heart rate (bradycardia) below 50 and low blood pressure (hypotension)
- Start passive rewarming with warm blankets and warmed IV fluids to 98.6°F; avoid active heating like warming blankets or hot packs
- Administer IV hydrocortisone 100 mg immediately before or with the first dose of levothyroxine
- Give IV levothyroxine exactly as ordered through a dedicated line; never give as a bolus push faster than prescribed
- Monitor hourly urine output and watch for fluid overload; listen to lung sounds every 2 hours for crackles
- Assess neurological status using Glasgow Coma Scale every hour; notify provider immediately if score drops by 2 points
- Draw blood cultures and start broad-spectrum antibiotics immediately if infection is suspected; do not wait for fever

Medicines you may be given — and why

Levothyroxine (IV)

Levothyroxine is man-made T4 (thyroxine), the main hormone your thyroid gland normally makes. When your thyroid has failed and you are in a myxedema coma (life-threatening shutdown from almost no thyroid hormone), your cells are starving for this signal. Giving levothyroxine directly into the vein puts T4 back into your blood quickly so your body can use it to wake up your metabolism (how fast your cells burn fuel and make energy), warm you up,

speed up your heart, and bring your brain back online. Some of the T4 will also turn into T3 (the more active form) inside your cells.

Liothyronine (IV T3, if available and patient is critically ill)

Liothyronine is man-made T3 (triiodothyronine), the active form of thyroid hormone that works directly on your cells without needing conversion. In myxedema coma, your body's ability to turn T4 into T3 may be broken because you are so sick. Giving T3 directly gets the active hormone into your cells faster, which may speed recovery of your heart rate, blood pressure, and brain function. However, T3 is more powerful and riskier than T4, so it is used carefully and only in the sickest patients.

Hydrocortisone (IV)

Hydrocortisone is man-made cortisol, the main stress hormone your adrenal glands (small glands sitting on top of your kidneys) make to help your body handle shock, infection, and low blood pressure. In myxedema coma, your adrenal glands may also be weak or failing (this is called adrenal insufficiency), and starting thyroid hormone **WITHOUT** covering cortisol can push you into adrenal crisis—a sudden, life-threatening drop in blood pressure and collapse. Giving hydrocortisone protects you while the team sorts out whether your adrenals are working and replaces the cortisol your body needs to survive the stress.

Where this information comes from

- American Thyroid Association (ATA) 2014 Myxedema Coma Guideline
- Endocrine Society Clinical Practice Guideline on Hypothyroidism
- UpToDate / NEJM consensus reviews on severe hypothyroidism
- American Association of Clinical Endocrinologists (AACE) Thyroid Guidelines

Last reviewed: 2026-07-07