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Continuing Education Contact Hours

1. Discuss practices that could jeopardize safety in the peri-operative area.
2. Discuss common areas of concern that relate to perioperative best practices.
3. Describe implementation of evidence-based practice in relation to perioperative nursing care.

Purpose/Goal

To provide the learner with knowledge of AORN’s guidelines related to assessing discharge risks for infants and toddlers who have undergone moderate sedation, assessing a child for sleep apnea, using a frailty index to assess surgical patients, and determining the need for IV access in patients undergoing local anesthesia.

Objectives

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Accreditation

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Approvals

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Conflict-of-Interest Disclosures

Mary J. Ogg, MSN, RN, CNOR, has no declared affiliation that could be perceived as posing a potential conflict of interest in the publication of this article.

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Assessing discharge risks for infants and toddlers who have undergone moderate sedation

Key words: patient discharge, pediatric, caregiver, moderate sedation.

Assessing a child for sleep apnea

Key words: pediatric, obstructive sleep apnea, moderate sedation.

Using a frailty index to assess surgical patients

Key words: frailty, surgical complications, older adult, Braden Scale, Fried Frailty Criteria.

Determining the need for IV access in patients undergoing local anesthesia

Key words: local anesthesia, IV, preoperative assessment.

Assessing discharge risks for infants and toddlers who have undergone moderate sedation

QUESTION:
After a toddler undergoes moderate sedation, are two caregivers necessary at discharge?

ANSWER:
The “Guideline for care of the patient receiving moderate sedation/analgesia” recommends that two responsible adults be present to care for a child who has received moderate sedation and will be transported home in a car safety seat. One of the adults should be responsible for driving and the second adult should carefully observe the child’s head position. If the child is sleepy and his or her head falls forward, the upper airway may narrow, leading to collapse of the airway.
Additionally, a child receiving a medication with a long half-life (eg, chloral hydrate) should have a prolonged observation period in the postanesthesia care unit after achieving discharge criteria.\(^1,2\) Finnemore et al\(^2\) conducted a retrospective cohort study of 411 infants sedated with chloral hydrate for clinical or research magnetic resonance imaging. For the infants who underwent outpatient scans, the median time to discharge after sedation was three hours five minutes. Discharge times ranged from one hour 20 minutes to eight hours 45 minutes.\(^2\) Medications with long half-lives may have a prolonged residual effect, which increases the child’s risk of resedation after discharge and the potential for airway obstruction. It is important for the nurse to assess the patient for the risk of airway obstruction occurring on the ride home.\(^3\) If only one responsible adult is available, the nurse should consider a longer period of observation before discharging the child.\(^3\)

Sedation in children is associated with serious risks for hypoventilation, apnea, airway obstruction, laryngospasm, and cardiopulmonary events.\(^3,4\) These adverse events can occur during or after the diagnostic or therapeutic procedure. The “Guidelines for monitoring and management of pediatric patients during and after sedation for diagnostic and therapeutic procedures,” developed collaboratively by the American Academy of Pediatrics and the American Academy of Pediatric Dentistry,\(^3\) recommend special discharge instructions regarding the prevention of airway obstruction after moderate sedation or analgesia for infants and toddlers riding home in a car safety seat.

### Assessing a child for sleep apnea

**QUESTION:**

How do you determine whether a child has sleep apnea before administering moderate sedation or analgesia?

**ANSWER:**

To determine whether a child has obstructive sleep apnea (OSA), the perioperative RN should perform a risk assessment during the preoperative parent interview.\(^1\) Obstructive sleep apnea is characterized by periodic, partial, or complete obstruction of the upper airway during sleep. Knowing a patient’s risks for OSA is the first step in minimizing complications in the perioperative period.\(^2\)

The American Society of Anesthesiologists’ (ASA) Practice Guidelines for the Perioperative Management of Patients With Obstructive Sleep Apnea\(^2\) recommend a preoperative evaluation that includes a review of the patient’s medical record, an interview with the patient and his or her family, the use of a screening protocol, and the completion of a physical examination. The ASA also recommends developing a protocol in collaboration with the surgeons for evaluating patients with suspected OSA before the day of surgery. Indicators of OSA in children include:

- weight (ie, 95th percentile for age and sex) and
- parental report of
  - intermittent vocalization during sleep,
  - restless sleep,
  - difficulty breathing or struggling to breathe during sleep,
  - night terrors,

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**References**


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o unusual sleep positions,
o new onset enuresis,
o somnolence (eg, appears sleepy during the day, is difficult
to arouse at the usual awakening time),
o easily distracted,
o overly aggressive,
o irritable, or
o difficulty concentrating.

