

Wernicke Encephalopathy

A plain-English guide for you and your family

WHAT IS HAPPENING

Wernicke encephalopathy is a brain emergency caused by running out of thiamine, also called vitamin B1. Thiamine is the spark plug your brain uses to turn sugar into energy. Without it, the brain's power plants shut down. This happens most often in people who drink heavily (alcohol blocks thiamine absorption and burns through stores), people who are starving or malnourished, people vomiting over and over (hyperemesis), people who have had weight-loss surgery, or people being refed after long hunger. The danger zone is when doctors give sugar (dextrose in an IV or high-carb food) without giving thiamine first—because sugar floods the brain with fuel it cannot burn, and that overload kills brain cells. The classic three signs are confusion (can't think straight, disoriented, slow to respond), wobbly walking (ataxia—wide-based, unsteady gait), and strange eye movements (nystagmus—eyes jerking side to side, or ophthalmoplegia—eyes not moving together). But many patients show only one or two of those, plus low body temperature and nerve damage in the arms and legs (peripheral neuropathy—numbness, tingling, weak reflexes). If caught early and treated with high-dose IV thiamine right away, most symptoms can reverse. If missed, the confusion and memory loss can become permanent (Korsakoff syndrome), the heart can fail (wet beriberi), or the patient can die. The key is to think of it early in anyone at risk, give thiamine before giving any sugar, and act fast.

What you might feel

- Confusion or trouble thinking clearly
- Unsteady walk or trouble balancing (ataxia)
- Abnormal eye movements — eyes may drift, shake, or not move together (nystagmus or ophthalmoplegia)
- Double vision
- Droopy eyelid (ptosis)
- Low blood pressure when standing (orthostatic low blood pressure (hypotension)) or fast heart rate
- Low body temperature (hypothermia)

- Memory loss, especially for new events, and tendency to make up stories to fill gaps (confabulation)

Call the doctor right away if...

- Confusion that gets worse quickly — brain swelling or bleeding may be starting
- Eyes that cannot move in all directions or pupils that are unequal — pressure on brainstem nerves is a medical emergency
- Body temperature below 95 °F (35 °C) or very slow heart rate — the brain's automatic controls are failing and the person may collapse
- Seizures or sudden loss of consciousness — the brain is in crisis and needs thiamine and support immediately
- Signs of bleeding in the brain (severe headache, vomiting, neck stiffness, vision changes) — rare but life-threatening complication of Wernicke encephalopathy

What the care team will do

- Check if IV dextrose or oral glucose has been given or ordered, and hold it until after the first dose of thiamine 500 mg IV is infused
- Give thiamine 500 mg IV diluted in 100 mL normal saline over 30 minutes three times daily for at least 2 days before switching to lower doses
- Give magnesium sulfate 2 grams IV over 15 to 30 minutes, then continue 1 to 2 grams IV daily while the patient receives thiamine
- Assess mental status every 2 to 4 hours using a simple question like 'What is your name and where are you?' and document any worsening confusion or new inability to stay awake
- Check eye movements every 4 hours by asking the patient to follow your finger up, down, left, and right, and report if the eyes do not move together or if one eye drifts
- Monitor the patient on continuous pulse oximetry and telemetry (heart monitor), and measure blood pressure and heart rate every 2 hours, reporting heart rate below 50 or systolic blood pressure below 90 mm Hg
- Keep the bed in the lowest position with all four side rails up, assist with every transfer, and use a gait belt when the patient walks
- If the patient drinks alcohol regularly, start a CIWA (Clinical Institute Withdrawal Assessment) protocol and give scheduled benzodiazepines like lorazepam 1 to 2 mg IV every 6 hours to prevent withdrawal seizures

Medicines you may be given — and why

Thiamine (vitamin B1)

Thiamine is a vitamin the brain must have to turn sugar into energy. When the body runs low on thiamine for weeks (usually because of heavy alcohol use or poor nutrition), brain cells start to starve even when blood sugar is normal. The parts of the brain that handle eye movement, balance, and forming new memories need the most energy, so they fail first. Giving thiamine refills the empty tank so the brain can make energy again and stop the damage. We give it through an IV (directly into a vein) at first because the gut may not absorb it well in someone who is very sick or has been drinking heavily for a long time.

Where this information comes from

- EFNS Guidelines on Wernicke Encephalopathy 2010
- Royal College of Physicians (RCP) Alcohol Guidelines
- Cochrane Database Systematic Reviews
- American Academy of Neurology (AAN)

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