

Anesthesiology Rounds
Volume 7, Issue 3, 2008

Airway Management in the Patient with Cervical Spine Instability

By Arnaud Robitaille, MD

Objectives:

This issue of *Anesthesiology Rounds* will help the reader to:

- have a basic knowledge of cervical spine (C-spine) anatomy and biomechanics
- know the proper way to assess C-spine in trauma victims
- recognize when to apply C-spine stabilization maneuvers and evaluate their benefits and drawbacks with regard to airway management
- identify airway management techniques adapted to various trauma situations

Questions: (*Only one response is correct*)

1. Concerning C-spine anatomy, which of the following is FALSE?
 - a. The C-spine consists of 7 vertebrae in addition to the skull base.
 - b. The axis lies immediately caudal to the skull base.
 - c. The atlas has no vertebral body.
 - d. The odontoid process (dens) protrudes upward from the vertebral body of the axis.
 - e. Motion is not uniformly distributed throughout the C-spine.
2. In the radiological assessment of the C-spine in trauma patients, which of the following statements is TRUE?
 - a. Most asymptomatic blunt-trauma patients should have a three-view trauma series in the emergency department.
 - b. Cervical immobilization can be safely removed without further imaging in a patient who denies any symptom that is referable to the C-spine shortly after falling from a ladder and suffering open fractures to both lower extremities.
 - c. A normal three-view trauma series, if read by an expert, is sufficient to clear the C-spine in symptomatic trauma patients.
 - d. At least a three-view trauma series plus a thin-section computed tomography (CT) scan should be done to clear the C-spine in symptomatic trauma patients.
 - e. It is recommended that magnetic resonance imaging (MRI) be systematically done in obtunded trauma patients.

3. For the immobilization of the C-spine in trauma patients, which of the following statements is TRUE?
- a. A rigid cervical collar alone provides adequate immobilization.
 - b. Expert recommendations on immobilization are based on strong evidence.
 - c. Immobilization techniques are devoid of risk to the patient.
 - d. Immobilization techniques are no longer recommended.
 - e. Manual in-line stabilization (MILS) may make direct laryngoscopy more difficult.
4. Regarding the effects of direct laryngoscopy on the cervical spine in patients without manual in-line stabilization (MILS), which of the following statements is FALSE?
- a. They are independent of the amount of force exerted by the laryngoscopist.
 - b. The axial spine moves more than the subaxial spine.
 - c. It leads to extension of the rostral C-spine, but to flexion of the caudal C-spine.
 - d. Amplitude of movement increases throughout the procedure, reaching its maximum during the passage of the endotracheal tube.
5. For the choice of airway technique in patients with a potentially unstable C-spine, which of the following statements is TRUE?
- a. Studies using continuous cinefluoroscopy to examine the difference in C-spine motion between various airway techniques have so many limitations that they provide no useful information to guide the clinician.
 - b. Studies using continuous cinefluoroscopy to examine the difference in C-spine motion between various airway techniques provide unequivocal answers and yield the only information needed to decide which technique to use in a clinical situation.
 - c. When assessing a clinical situation, minimizing C-spine motion remains an important objective, but other goals, such as rapidly and effectively securing the airway to prevent hypoxia, should not be neglected.
 - d. Intubation in an awake patient over a fiberoptic bronchoscope should always be tried first, since it minimizes C-spine motion.
 - e. Direct laryngoscopy should be systematically avoided, since clinical experience has shown it to be significantly more dangerous than other airway techniques.

Please send the completed test by fax to the attention of the Committee for Continuing Education, Université de Montréal at 514-343-6913. We will fax the corrected test back to you.

Name: _____

Address: _____

City: _____ Province: _____ Postal code: _____

Phone: _____ Fax: _____

Email: _____