The American Academy of Pediatrics’ (AAP) Clinical Practice
Guideline for Diagnosis and Management of Childhood
Obstructive Sleep Apnea Syndrome\(^3\) lists the following
occurrences as symptoms and signs of OSA:

- frequent snoring (three or more nights per week);
- labored breathing during sleep;
- gasps, snorting noises, or observed episodes of apnea;
- sleep enuresis (especially after six months of continence);
- sleeping in a seated position or with the neck hyperextended;
- cyanosis;
- headaches on awakening;
- daytime sleepiness;
- attention-deficit hyperactivity disorder;
- learning problems;
- underweight or overweight;
- tonsillar hypertrophy;
- adenoidal facies (ie, long face and open-mouth posture);
- micrognathia or retrognathia;
- high-arched palate;
- failure to thrive; and
- hypertension.\(^3\)

The AAP recommends polysomnography for children and
adolescents who snore and present with signs and symptoms of
OSA syndrome. High-risk patients should be monitored as
inpatients postoperatively.\(^3\)

The Pediatric Sleep Questionnaire, developed at the
University of Michigan, can assist in screening for OSA. The
child’s parent completes the questionnaire. The 22 questions
are scored to determine the patient’s risk for OSA and are
similar to the ASA practice guideline indicators and the AAP
clinical practice guideline’s signs and symptoms. For example,
parents are questioned about the child’s snoring and its
amount and the presence of apnea, daytime sleepiness,
morning headaches, and distractibility.\(^4\)

Ishman et al\(^5\) conducted a prospective, single-blinded, observ-

tional study of anesthesia professionals’ preoperative caregiver

interviews at an ambulatory surgery center. The aim of the

study was to assess the frequency of anesthesia professionals’
screening for the signs and symptoms of OSA in pediatric

patients. The study included 101 children and reported that
anesthesia professionals screened only 31% of the children for

OSA. When patients were screened, snoring was the most

commonly recorded symptom (28%). The authors concluded

that anesthesia professionals were not routinely screening

pediatric ambulatory surgery patients for OSA. The patients

with undiagnosed OSA who would benefit the most from

screening were the least likely to be screened.

Resources for developing a screening tool include the ASA

Practice Guidelines for the Perioperative Management of Patients

With Obstructive Sleep Apnea,\(^2\) the AAP’s Clinical Practice

Guideline for Diagnosis and Management of Childhood

Obstructive Sleep Apnea Syndrome,\(^3\) and the Pediatric Sleep

Questionnaire.\(^4,6\)

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References
1. Guideline for care of the patient receiving moderate sedation/

analgesia. In: Guidelines for Perioperative Practice. Denver, CO:
AORN, Inc; 2016:617-647.

2. American Society of Anesthesiologists Task Force on Perioperative

Management of Patients With Obstructive Sleep Apnea. Practice
guidelines for the perioperative management of patients with
obstructive sleep apnea: an updated report by the American Society
of Anesthesiologists Task Force on Perioperative Management of
Patients With Obstructive Sleep Apnea. Anesthesiology. 2014;
120(2):268-286.

3. Marcus CL, Brooks LJ, Draper KA, et al. Diagnosis and manage-

4. Chervin RD, Hedger K, Dillon JE, Pituch KJ. Pediatric sleep ques-
tionnaire (PSQ): validity and reliability of scales for sleep-disordered
breathing, snoring, sleepiness, and behavioral problems. Sleep

5. Ishman SL, Tawfik KO, Smith DF, et al. Screening for pediatric
obstructive sleep apnea before ambulatory surgery. J Clin Sleep

6. Sleep-related breathing disorder scale (SRBD scale), from pediatric
sleep questionnaire, to identify symptoms of obstructive sleep apnea
.umich.edu/technologies/3773/sleep-related-breathing-disorder
-scale-srbd-scale-from-pediatric-sleep-questionnaire-to-identify
23, 2016.
QUESTION:
Why is the use of a frailty index an important assessment measure for surgical patients?

