NURSING SKILL

Assessing Cranial Nerves

Purpose

Systematically assessing the cranial nerves can identify findings that suggest the presence of a neurologic abnormality. The information gathered during the assessment helps the treating clinician pinpoint the specific part of the central nervous system affected.

Procedure

SUPPLIES

- Nonsterile gloves
- Other personal protective equipment if you anticipate exposure to biohazards, such as bodily fluids and respiratory droplets/aerosols
- Familiar-scented substance, such as an orange or mint
- Snellen chart
- Penlight
- Cotton ball
- Salt or sugar
- Tuning fork
- Tongue depressor or cotton-tipped applicator
- Cup of water

PREPROCEDURE STEPS

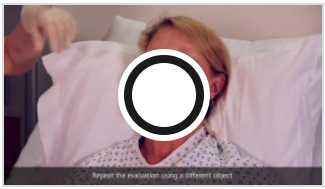
1. Check care plan, treating clinician orders, and facility practice on assessing cranial nerves.
2. Review patient's medical history/medical record for:
    - Indications for assessing cranial nerves, including suspected neurologic abnormalities or conditions

- Contraindications, including severe facial trauma or high cervical spine injury (notify treating clinician if present) [1]
- Medication use, including neuromuscular blocking agents and anticholinergics, which may cause pupil dilation
- Labs/other diagnostic test results, including spinal fluid analysis, WBCs, MRI and CT scan
- Allergies (use alternatives, as appropriate)

3. Follow standard preprocedure steps, as appropriate. [2, 3, 4, 5]

PROCEDURE STEPS

1. Perform hand hygiene and put on nonsterile gloves.
2. Assess cranial nerve I (olfactory nerve) function. [6, 7, 8, 9, 10]
   - Have patient close their eyes and occlude on nostril.
   - Ask patient to identify a familiar scent.
   - Occlude other nostril and repeat previous steps with a different scent.

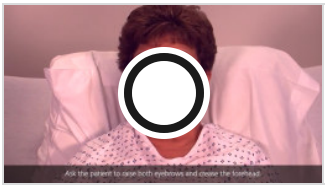


3. Assess cranial nerve II (optic nerve) function.

   - Cover 1 eye and ask patient to read letters on Snellen chart until they are no longer able to see them. Repeat procedure while covering other eye. [10]
   - Check pupillary reaction by shining light of penlight into patient's eyes, 1 eye at a time. [10, 11] Check direct and consensual pupillary responses. [11]
   - Test visual fields by asking patient to identify number of fingers you are holding up in each of the 4 visual field quadrants. [6, 7, 12]
4. Assess cranial nerve III (oculomotor nerve) function.
   - Assess pupillary responses as described in step 3. [11]

- Check accommodation by moving your finger toward patient's nose. The pupils should constrict and the eyes should converge. [10, 11]
- Check extraocular movements by having patient look up, down, laterally, and diagonally. The movements should be smooth and equal bilaterally. [6, 7, 12]

5. Assess cranial nerve IV (trochlear nerve) function. Ask patient to look down and laterally. The movements should be smooth and equal bilaterally. [6, 7, 10, 12]
6. Assess cranial nerve V (trigeminal nerve) function. [6, 7, 12]
   - Ask patient to hold their mouth open while you try to close it and ask them to move jaw laterally against your hand. The patient should perform both motions against resistance. [10]
   - With patient's eyes closed, touch patient's face with a cotton ball and ask them to identify area being touched. In patients who are comatose, you can brush the cornea with a wisp of cotton to elicit an eye blink in a patient with an intact corneal reflex. [10]
7. Assess cranial nerve VI (abducens nerve) function. Ask patient to move their eyes from side to side. The movement should be smooth and equal bilaterally. [6, 7, 10, 12]
8. Assess cranial nerve VII (facial nerve) function. [9]

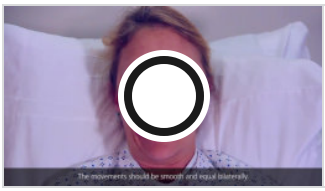


   - Ask patient to smile, frown, raise their eyebrows, and puff out their cheeks. The patient's face should remain symmetrical during these movements. [8, 10]
   - Have patient identify salt or sugar placed on their tongue. [10]
9. Assess cranial nerve VIII (acoustic/vestibulocochlear nerve) function.
   - Perform Weber test: Strike a tuning fork and place vibrating stem of fork on top of patient's head. Instruct patient to indicate when they no longer hear note. [6, 7, 9, 12]
   - Perform Rinne test: Strike a tuning fork and place vibrating stem of fork on patient's mastoid process. Instruct patient to indicate when they no longer hear note. [6, 7, 9, 12]
10. Assess cranial nerve IX (glossopharyngeal nerve) function.

- Touch back of patient's throat with a tongue depressor or cotton-tipped applicator to elicit a gag reflex. [10]
- Confirm ability to swallow by asking patient to swallow a sip of water. [6, 7, 9, 12]
- Evaluate sense of taste as described above (step 8) in testing of cranial nerve VII. [6, 7, 9, 12]

11. Assess cranial nerve X (vagus nerve) function.
    - Evaluate gag reflex and ability to swallow as described above (step 10) in testing of cranial nerve IX. [10]
    - Assess for normal voice quality. [6, 7, 9, 12]
12. Assess cranial nerve XI (spinal accessory nerve) function. Have patient shrug shoulders against resistance and turn head from side to side against resistance. The patient should make both movements smoothly and symmetrically. [6, 7, 8, 9, 10, 11, 12]

13. Assess cranial nerve XII (hypoglossal nerve) function.



    - Ask patient to stick out their tongue and move it inside their mouth from cheek to cheek. The movements should be smooth and equal bilaterally. [10]
    - Assess for normal verbal articulation by asking patient to recite alphabet.
14. Discard gloves and perform hand hygiene.

PATIENT/FAMILY EDUCATION

- Explain purpose of cranial nerve assessment and steps involved.
- If further testing is required, explain purpose of testing, what information will be obtained, and when results will become available.
- Provide patient education resources, if available, to reinforce verbal education.

POSTPROCEDURE STEPS

1. Promptly communicate to treating clinician any significant assessment findings. [2, 3]
2. Follow standard postprocedure steps, as appropriate. [2, 3]

DOCUMENTATION

Update patient's plan of care and medical record, if appropriate. Include:

- Date/time of cranial nerve assessment
- Cranial nerves assessed and corresponding assessment findings
- Patient's LOC and tolerance of assessment
- Any unexpected patient events or outcomes, interventions performed, and whether treating clinician was notified
- Patient/family education, such as topics presented, response to education, plan for follow-up education, any communication barriers, and techniques that promoted successful communication