Aim: To demonstrate the general neurological examination

Reference:

DeMyer, W. (2004). Techniques of the Neurologic Examination. 5th ed. McGraw-Hill.

Bickley, L. S., & Szilagyi, P. G. (2020). Bates' Guide to Physical Examination and History Taking. 13th ed. Wolters Kluwer.

Introduction:

A general neurological examination is a crucial procedure to assess the integrity and function of the nervous system. This manual outlines the steps and techniques for conducting a thorough neurological examination, which includes assessing mental status, cranial nerves, motor function, sensory function, coordination, and reflexes.

Preparation:

Equipment Needed

- Penlight
- Tongue depressor
- Reflex hammer
- Cotton wisp
- Tuning fork (128 Hz)
- Safety pin
- Ophthalmoscope
- Vision chart (e.g., Snellen chart)

Patient Preparation:

- Ensure the patient is comfortable and relaxed.
- Explain each part of the examination to the patient.
- Obtain consent before proceeding with the examination.

Examination Steps:

1. Mental Status

Assessment

- Appearance and Behavior: Observe the patient's dress, grooming, and behavior.

- Orientation: Ask the patient about the date, location, and their identity.

- Memory: Test recent and remote memory by asking about recent events and historical facts.

- Attention and Concentration: Ask the patient to perform simple calculations or spell a word backward.

- Language: Assess fluency, comprehension, repetition, and naming by having the patient follow commands, repeat phrases, and name objects.

2. Cranial Nerves

Cranial Nerve I (Olfactory)

- Sense of Smell: Ask the patient to close their eyes and identify different scents (e.g., coffee, vanilla).

Cranial Nerve II (Optic)

- Visual Acuity: Use a vision chart to test each eye separately.

- Visual Fields: Test peripheral vision by having the patient cover one eye and describe movement in the periphery.

- Fundoscopy: Use an ophthalmoscope to examine the optic disc and retina.

Cranial Nerve III, IV, and VI (Oculomotor, Trochlear, and Abducens)

- Pupillary Reactions: Check the direct and consensual light reflexes.

- Eye Movements: Ask the patient to follow an object in different directions to test extraocular movements.

Cranial Nerve V (Trigeminal)

- Facial Sensation: Use a cotton wisp and safety pin to test light touch and pain sensation on the face.

- Muscles of Mastication: Ask the patient to clench their teeth and palpate the masseter and temporalis muscles.

Cranial Nerve VII (Facial)

- Facial Movements: Ask the patient to raise their eyebrows, close their eyes tightly, smile, and puff out their cheeks.

Cranial Nerve VIII (Vestibulocochlear)

- Hearing: Perform the Rinne and Weber tests using a tuning fork.

- Balance: Observe for any signs of imbalance or vertigo.

Cranial Nerve IX and X (Glossopharyngeal and Vagus)

- Gag Reflex: Gently touch the back of the throat with a tongue depressor.

- Palate Elevation: Ask the patient to say "ah" and observe the movement of the uvula.

Cranial Nerve XI (Accessory)

- Shoulder Shrug and Head Turn: Ask the patient to shrug their shoulders and turn their head against resistance.

Cranial Nerve XII (Hypoglossal)

- Tongue Movements: Ask the patient to stick out their tongue and move it side to side.

3. Motor Function

Muscle Strength

- Upper and Lower Extremities: Test strength against resistance in major muscle groups.

Muscle Tone

- Passive Movement: Move the patient's limbs through their range of motion and note any resistance.

Muscle Bulk

- Inspection: Look for any muscle atrophy or hypertrophy.

4. Sensory Function

Light Touch

- Cotton Wisp: Lightly touch the patient's skin with a cotton wisp and ask them to indicate when they feel it.

Pain

- Safety Pin: Use the sharp and dull ends of a safety pin to test pain sensation.

Vibration

- Tuning Fork: Place a vibrating tuning fork on bony prominences and ask the patient to report when the vibration stops.

Proprioception

- Joint Position Sense: Move the patient's finger or toe up and down and ask them to identify the direction of movement.

5. Coordination

Finger-to-Nose Test

- Ask the patient to touch their nose and then your finger repeatedly.

Heel-to-Shin Test

- Ask the patient to run their heel down the opposite shin.

6. Reflexes

Deep Tendon Reflexes

- Biceps, Triceps, Brachioradialis, Patellar, and Achilles: Use a reflex hammer to elicit reflexes and note the response.

Superficial Reflexes

- Abdominal, Plantar: Lightly stroke the abdomen and the sole of the foot.

7. Gait and Station

Gait

- Observe the patient walking normally and on their heels and toes.

Romberg Test

- Ask the patient to stand with their feet together and eyes closed, noting any swaying.