ANSWER:
The use of a frailty index is an important predictor of surgical complications. Frailty, as defined by Fried et al, is a phenotype (ie, the genetically and environmentally determined physical, biochemical, and physiological makeup of an individual) of a patient with decreased physiological reserves to withstand stress. Frailty is associated with older adults who experience a higher risk for falls, disability, hospitalization, and mortality.1

The preoperative identification of older surgical patients at highest risk of postoperative complication increases the surgical team’s awareness of the risks, which provides an opportunity to reduce the patient’s morbidity and mortality.3

A frailty index measures physiological and psychological systems changes and any patient declines.4-6

In a prospective, observational study, Fried et al analyzed data collected by the Cardiovascular Health Study of 5,317 men and women 65 years of age and older to develop and operationalize a phenotype of frailty in older adults. The phenotype of frailty includes three of the following five criteria:

- shrinking (ie, weight loss),
- weakness (eg, reduced grip strength),
- poor endurance and energy,
- slowness, and
- low physical activity levels.1

In a prospective study, Makary et al measured frailty in 594 patients aged 65 years and older undergoing elective surgery to determine whether frailty predicts surgical complications and enhances current perioperative risk models (eg, ASA Physical Status Classification). Using a validated scale, these authors classified frailty on a scale of 1 to 5 indicating classifications that ranged from nonfrail to frail (Table 1). When classifying frailness, they measured the following elements:

- weakness,
- weight loss,
- exhaustion,
- low physical activity, and
- slowed walking speed.5

After making adjustments for known risk indices, Makary et al reported that frailty was an independent predictor of surgical complications. When compared with nonfrail patients, intermediate frail patients had a 2.06 times higher risk of complication and frail patients had a 2.54 times higher risk. Hospital length of stay was 44% to 53% longer for intermediate frail patients and 65% to 89% longer for frail patients compared with that for nonfrail patients. The authors concluded that in older surgical patients, frailty independently predicts postoperative complications, length of stay, and discharge to a skilled or assisted-living facility after previously living at home. When using a standardized definition to assess frailty, the frailty index can provide additional information to help physicians make more accurate predictions and help patients make more informed decisions.5

In a prospective evaluation of 351 adult patients undergoing major intra-abdominal surgery requiring hospitalization, Revenig et al analyzed the components of the Fried Frailty Criteria (Table 2), traditional surgical risk assessments, biochemical laboratory values (eg, albumin concentration, serum creatinine concentration, platelet count, hemoglobin concentration), and clinical and demographic data to create a simplified risk assessment. The aim of the study was to create a risk assessment and frailty score more applicable to a busy clinical setting and still maintain its predictive ability for surgical outcomes. The authors identified outcome measures as

- postoperative complications within 30 days of surgery,
- the occurrence of any major complication or mortality, and
- discharge to a nursing care facility.8

The authors’ data demonstrated that using only two components of the Fried Frailty Criteria (ie, a weight loss of 10 pounds or more in the past year and poor grip strength) in addition to the already-collected variables of the ASA Physical Status Classification
Classification score and hemoglobin concentration gave improved predictive information over assessing the full five components of the Fried Frailty Criteria. The time required to capture weight loss and grip strength was one minute or less, reducing disruption and undue burden on the busy surgical clinic.8

In a retrospective cohort analysis, Cohen et al3 reviewed patient charts to determine whether readily collected perioperative information could identify older surgical patients at higher risk for complications. The study population was a convenience sample of 102 patients aged 65 years and older undergoing abdominal surgery. The authors abstracted a preselected set of variables from medical records into an electronic database. One set of variables selected was the Braden Scale score, which they chose because it is a validated tool to assess the risk of developing a pressure ulcer.9 The Braden Scale includes measures of the following six domains:

- sensory perception and communication,
- skin moisture,
- activity,
- mobility,
- nutrition, and
- skin friction and shear.9

The authors abstracted the patient’s first Braden Scale score after surgery, which was documented by the patient’s nurse within 24 hours of surgery. The authors scored each domain separately and combined them for a total score ranging from 6 to 23. A lower score correlates to a higher risk of a pressure ulcer. Their analysis demonstrated that a decreasing Braden Scale score was associated with postoperative complications and a score of 18 or less had the optimum ability to predict a complication.3 The authors concluded that the Braden Scale may identify the older adult at the highest risk of postoperative complication. The six domains characterize many aspects of frailty syndrome, including poor cognition, weakness, sense of exhaustion, and weight loss. Although this study analyzed the usefulness of the postoperative Braden Scale score, using the Braden Scale preoperatively also may be useful for assessing older adults’ surgical risk. The advantages of using the Braden Scale are its ease of use, nurse familiarity, and no additional cost.3

