

Case Study

Head Injury

T.J. is a 28-year-old publication was brought to the emergency room by ambulance following a single vehicle accident. It lost control of the motorcycle he was riding and struck a concrete road barrier on admission to the hospital. He is lucid, although emergency personnel tell you that he was unconscious at the scene of the accident. He has an IV of D5W at TKO rate in his left forearm that was started at the accident site and his cervical spine is immobilized. He is complaining of a headache and nausea. Your initial assessment reveals a left boggy temporal muscle, the presence of battle sign behind the left ear, and clear drainage from the left ear canal. His initial vital signs are as follows: blood pressure 118/72, heart rate 68, respiratory 16 and regular. While you are assessing him he becomes less responsive and only moans when you talk to him. He does not respond to verbal commands. Responses to painful stimuli include opening his eyes inflection of his arm.

Based upon his clinical progression in your assessment findings suspect that he is experiencing:

- a. epidural hematoma

What three assessment factors provide you with the information to calculate a classical coma scale score?

1. Eye opening
2. Motor Response
3. Verbal Response

What is his Glasgow coma scale score?

____9 (2+3+4=9)_____

You quickly assess them for additional signs of increased intracranial pressure. Indicate all the findings you would expect to find with increasing at a rate pressure:

- a. irregular respiratory pattern
- b. right-sided hemiparesis
- c. slowing heart rate
- d. vomiting
- e. widening pulse pressure

Stat skull x-rays and a CT scan of the brain are obtained in indicate a linear fracture of the temporal bone within epidural hematoma. His condition is rapidly deteriorating and then

emergency craniotomy to control bleeding and evacuate the hematoma to prevent cerebral herniation is scheduled. Match the rationales for the interventions below:

#	Interventions
1	Administration of 100% oxygen
2	Elevation of head of bed to 30°
3	Endotracheal intubation and mechanical ventilation
4	Hyperventilation to maintain PaCO ₂ 30 mmHg

Rationale	Intervention #
Causes constriction of cerebral vessels	4
Maintain airway ventilation	3
Prevents hypercapnia and hypoxia, decreasing ICP	1
Promotes venous return from brain	2

Postoperatively a variety of drugs may be used to control cerebral edema and altered cerebral metabolic rate rose cerebral perfusion pressure. Identify the rationale for the use of the following drugs:

#	Drugs
1	Dexamethasone
2	Furosemide
3	Mannitol
4	Pentobarbital
5	Phenytoin

Rationale	Drug #
Diuretic, but also reduces reduction in the rate of CSF production	2
Decreases cerebral metabolic rate, decreasing cerebral blood flow and ICP	4
Thought to stabilize cell membrane and improved regulation of blood flow	1
May prevent formation of cerebral edema and control ICP	5
Withdrawals fluids from normal tissue, but may increase edema and blood pressure barrier damage	3

Identify all the interventions that may lead to increased intracranial pressure:

1. abdominal distention
2. deep breathing and coughing
3. endotracheal suctioning
4. PaCO₂ of 48 mmHg
5. marked hip and neck flexion

Laboratory results on the first postoperative day include: Na⁺ 140 mEq/l, K⁺4.6 mEq/l, Cl 100mEq/L, WBC 12,000/l, Hb 13.9 g/dl, and HCT 40%. His ABG's are:

- pH 7.43
- PaO₂ 98 mmHg
- PaCO₂ 35 mmHg
- HCO₃ 23 mEq/L
- SaO₂ 98%

Based on these results would notify the physician and

- a. check the site of his invasive monitoring device and the odor of his dressing