

Head Trauma Protocol

Injuries to the head may cause underlying brain tissue damage. Increased intracranial pressure from bleeding or swelling tissue is a common threat after head trauma.

Common signs and symptoms of increased intracranial pressure include:

- Confusion
- ALOC
- Dilated or unequal pupils
- Markedly increased systolic blood pressure
- Decreased pulse (bradycardia)
- Abnormal respiratory patterns

Priorities for the treatment of head injury patients include airway management, maintenance of adequate oxygenation & blood pressure as well as appropriate C-spine control & immobilization.

First Responder Care

First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Be prepared for vomiting and have suction readily available.
3. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
4. Control bleeding using direct pressure, pressure dressings and pressure points.

BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol* and *Universal Trauma Care Protocol*.
2. Be prepared for vomiting and have suction readily available.

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BLS Care (continued)

3. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
4. Control bleeding using direct pressure, pressure dressings and pressure points.
5. Repeat vital signs, GCS & RTS every *5 minutes*.
6. If patient has an altered mental status, perform **blood glucose level test**.
7. **Oral Glucose:** 15g PO if the patient's blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.
8. **Glucagon:** 1mg IM or (if available) 2mg IN if blood sugar is less than 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.
9. Initiate ALS intercept and transport as soon as possible.
10. **Contact Medical Control** as soon as possible.

ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol* and *Universal Trauma Care Protocol*.
2. Be prepared for vomiting and have suction readily available.
3. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.
4. Control bleeding using direct pressure, pressure dressings and pressure points.
5. Repeat vital signs, GCS & RTS every *5 minutes*.
6. **IV Fluid Therapy:** 20mL/kg fluid bolus if needed to obtain a systolic BP of 100mmHg.

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ILS Care (continued)

If signs of increased ICP are not present and the patient has an altered mental status:

7. Perform **blood glucose level test**.
8. **Oral Glucose:** 15g PO if the patient's blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.

Dextrose 50%: 25g IV if blood sugar is < 60mg/dL.

Glucagon: 1mg IM or (if available) 2mg IN if blood sugar is less than 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.

8. **Narcan:** 2mg IV/IM if no response to Dextrose or Glucagon within 2 minutes and narcotic overdose is suspected. May repeat 2mg IV or IM if no response in **5 minutes (with Medical Control order)**.

Narcan: 2mg IN if unable to obtain IV access.

9. Initiate ALS intercept if needed and transport as soon as possible.
10. **Contact Medical Control** as soon as possible.

ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol* and *Universal Trauma Care Protocol*.
2. Be prepared for vomiting and have suction readily available.
3. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient's respirations with BVM if necessary.

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ALS Care (continued)

4. Control bleeding using direct pressure, pressure dressings and pressure points.
5. Repeat vital signs, GCS & RTS every *5 minutes*.
6. **IV Fluid Therapy:** 20mL/kg fluid bolus if needed to obtain a systolic BP of 100mmHg.

If signs of increased ICP are not present and the patient has an altered mental status:

7. Perform **blood glucose level test**.
8. **Oral Glucose:** 15g PO if the patient's blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.

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9. **Narcan:** 2mg IV/IM if no response to Dextrose or Glucagon within 2 minutes and narcotic overdose is suspected. May repeat 2mg IV or IM if no response in *5 minutes*

Narcan: 2mg IN if unable to obtain IV access.

10. **Contact Medical Control** as soon as possible.

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Critical Thinking Elements

- Head trauma patients should receive oxygen to keep $SpO_2 > 95\%$, preferably via NRM. Patients with poor respiratory effort may require ventilation with a BVM at 8-10 breaths/min.
- *Cushing's response* refers to the ominous combination of markedly increased arterial blood pressure and resultant bradycardia indicating cerebral herniation.
- Avoid prophylactic hyperventilation of a head trauma patient as this can cause cerebral vasoconstriction. However, if s/s of increased ICP are present, then controlled hyperventilation may be needed (with Medical Control order) until s/s of increased ICP have subsided:
 - 20 breaths/min for adults
 - 25 breaths/min for children
 - 30 breaths/min for infants
- Deeply comatose patients may require advanced airway placement (GCS < 8). Refer to the King LTS-D *Airway Procedure*.
- Treat for hemorrhagic shock if the patient's systolic BP is < 100mmHg. Hypotension decreases cerebral perfusion and worsens brain injury and must be corrected.