Neuro checks, ICP and stroke

Consciousness, GCS, pupils, rising ICP, head injury, meningitis, stroke, alteplase, swallowing

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★ high yield

NEUROLOGIC

1 AT A GLANCE

A change in level of consciousness is one of the first signs that neurological function is falling. In a stroke, brain cells start dying when blood stops reaching them: time is brain.

The neuro check

- Check orientation to person, place, time and situation, and **compare it with the client's baseline**.
- Sedatives, pain medicines and paralyzing drugs can cloud the exam: note what the client has had.
- Compare the two sides of the face and body; they should match.
- Strength: 0 (no contraction) to 5; lower grades aren't tested against resistance.
- Expected pupils: equal, round, reactive to light and accommodation.
- ★ **Report at once**: a change in mental status or pupil response, a facial droop, slurred or absent speech, sudden weakness on one side.

Glasgow Coma Scale

Score	Meaning
15	Best possible
13 to 15	Mild, after a brain injury
9 to 12	Moderate
★ **8 or less**	**Severe impairment: assess the airway**
3	Lowest possible

Scores: Eye opening, verbal response and motor response. On its own, 8 or less isn't a diagnosis of coma.

Rising intracranial pressure

Stage	Signs
★ **Earliest**	**A falling level of consciousness**
Then	Restlessness, agitation, confusion, headache, speech changes, nausea and vomiting, seizures
★ **Late**	Severe hypertension, a slow heart rate and irregular breathing (the **Cushing response**), plus abnormal posturing. Decorticate or decerebrate posturing signals severe brain damage

Act early: Act on the early change in consciousness; don't wait for the late signs.

Lowering the pressure

- ★ Head of the bed at **about 30 degrees, neck neutral**; check perfusion.
- A quiet room, less stimulation. Prevent straining with stool softeners.
- Meningitis: low sodium from water retention can raise the pressure further, so watch the sodium.
- Mannitol may be ordered. Untreated rising pressure can push the brain out of place, which can be fatal.
- Keep the neck midline, avoid sudden neck or hip bending, space out care, sedate cautiously.

ICP monitoring

- Intraventricular catheter: the most accurate; it can also drain cerebrospinal fluid.
- Subdural bolt: placed quickly. Epidural sensor: least invasive, but can't drain fluid.
- ★ Adults: normal resting pressure commonly about **5 to 15 mmHg**; treatment thresholds differ.
- High pressure: drain fluid through the catheter, adjust the ventilator, or IV medicines.
- Watch for bleeding, infection, and signs of brain injury or herniation.

Head injury

- Signs: loss of consciousness, headache, blurred vision, unequal pupils, nausea and vomiting, **clear fluid from the nose or ears**.
- Subdural hematomas are common in **older adults after falls**. Symptoms can appear right away, or hours or days later.
- ★ Get help right away: marked sleepiness, odd behavior or speech, a severe headache or stiff neck, a seizure, unequal pupils, a weak arm or leg, any loss of consciousness, vomiting more than once.
- Assume the spine is injured too: keep the head in line with the spine. Possible skull fracture: don't press on the wound or remove debris.
- Don't remove a helmet if a serious head injury is suspected. Teach no alcohol or street drugs for 48 hours.

Meningitis

- ★ Severe headache, **stiff neck**, high fever, sudden confusion, sensitivity to light and sound, vomiting, a rash of tiny spots.
- Kernig's: pain when the knee is straightened. Brudzinski's: hips and knees bend when the neck is flexed. Only a minority show them.
- Spinal fluid: normal is clear and colorless; pink suggests bleeding, cloudy suggests infection.
- Broad-spectrum IV antibiotics promptly, not waiting for a scan or lumbar puncture. Dexamethasone (community-acquired bacterial) helps prevent hearing loss.
- ★ Suspected meningococcal or Hib: **droplet precautions until 24 hours of effective therapy**; pneumococcal: standard.
- Close contacts of meningococcal disease get preventive rifampin, ciprofloxacin or ceftriaxone.

Educational use only. Not a substitute for clinical judgment, your facility's policy or the provider's orders. Where practice varies, follow facility policy and state law. No patient information.

