

MEDAVIE

HealthEd

ÉduSanté



NEUROLOGICAL ASSESSMENT

Advanced Care Paramedicine

Module: 05

Section: 04b

- Scene Assessment
- Primary Assessment
- Secondary Assessment
 - Based on
 - History
 - Physical Exam

- History of Present Illness (HPI)
 - Determine C/C
 - Events causing C/C
 - ? ↓ LOC or AMS (Altered Mental Status)
 - ? Seizure activity
 - ? New neuro deficits
 - ? Headache (pattern?)
 - ? Dizziness
 - ? Visual disturbances

- History of Present Illness (HPI)
 - ? Generalized weakness
 - ? Dyspnea
 - ? Bystanders/Family description
 - Paralysis?
 - Time of onset, duration of events?
 - Aura expressed
 - Medication compliance?

- Past Medical History (PHx)
 - Neuro
 - CVA's
 - TIA's
 - Seizures
 - Existing neuro deficits
 - Psychiatric
 - Alzheimer's
 - Parkinsons

- Past Medical History (PHx)
 - Respiratory
 - PE
 - Cardiac
 - AFib history
 - Aneurisms
 - HTN
 - AMI
 - Angina

- Past Medical History (PHx)
 - Infections
 - Including exposures
 - Others
 - ETOH/Drug Abuse
 - Pregnancy?
 - Recent surgery
 - Medications?

- Establish baseline
- Find changes in patient condition
- Locate site of dysfunction
- Anticipate complications

- The focused exam includes:
 - Determining mental status
 - Structural vs Metabolic?
 - Cerebral dysfunction
 - Coordination/Balance
 - Motor/Sensory
 - Eyes
 - Speech
 - Agnosia (Impairment of stimulus, can't recognize items)
 - Apraxia
 - Meningeal Irritation
 - Bruits
 - Cranial Nerves

- Appearance & Behavior
- Level of Consciousness
- Communication
- Cognitive Abilities

- Posture & Movements
- Hygiene & Grooming
- Facial Expression
- Mood, Affect, Emotional Response
 - Measure of inflection, tone and expression in pt presentation
 - Good Affect
 - Flat Affect
 - Monotone, emotionless

- AVPU
 - Lucid (Laid Back)
 - Stupor (Agitated, confused)
 - Lethargic (Sluggish)
 - Obtunded (Unconscious)
- Orientation
 - Person, place and time (X3)
 - Event (X4)

- Evaluates:
 - Eye opening
 - Verbal responses
 - Brainstem reflex function
- Should be part of any neurological examination for patients with head injury
 - Mild head injury - GCS of 13-15
 - Moderate head injury - GCS of 8-12
 - Severe head injury - GCS of less than 8

- Trend of thought
 - Orderly
 - Delusions
 - Hallucinations
 - Auditory
 - Tactile
 - Sight
 - Smell
 - Comprehension?
 - Judgment?

- Metabolic
 - Generalized
 - Body wide, not limited to one area
 - Examples
 - Hypoxia
 - Hypoglycemia
- Structural
 - Lateralizing signs (Motor/Sensory)
 - Examples
 - ↑ICP
 - Lesions (Hemorrhage)

- Frontal lobe
 - Emotions
 - Judgment
 - Personality
- Parietal lobe
 - Speech
 - Stereognosis
 - the ability to recognize objects by sense of touch
 - Proprioception
 - Sensory

- Occipital Lobe
 - Object recognition
 - Acuity (focus) and fields (Sight)
 - To test
 - Finger from center, left, right, back to center and inwards
- Temporal lobe
 - Visual fields (stars, blurred vision)
 - Speech understanding

- Romberg Test
 - Balance
 - Eyes closed
 - Extend arms with legs together
 - Abnormal → fall forward
- Finger to nose
 - Coordination
 - Time or non straight line is abnormal