Any person aged 65 years or older will experience age-related declines in physical functioning and changes in health that are unrelated to disease. From 2002 to 2012, there was a 21% increase in the older adult population (ie, from 35.5 million to 43.1 million) with the prediction that these numbers will increase to 79.7 million by 2040.10,11 In 2009, more than half of all surgical procedures were performed on older adults,12 and it is predicted that these figures will increase by 45% to as much as 600% by 2030, depending on the type of surgery.13 As the older adult population continues to increase, the number of surgical procedures performed on older adult patients will increase.8 It is important for caregivers to understand that older adults scoring higher on the frailty index are at greater risk for surgical complications, longer hospital stays, discharge to a nursing home or an assisted-living facility, hospital readmission, and death.5,14,15

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Determining the need for IV access in patients undergoing local anesthesia

QUESTION:
Does a patient undergoing a procedure using local anesthesia need IV access established preoperatively?

ANSWER:
The perioperative RN should determine, based on the preoperative patient assessment, the type of procedure, and the health care organization’s policy, the necessity of IV access during the procedure. For a patient receiving local anesthesia to undergo an operative or other invasive procedure, the perioperative RN should use clinical knowledge, judgment, and clinical-reasoning skills based on scientific principles to plan and implement nursing care to address the physical and psychologic responses of the patient.

The “Guideline for care of the patient receiving local anesthesia” recommends that the perioperative RN perform a preoperative nursing assessment of the patient who will receive local anesthesia. The comprehensive preoperative nursing assessment includes a review of the patient’s age; allergies and sensitivities (eg, medications, tape, latex); height, weight, and body mass index; current medications and use of alternative/complementary therapies; NPO status; medical history (eg, history and physical examination, progress note); laboratory test results; diagnostic test results; baseline cardiac status (eg, heart rate, blood pressure); baseline respiratory status (eg, rate, rhythm, blood oxygen level); baseline skin condition for integrity (eg, rash, breaks, ecchymosis); baseline neurologic status; sensory impairments (eg, visual, auditory); ability to tolerate the required operative position with draping for the duration of the procedure; level of anxiety;

References

Resource
level of pain; perceptions of surgery; and need for IV access.

The health care organization’s policy and procedure may require an IV on all patients as a precautionary measure in the event an untoward reaction (eg, allergic response, local anesthetic systemic toxicity) to the local anesthetics occurs. The decision to have established IV access during a procedure with local anesthesia is multifactorial and should be based on the patient’s assessment, type of procedure, and the health care organization’s policy.

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References
LEARNER EVALUATION

Continuing Education: Clinical Issues 1.3

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This evaluation is used to determine the extent to which this continuing education program met your learning needs. The evaluation is printed here for your convenience. To receive continuing education credit, you must complete the online Learner Evaluation at http://www.aornjournal.org/content/cme. Rate the items as described below.

PURPOSE/GOAL
To provide the learner with knowledge of AORN’s guidelines related to assessing discharge risks for infants and toddlers who have undergone moderate sedation, assessing a child for sleep apnea, using a frailty index to assess surgical patients, and determining the need for IV access in patients undergoing local anesthesia.

OBJECTIVES
To what extent were the following objectives of this continuing education program achieved?
1. Discuss practices that could jeopardize safety in the perioperative area.
   Low 1. 2. 3. 4. 5. High
2. Discuss common areas of concern that relate to perioperative best practices.
   Low 1. 2. 3. 4. 5. High
3. Describe implementation of evidence-based practice in relation to perioperative nursing care.
   Low 1. 2. 3. 4. 5. High

CONTENT
4. To what extent did this article increase your knowledge of the subject matter?
   Low 1. 2. 3. 4. 5. High
5. To what extent were your individual objectives met?
   Low 1. 2. 3. 4. 5. High
6. Will you be able to use the information from this article in your work setting?
   1. Yes 2. No
7. Will you change your practice as a result of reading this article? (If yes, answer question #7A. If no, answer question #7B.)
   7A. How will you change your practice? (Select all that apply)
       1. I will provide education to my team regarding why change is needed.
       2. I will work with management to change/implement a policy and procedure.
       3. I will plan an informational meeting with physicians to seek their input and acceptance of the need for change.
       4. I will implement change and evaluate the effect of the change at regular intervals until the change is incorporated as best practice.
       5. Other: __________________________________
   7B. If you will not change your practice as a result of reading this article, why? (Select all that apply)
       1. The content of the article is not relevant to my practice.
       2. I do not have enough time to teach others about the purpose of the needed change.
       3. I do not have management support to make a change.
       4. Other: __________________________________
8. Our accrediting body requires that we verify the time you needed to complete the 1.3 continuing education contact hour (78-minute) program: ______________