Aim: To Demonstrate the Reflex Activity

References:

1. DeMyer, W. (2004). Technique of the Neurologic Examination: A Programmed Text. McGraw-Hill Education.

2. Blumenfeld, H. (2010). Neuroanatomy through Clinical Cases. Sinauer Associates.

3. Brazis, P. W., Masdeu, J. C., & Biller, J. (2016). Localization in Clinical Neurology. Lippincott Williams & Wilkins.

4. American Academy of Neurology. (2020). Neurological Examination. Retrieved from https://www.aan.com

Introduction:

Reflexes are involuntary responses to specific stimuli and are essential for assessing the integrity of the nervous system. Testing reflex activity is a standard component of the neurological examination and helps evaluate the function of peripheral nerves, spinal cord segments, and higher centers of the brain.

Equipment Needed:

- Reflex hammer (e.g., Taylor hammer, Queen Square hammer)

- Comfortable examination table or chair

- Patient gown or clothing that allows access to limbs

- Patellar tendon hammer for deep tendon reflexes

- Cotton wisp or other tactile stimuli for superficial reflexes (optional)

Patient Preparation:

- Ensure the patient is relaxed and comfortable in a seated or supine position.

- Explain the reflex testing procedure to the patient to alleviate any anxiety.

- Expose the relevant areas of the body for reflex testing while maintaining patient privacy and dignity.

Examination Steps:

1. Deep Tendon Reflexes

- Patellar Reflex (Knee Jerk)

- Instruct the patient to relax their leg while sitting or lying down.

- Tap the patellar tendon just below the patella with the reflex hammer.

- Observe and feel for the contraction of the quadriceps muscle and the extension of the leg.

- Achilles Reflex (Ankle Jerk)

- Ask the patient to relax their foot and hang it over the edge of the examination table or bed.

- Tap the Achilles tendon just above the heel with the reflex hammer.

- Note the contraction of the calf muscles and the plantarflexion of the foot.

2. Superficial Reflexes

- Plantar Reflex (Babinski Sign)

- Use the end of the reflex hammer or a blunt object to stroke the lateral aspect of the sole of the foot from the heel to the ball of the foot.

- Observe the response of the toes: a normal response is plantar flexion of the toes (downward movement), while an abnormal response may include dorsiflexion of the big toe and fanning of the other toes (positive Babinski sign), indicating upper motor neuron dysfunction.

- Abdominal Reflex

- Stroke the skin of each abdominal quadrant in a lateral to medial direction using a cotton wisp or similar tactile stimulus.

- Observe the contraction of the abdominal muscles toward the stimulated area.

3. Other Reflexes

- Triceps Reflex

- Ask the patient to relax their arm while seated or lying down with the elbow flexed.

- Tap the triceps tendon just above the elbow with the reflex hammer.

- Look for extension of the forearm and elbow.

- Biceps Reflex

- Position the patient's arm comfortably with the elbow slightly flexed.

- Tap the biceps tendon in the antecubital fossa with the reflex hammer.

- Note the contraction of the biceps muscle and the flexion of the elbow.

Interpretation of Results

- Normal Reflex Response: A brisk, symmetrical, and appropriate response to the stimulus is considered normal.

- Hyperreflexia: Exaggerated reflex responses may indicate upper motor neuron lesions or conditions such as spasticity.

- Hyporeflexia or Areflexia: Diminished or absent reflex responses may indicate lower motor neuron lesions, peripheral neuropathy, or muscle pathology.