- Supination / Pronation of hand
 - Coordination
- Finger / Thumb Apposition
 - Coordination
- Gait and Stance
 - Coordination, Balance and Movement

- Motor
 - Strength
 - Lateralizing signs
 - Grips
 - Movement of limbs
 - Muscle tone
 - Paralysis
 - Ataxia (loss of coordination)
 - Apraxia (inability to move without paralysis)

- Sensory
 - Pain
 - Temperature
 - position

- Normal: PEARL
- Ptosis
 - The drooping of the upper eyelid from paralysis of the third nerve or from loss of sympathetic innervations
- Accommodation (focus)
 - Pupils constrict when looking from a distant object to a near object
- Cranial nerves
 - III (Oculomotor), IV (Trochlear), VI (Abducens)
 - Cardinal positions of gaze
 - Nystagmus
 - An involuntary, rapid, rhythmic movement of the eyeball, which may be horizontal, vertical, rotatory or mixed
 - Dolls Eyes
 - Reflex movement of the eyes in the opposite direction to that which the head is moved

- Dysarthria (Slurred speech)
- Aphasia
 - Receptive
 - Comprehensive (Wernicke's)
 - An encephalopathy syndrome characterized by mental and ocular disorders, and ataxia.
 - » Mental disturbances include listlessness, disorientation, confusion, hallucinations, Korsakoff psychosis, and other behavioural symptoms
 - » Ocular disorders are oculomotor paralysis, conjugate paralysis, and horizontal and vertical nystagmus.
 - » Ataxia affects stance and gait
 - Expressive
 - Formulate words (Broca's)
 - Global
 - Wernicke's and Broca's

- Impairment of recognition
- Types
 - Visual
 - Tactile
 - Auditory

- Inability to carry out voluntary, purposeful movements

- Nuchal rigidity
 - Inability to move neck
 - Normal no resistance in forward flexion
 - Abnormal resistance
- Kernig's Sign
 - Patient lying supine, the thigh is flexed (at right angle to the trunk), attempt to extend knee
 - Normal no pain
 - Abnormal pain with resistance



- Auscultation of the carotid arteries for turbulent blood flow
- May indicate embolus, thrombus

- I: Olfactory (Sensory)
 - Close eyes and identify smells

- II: Optic (Sensory)
 - Snellen Eye Chart

- III: Oculomotor
 - Pupillary Response
 - Shine bright light obliquely into each pupil
 - Look for the Direct Reaction (same eye)
 - Look for the Consensual Reaction (other eye)
 - Repeat opposite eye
 - Record pupil size in mm & response
 - Note any asymmetry
 - Accommodation

- V: Trigeminal
 - Light Touch (Sensory)
 - Close eyes
 - Use cotton wisp to lightly stroke each sensory area
 - Person responds: “Now”
 - If Light touch is abnormal, test the following:
 - Superficial Pain: using an open Paper clip and rate Sharp vs Dull
 - Temperature: Warm vs Cool
 - Guidelines
 - Test each sensory area
 - Compare side to side
 - Motor
 - Palpate TMJ with movements
 - Movements
 - Hinge action
 - Open & close mouth
 - Gliding action
 - Stick out lower jaw, pull back
 - Gliding side-to-side
 - Move lower jaw side-to-side

- VII: Facial (Motor)
 - Facial Expressions
 - Wrinkle forehead
 - Frown
 - Close eyes (resist)
 - Show teeth
 - Puff Cheeks
 - Purse lips & blow
 - Smile

- IX and X: Glossopharyngeal and Vagus (Mixed)
 - Motor
 - Ability to swallow
 - Clarity of speech
 - Uvula rises with “ah”
 - Gag reflex
 - Sensory
 - Taste Test (Not usually done)

- XI: Accessory (Motor)
 - Turn head against resistance
 - Shrug shoulders against resistance

- XII: Hypoglossal (Motor)
 - Stick out tongue
 - Move side to side
 - Move up & down
 - Press tongue against cheek