

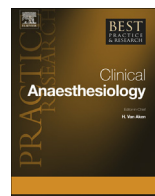


ELSEVIER

Contents lists available at ScienceDirect

Best Practice & Research Clinical Anaesthesiology

journal homepage: www.elsevier.com/locate/bean



10

Postoperative complications of spine surgery



Matthew C. Swann, MD, Resident Physician ^a,
Kathryn S. Hoes, MD, Resident Physician ^b,
Salah G. Aoun, MD, Resident Physician ^b,
David L. McDonagh, MD, Professor, Vice Chair ^{b, c, *}

^a Department of Orthopedic Surgery, University of Texas Southwestern Medical Center, Dallas, TX 75390, USA

^b Department of Neurosurgery, University of Texas Southwestern Medical Center, Dallas, TX 75390, USA

^c Department of Anesthesiology & Pain Management, University of Texas Southwestern Medical Center, Dallas, TX 75390, USA

Keywords:

spine surgery
postoperative complications
orthopedic surgery
neurosurgery
neuroanesthesia
complications

A variety of surgical approaches are available for the treatment of spine diseases. Complications can arise intraoperatively, in the immediate postoperative period, or in a delayed fashion. These complications may lead to severe or even permanent morbidity if left unrecognized and untreated [1–4]. Here we review a range of complications in the early postoperative period from more benign complications such as postoperative nausea and vomiting (PONV) to more feared complications leading to permanent loss of neurological function or death [5]. Perioperative pain management is covered in a separate review (Chapter 8).

© 2016 Elsevier Ltd. All rights reserved.

Complications of anesthetic care

Postoperative nausea and vomiting

Intraoperatively, anesthetic and surgical factors contribute to postoperative nausea and vomiting (PONV), with the anesthetic factors being most modifiable (although surgical length is contributory

* Corresponding author. Department of Anesthesiology & Pain Management, University of Texas Southwestern Medical Center, Dallas, TX 75390, USA.

E-mail address: David.mcdonagh@utsouthwestern.edu (D.L. McDonagh).

and potentially modifiable). Postoperatively, while patient-controlled opioid analgesia has revolutionized pain control, it often contributes to PONV [6]. Despite prophylactic pharmacotherapy, PONV remains very common. Identifying the high-risk patient is the first step in managing PONV (Table 1) [7]. Current strategies focus on multimodal pharmacologic nausea prophylaxis as well as multimodal analgesia to limit opioid administration (Table 2) [7]. Avoidance of nitrous oxide, inhalational anesthetics, and neostigmine is recommended in high-risk patients as long as medically appropriate (i.e., neostigmine use to reverse residual neuromuscular blockade supersedes an increased risk of PONV).

Injuries to the tongue

Tongue injuries are generally uncommon and limited to minor intubation trauma with modern airway management techniques. However, spine surgery poses a unique risk. In the prone position, the tongue can protrude between the incisors. Impaired venous and lymphatic outflow as well as mechanical/bite injury from the teeth can lead to swelling. Severe tongue edema requiring a tracheostomy has been described [8]. A “bite block” must be used to keep the tongue behind the incisors while avoiding intraoral compression injury of the tongue (resulting in pressure necrosis-Fig. 1). During spine surgery in the prone, supine, or lateral position, the use of motor-evoked potentials (MEPs) stimulates masseter contraction and jaw closure/biting. The insufficiently protected tongue can sustain severe lacerations and even tissue necrosis [9,10]. Head elevation/reverse Trendelenburg positioning reduces orbital, oral, lingual, and pharyngeal edema. Careful bite guard placement and frequent examination of the mouth/face/eyes are standard of care in anesthetic practice.

Injuries to the hollow organs of the neck

Airway injuries

Airway compromise is one of the most feared complications of cervical spine surgery [1,3,4]. Effective management requires prompt recognition and treatment (re-intubation, neck incision to relieve hematoma, or both). The incidence of airway obstruction has been reported to be as high as 6.1% after multilevel anterior cervical procedures [4,11] with a 70% requirement for emergent re-intubation in a series of combined anterior/posterior cervical cases [12]. Risk factors include medical comorbidities, the spinal levels involved in the procedure, and the nature of the procedure itself [11,13–15]. Specific surgical factors shown to be predictors of postoperative airway compromise include the exposure of more than three cervical levels especially if these include levels C2–C4, blood loss >300 mL, operative time >5 h, and a combined anterior and posterior approach [4,11,12,16,17]. Patient factors include morbid obesity, a history of obstructive sleep apnea (OSA) or pulmonary disease, the presence of cervical myelopathy, history of previous cervical surgery, and the off-label use of bone morphogenic protein [18–20]. Anesthetic risk factors include the suboptimal visualization of the glottis with grade 3 or 4 views and multiple intubation attempts [4].

The time frame of the airway compromise can be an indicator of the etiology. Wound hematomas usually occur early, manifesting within the first 12 h after surgery. Pharyngeal and prevertebral soft tissue edema, which is often the most common cause of airway obstruction, is usually slightly delayed

Table 1
PONV risk factors & approach to treatment[7].

Risk factors	Approach to treatment ^a
Nonsmoker	Low-risk patient – 1 agent
Female gender	Medium-risk patient: 2–3 agents of different pharmacologic classes
PONV after previous surgeries	High-risk patient: >3 agents (such as aprepitant, dexamethasone, ondansetron, and scopolamine)
Susceptible to motion sickness	
General anesthesia (nitrous oxide, inhalational anesthetics, and neostigmine)	

^a Breakthrough PONV: treatment with an agent from a different pharmacologic class.

Download English Version:

<https://daneshyari.com/en/article/2748334>

Download Persian Version:

<https://daneshyari.com/article/2748334>

[Daneshyari.com](https://daneshyari.com)