Neurological Examination of a Comatose Patient

Neurology
Mobeen Syed
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Objectives

• This is the second part of the neurological examination.
• Definition of Stupor and Coma
• We will discuss the immediate management approach of a comatose patient.
• We will discuss Glasgow Coma Scale (GCS)
Note

• Every hospital (at least in the US) has their own guidelines towards the assessment, labeling, and the management approach of the patients that may have neurological disorders especially in an acute state.

• Make sure that you consult your hospital’s guidelines and approaches towards the assessment and management protocols.

• Your hospital’s guidelines will supersede the approaches discussed here. The information in this lecture is for educational purpose only.
**Stupor & Coma**

**STUPOR**
Patient in a state of stupor is unresponsive except when repeated vigorous stimuli are applied.

**COMA**
A comatose patient is not arousable. They are not able to respond to external or internal stimuli. However, certain involuntary reflexes and postures may be present that will help identify the location and extent of the neurological damage.
A Note on The Levels Of Consciousness

CLOUDING OF CONSCIOUSNESS
Very mild form of inattention. Patient is inattentive and less awake.

CONFUSIONAL STATE
More pronounced deficit that includes confusion, bewilderment and difficulty to follow commands.

LETHARGY
Severe drowsiness, from which patient can be aroused by moderate stimuli but then goes back to sleep.

STUPOR

COMA

DEATH


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COMA

Major complication of serious central nervous system disorders. Can result from many causes. Some of these are:

- Seizures
- Hypothermia
- Metabolic disorders
- Structural lesions
- Mass lesions in a hemisphere of the brain may cause coma by compressing the brain stem
Assessment and Emergency Measures

- Diagnostic and management tasks start together due to the emergent nature of the causes and prognosis.
  - Position For The Airway Patency (If possible)
  - Temperature Control
  - Respiration Maintenance
  - Blood Pressure Maintenance
  - Initial Management
COMA
Immediate Support

- Position
- Temperature
- Respiration
- Blood Pressure

- Assess injuries to head & neck area
- May be positioned to one side with neck partly extended
- Remove dentures
COMA
Immediate Support

POSITION
- Assess injuries to head & neck area
- May be positioned to one side with neck partly extended
- Remove dentures

TEMPERATURE
- Rewarm

RESPIRATION
- S

BLOOD PRESSURE
Immediate Support

- Temperature
- Respiration
- Blood Pressure

Rewarm

- Supportive Therapy
- Clear Secretions
- Oropharyngeal Airway
- Ventilation
- ...
Naloxone helps with opiate/opioid overdose.

Thiamine is important to manage Wernicke Korsakoff Syndrome and ethylene glycol ingestion.

Administer thiamine before dextrose

Initial and Subsequent Assessment

- Glasgow Coma Scale (GCS)
- Proposed by Graham Teasdale and Bryan J Jenette in 1974.
- It was used for the patients with head injuries. Now a days, it is used for many other injuries as well.
- Helps monitor a patient’s progress.
# Elements of the Glasgow Coma Scale (GCS)

<table>
<thead>
<tr>
<th></th>
<th>Eyes</th>
<th>Verbal</th>
<th>Motor</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3 Minimum</td>
</tr>
<tr>
<td>Maximum</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>15 Maximum</td>
</tr>
<tr>
<td>Mnemonic</td>
<td>The word <strong>eyes</strong> has four letters</td>
<td>The word <strong>mouth</strong> has five letters. The word <strong>verbal</strong> and <strong>five</strong> both have a <strong>v</strong> in them.</td>
<td>The word <strong>motors</strong> has six letters.</td>
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Discussion for the GCS

• Make sure that the test elements are applicable, for example:
  • Patient was able to hear and speak before going in coma.
  • Patient does not have injuries that might exaggerate with motor manipulation.
  • Patient may be locked in – giving a perception of coma.
  • History is very important if possible from the friends and family.

• If patient is intubated then the verbal score is not obtained. A T suffix is added to the score e.g. 10T.

• A common sentence is: below 8 intubate. Is not always the correct approach. There may be patients below 8 that are able to breathe and their airway is intact, or patients that may be above 8 but need airway and management.

• GCS is never 0. Minimum score for all elements are 1. So, the minimum is 3.
VERBAL

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