Neuro checks, ICP and stroke

1 AT A GLANCE, CONTINUED

Ischemic or hemorrhagic stroke

	Ischemic	Hemorrhagic
Cause	A clot blocks an artery; clots that travel often come from the heart, especially with atrial fibrillation	A ruptured vessel: often high blood pressure, an aneurysm, or a tangle of vessels
★ **Clues**	Usually awake	**The worst headache of the client's life**, vomiting, light sensitivity, a stiff neck; can bring lethargy or coma
Treatment	May get a clot-dissolving drug, or clot removal through a catheter	Stop the bleeding; lower blood pressure gradually; rising ICP is a risk for the first 72 hours

TIA: Stroke symptoms that fully resolve: a warning of a coming stroke. Teach clients and families to get help for any stroke sign, even one that fades.

Thrombolysis (ischemic stroke)

- ★ Guidelines: alteplase or tenecteplase **within 4.5 hours if eligible**, plus selected imaging-based later cases; the label's 3 hours is narrower.
- The stroke team assesses eligibility. Not with bleeding in the brain, active internal bleeding, a bleeding disorder, brain or spinal surgery or serious head injury in the last 3 months, or severe uncontrolled hypertension. An INR over 1.7 is just one exclusion.
- Clotting tests like the INR are drawn, but don't hold thrombolysis for them unless anticoagulant use or a bleeding disorder is suspected.
- Alteplase: 0.9 mg/kg, max 90 mg; a tenth as a one-minute bolus, the rest over an hour. Control blood pressure closely during and after.
- ★ **No aspirin within 24 hours after thrombolysis**, and only after follow-up imaging. Bleeding precautions.

BE FAST

Letter	Check
B	Balance: a sudden loss
E	Eyes: vision loss in one or both
F	Face: does it look uneven?
A	Arm: is one weak or numb?
S	Speech: slurred, or confused?
★ **T**	Time: **call for help at once; note when symptoms started**

Then: Stroke team. **CT without contrast first**, to rule out bleeding; check glucose too, since low or high sugar can mimic stroke.

Stroke nursing care

- ★ Right-sided stroke: spatial awareness, judgment, impulse control. Left-sided: speech, language, analytic thinking.
- Acute phase: **airway first**, watch for seizures, frequent vital signs and neuro checks.
- ★ **Trained swallow screen before any food, fluid or oral medicine.** Coughing while eating can signal aspiration.
- Dysphagia: as close to 90 degrees as tolerated, per the swallowing plan. Thicken liquids exactly as prescribed.
- Visual field loss: approach and place items on the **intact side**; teach scanning. Never lift by the weak arm.

2 PRIORITY AND SAFETY CALLS

★ Alert an hour ago, now restless and confused, with stable vital signs and equal pupils: **report at once**. Don't recheck later or sedate.

★ GCS falls from 14 to 8: a serious decline to severe impairment. Report at once and assess the airway.

A client with meningitis whose pupils have newly become unequal comes first.

★ Alteplase 6 hours ago, a new headache, aspirin due: **hold the aspirin**, check neuro signs and blood pressure, notify the provider.

3 EXAM ANCHORS

1. Rising pressure: falling consciousness comes early; posturing and vital-sign changes come late.
2. Glasgow 15 is best, 8 or less is severe and needs an airway check, and 3 is the lowest.
3. Traps: lowering the head of the bed, and sedating before a neuro check.
4. Meningitis: stiff neck, fever, headache; fast antibiotics; droplet if meningococcal or Hib.
5. Traps: food or pills before the swallow screen, aspirin right after alteplase, calling a TIA harmless.

4 SELF-QUIZ

1. The earliest sign of rising ICP is a falling level of _____.
2. A GCS of _____ or less is severe and needs an airway assessment.
3. Adult resting ICP is commonly about 5 to _____ mmHg.
4. Kernig's sign is pain when the _____ is straightened.
5. Suspected stroke: the first scan is a CT without _____.
6. After thrombolysis, no aspirin within _____ hours.

ANSWER KEY 1. consciousness · 2. 8 · 3. 15 · 4. knee · 5. contrast · 6. 24

5 SOURCES

1. Open RN, Nursing Skills 2e, 6.10 Neurological Assessment. wtcs.pressbooks.pub/nursingskills/chapter/6-10-neurolog…
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3. CDC, Isolation precautions: type and duration of precautions. cdc.gov/infection-control/hcp/isolation-pre…
4. AHA/ASA, Guideline for the early management of acute ischemic stroke. professional.heart.org/en/science-news/2026-guideline-for-…

Built from RN PocketPal course lessons: Neuro assessment and increased intracranial pressure (c10-l01); Stroke (c10-l02). Every line on this sheet comes from those lesson scripts.

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