

Abstract

Spinal surgery, specifically laminectomies, is listed as one of the major ambulatory surgeries in 2019. In 2019, 296,200 laminectomies were performed in the U.S.¹ The act of positioning a patient prone for surgery has not fundamentally changed and remains a potentially injury-prone process.² The prevalence of occupational injuries and work-related pressures among nursing staff working in the OR is higher than in nonspecialized nursing.³

Background

- AORN recommends the number of perioperative team members to safely transfer the patient should be sufficient to maintain the patient's body alignment, support extremities, and maintain the patient's airway.
- The Institute for Occupational Safety and Health (NIOSH) recommends lifting no more than 35 pounds under the best ergonomic conditions.⁴
- In 2018, costs of overexertion-related injuries were \$2.06 billion dollars and accounted for 38.5% of the direct costs of all workers claims, with more than five days away in healthcare and social assistance.⁵
- Perioperative peripheral nerve injury (PPNI) and postoperative visual loss (POVL) are complications related to patient positioning during spine surgery.⁶



Safe Patient Handling During Spinal Surgery

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Sling Technique



Raise stretcher height and move patient to edge of stretcher. Using a pillowcase anatomically tuck the patient's arm.

Attach sling to the lift farthest from the OR table.



Raise lift and patient will roll into a lateral position.



One care provider guides the patient into prone with support at shoulder and hip.



Objectives

- Discuss physiologic effects that impact the perioperative nurse placing a patient in prone.
- Describe different positioning techniques to decrease perioperative injuries.
- Identify SPHM Program for perioperative setting.
- Review potential injuries to the patient related to the prone position.

Results

- High-risk tasks include lifting and holding patient's extremities, transferring patients between stretcher and the OR table, and changing the position of the patient on the OR table.⁷
- Lumbar muscle fatigue causes increased spinal movement and shear loadings which are associated with lower back pain (LBP).
- Patients with recurrent LBP lack adequate spinal stabilizing contractions and may also demonstrate impaired postural control and delayed muscle reflex.⁸
- Spine surgery remains one of the largest sources of acute perioperative vision loss.⁹ 0.14% of peripheral nerve injuries result from improper positioning.¹⁰
- ANA SPHM standards provide a framework and guidance for healthcare organizations and workers when addressing these serious issues.
- The modular table system sandwiches the patient between the table and an additional patient transfer board.² The use of the Jackson Table technique is a multistep process that must be performed accurately.¹¹ A challenge for team members using the mechanical technique is rushing the positioning process.

Air Assisted Repositioning Device (AARD) Technique



Raise stretcher height approximately 6" and move patient to edge of stretcher.



Tuck 4-6" of the air assisted repositioning device under the patient.



Using a pillowcase anatomically tuck the patient's arm and inflate device.



Team member furthest from OR table applies gentle upward traction as patient rolls into prone.



Method

Literature review using the following databases:

- CINAHL, PubMed, Medline.

Criteria:

- Related to SPH&M, prone position and spinal surgery.
- Publications date of 2018 or later (earlier data cited as a historical reference).
- Searched literature from other disciplines (e.g., nursing and health care).

Conclusions

Assistive devices such as specialty beds, air assisted devices, and patient slings using a lift may be used in the perioperative setting to place a patient in prone. These devices are intended to decrease perioperative team members work-related injuries, and harm to the patient during patient positioning. The development of a SPHM Program for the Operating Room can decrease nurse injuries related to repetitive motions, moving, lifting patients, and overexertion.

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