NEUROLOGICAL ASSESSMENT

PART 4 – GLASGOW COMA SCALE 2

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The Glasgow Coma Scale (GCS) is widely used to assess level of consciousness in a wide variety of clinical settings and is a recommended observation tool in all patients with head injuries (NICE, 2007).

Last week the procedure for assessing the patient’s best eye-opening response was described. In this article, the procedure for assessing the patient’s best verbal and motor responses will be discussed.

ALLOCATING SCORES

Within each category (eye-opening, verbal and motor responses), each level of response is allocated a numerical value, on a scale of decreasing neurological deterioration.

By assigning a numerical value to the level of response to the individual criteria in each section, three figures are obtained which add up to a maximum score of 15 and a minimum of three.

Communication of information about a patient should be based on the three separate responses on the GCS, for example if the patient’s GCS is 12, based on scores of four for eye opening, four for verbal response and four for motor response, this should be communicated as E4, V4, M4. If the total score is being communicated, to avoid confusion the denominator should be specified, for example 12/15 (NICE, 2007).

Abnormal GCS

If a patient presents in A&E with a GCS <15, she or he must be assessed immediately. A patient with a GCS less than or equal to eight requires the early involvement of an anaesthetist or critical care physician to provide appropriate airway management and to assist with resuscitation.

A reduction in motor score by one or an overall deterioration of two is significant and should be reported. Although aggregate scores are often documented, the weighting of scores between eye, verbal and motor responses remains untested. Therefore documenting responses provides a clearer indication of remaining functions and deficits in the patient.

The following are indications for urgent medical review (NICE, 2007):

- Development of agitation or abnormal behaviour;
- A sustained (that is for at least 30 minutes) drop of one point in GCS;
- A drop of three or more points in the
eye-opening or verbal response scores or two or more in the motor response score; 
- Development of severe or increasing headache or persisting vomiting;
- New or evolving neurological symptoms or signs, for example pupil inequality or asymmetry of limb or facial movement.

LIMITATIONS
There are limitations with using the GCS on patients with head injuries who are sedated or ventilated. It is not designed to assess sedation scores but cerebral function.

In addition, differences in GCS scores of two or more have been reported on the same patients by different practitioners. This reinforces that clinical decisions should not solely be based upon GCS (Holdgate, 2006) but be used as a component of monitoring neurological function. GCS should only be used as an aid to patient assessment (Adam and Osborne, 2005).

PROCEDURE
Verbal response
- Ask the patient’s name, where she or he is and the current day, month and year. If the questions are answered correctly, record the score as 5V (orientated).
- If the patient can hold a conversation but is unable to answer the questions correctly, record the score as 4V (confused).
- If the patient is unable to hold a conversation and is just saying single words rather than sentences, record the score as 3V (inappropriate words).
- If the patient is groaning and not saying any recognisable words, record the score as 2V (incomprehensible sounds). A painful stimulus, for example a trapezium squeeze (Fig 1), may be required to elicit this response. See last week’s procedure for more details.
- If the patient does not respond verbally, record the score as 1V (no verbal response).
- If the patient has a tracheal tube in situ, record T, or is dysphagic, record D.

Motor response
- Ask the patient to perform two different movements, for example stick the tongue out (Fig 2) or squeeze your hand and let it go (Fig 3); if the patient responds accurately, record 6M (obeys commands).
- If the patient does not obey commands, apply a painful stimulus and observe reaction. If the patient purposely moves an arm to the point of pain, record 5M (localises to central pain). If the patient bends the arm at the elbows but fails to locate the pain, record 4M (withdrawal from pain). If she or he flexes the arms towards the trunk (Fig 4), record 3M (flexion to pain or decorticate posture). If the patient extends the arms (Fig 5), record 2M (extension to pain or decerebrate posture). If there is no response, record 1M.

Post procedure
- Record the findings on the patient’s chart and in the patient’s notes (Fig 6). Report any abnormalities/changes as required.

REFERENCES


NEXT WEEK
Anatomy and physiology of ageing: Cardiovascular system