

Assessment and Emergency Care of Head and Spine Injuries

Scene Size-up

Scene Safety	Ensure scene safety and safe access to the patient. Standard precautions should include a minimum of gloves and eye protection if there is vomiting. Consider a gown and shoe covers if other bodily fluids are involved. Determine the number of patients. Assess the need for additional resources.
Mechanism of Injury (MOI)/ Nature of Illness (NOI)	Determine the MOI. Interview the patient, family, and/or bystanders to determine the exact nature of the traumatic forces applied. Maintain a high index of suspicion for associated spinal injuries, especially with rapid acceleration-deceleration MOIs. Blunt forces applied directly to the head can produce skull fractures with potential depression. With motor vehicle crashes, note the position of the patient in the vehicle in relation to the forces applied. Determine if the patient might have been ejected from the vehicle.

Primary Assessment

Form a General Impression	Inquire about the chief complaint and observe the patient's overall body position. Observe the work of breathing and circulation. Determine the level of consciousness using the AVPU scale. Identify immediate threats to life. Determine the priority of care based on the MOI. If the patient has a poor general impression, call for ALS assistance. A rapid scan will help you identify and manage life threats. Maintain a high index of suspicion for airway or respiratory compromise. Alterations in mental status will be the most sensitive indicator of subtle or impending problems.
Airway and Breathing	Ensure the airway is open, clear, and self maintained. With potential spinal injuries, use the jaw-thrust maneuver to open the airway. Evaluate the patient's ventilatory status for rate and depth of breathing, respiratory effort, and tidal volume. Administer high-flow oxygen at 15 L/min, providing ventilatory support as needed; do not hyperventilate the patient. Hypoxia may cause changes in the patient's mental state. If vomiting or bleeding into the oropharynx is a possibility, tilt the backboard to the side after spinal immobilization has been performed and have suction ready.
Circulation	Observe skin color, temperature, and condition; look for life-threatening bleeding and treat accordingly. Evaluate distal pulse rate, quality (strength), and rhythm. Assess and treat for shock. Control bleeding.
Transport Decision	If the patient has an airway or breathing problem, signs and symptoms of bleeding, or other life threats, manage them immediately and provide rapid transport to an appropriate trauma center, performing the secondary assessment en route to the hospital.

NOTE: The order of the steps in this section differs depending on whether the patient is conscious or unconscious. The following order is for a conscious patient. For an unconscious patient, perform a primary assessment, perform a full-body scan, obtain vital signs, and obtain the past medical history from a family member, bystander, or emergency medical identification device.

Assessment and Emergency Care of Head and Spine Injuries, continued

History Taking

Investigate Chief Complaint

Investigate the chief complaint. Closely monitor the patient for changes in mental status. Ask SAMPLE questions. SAMPLE can also be obtained from family, bystanders, and medical alert tags.

Secondary Assessment

Physical Examinations

Perform a systematic full-body physical examination or an examination focused on the head and spine. Rule out any potential life threats. Advise the patient prior to performing any examination. Do not delay transport to perform the physical examination at the scene. Look for DCAP-BTLS and deformities in the head and neck. Palpate the head and neck, feeling for any subtle deformities or "step-offs" that could indicate a more serious underlying problem.

Vital Signs

Obtain baseline vital signs as soon as practical. Vitals signs should include blood pressure by auscultation, pulse rate and quality, respiration rate and quality, and skin assessment for perfusion. Note the patient's level of consciousness. Use pulse oximetry, if available, to assess the patient's perfusion status. Be alert for Cushing's triad with possible head injuries.

Reassessment

Interventions

Repeat the primary assessment, vital signs, and chief complaint. Assist breathing as required, administering high-flow oxygen.

Communication and Documentation

Contact medical control/receiving hospital with a radio report; many hospitals require additional personnel and a separate treatment area. Include a thorough description of the MOI and the position the patient was found in. Include treatments performed and patient response. Be sure to document the patient's distress, answers to your questions, and any changes in patient status and the time. Follow local protocols. Document the reasoning for your treatment and the patient's response.

NOTE: Although the following steps are widely accepted, be sure to consult and follow your local protocols. Take appropriate standard precautions when treating all patients.

Assessment and Emergency Care of Head and Spine Injuries, continued

Head and Spine Injuries

General Management of Head Injuries

1. Establish and maintain a patent airway. Provide high-flow supplemental oxygen and provide ventilatory assistance if needed.
2. Control bleeding. Do not apply pressure to an open or compressed skull injury. Begin cardio-pulmonary resuscitation, if necessary.
3. Assess the patient's baseline level of consciousness, and continuously monitor it.
4. Assess and treat other injuries.
5. Anticipate and manage vomiting to prevent aspiration.
6. Be prepared for convulsions and changes in the patient's condition.
7. Transport the patient promptly and with extreme care.

General Management of Spine Injuries

1. Open and maintain a patent airway with the jaw-thrust maneuver.
2. Hold the head still in a neutral, in-line position.
3. Consider inserting an oropharyngeal airway.
4. Have a suctioning unit available.
5. Provide high-flow oxygen.
6. Continuously monitor the patient's airway.
7. Perform manual in-line stabilization to protect the cervical spine.
8. Prepare the patient for transport according to patient's position.
9. Transport to the appropriate trauma center.