continuing education

Patient Care After Discharge From the Ambulatory Surgical Center

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An important and often forgotten aspect of postoperative care occurs after the patient is discharged from the ambulatory surgical center. With more than 60% of all surgeries and procedures occurring on an ambulatory basis, what happens after the patient is no longer in continuous professional care is of concern to the ambulatory nurse. Numerous physical postoperative complaints are common and expected sequelae of anesthesia and surgery in the ambulatory patient. In this article, important postdischarge complications are reviewed and contemporary management options discussed. The information contained in this review article is valuable to the provider in educating patients regarding their anticipated course of postoperative recovery.

Objectives—Based on the content of this article, the reader should be able to (1) identify important postdischarge complications to provide patients with comprehensive discharge instructions regarding their continued recovery at home; (2) discuss contemporary management options available to treat postdischarge complications; (3) realize the incidence of specific postdischarge complications and how that relates to patient satisfaction with the surgical experience; (4) recognize signs and symptoms of postdischarge complications; and (5) identify risk factors of patients for developing specific complications in the postoperative phase.

AMBULATORY SURGICAL care has become an accepted part of the health care network in the United States and throughout the developed countries of the world. A substantial cost savings to the institution can be realized when an effective ambulatory care service is offered. Integral to the cost savings is the role of discharging patients from the surgical facility to recuperate at home. This must be accomplished in a secure, dependable, and convenient manner. Patients now accept the con-

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cept of going home after surgery as being the norm, and in most instances do better at home than if admitted overnight to the hospital. Nearly all patients (more than 95%) who undergo an ambulatory surgical procedure come away satisfied and are willing to repeat the experience.[1-3] Anytime a patient is exposed to a surgical procedure or anesthetic experience, the potential for a postoperative complication arises. Patients are now expected to assume responsibility for monitoring their postoperative care, and thus require knowledge pertaining to the avoidance and management of likely complications.

PHASES OF AMBULATORY SURGICAL RECOVERY

Traditionally, the postoperative flow of patient care mandates that the patient receive a period of traditional recovery in the Phase I PACU (see "Fast-Tracking After Ambulatory Surgery" by Watkins and White, pp 379-387, in this issue). Once the patient has recovered sufficiently from the initial influences of anesthesia, the necessity for this level of intensive observation is lessened, and patients are cared for in the step-down area of recovery called Phase II. This is the final evaluation phase in preparation for the patient to be discharged. The period of patient recovery after discharge from the ambulatory facility until resumption of normal activities (eg, return to work) is termed *Phase III*. To provide the patient and caregiver with the best of care in Phase III, certain strategies of patient care are necessary (Table 1).

The ability to perform surgery on select patients and have them discharged to a remote recovery location, typically the patient's home, owes its safety and success in part to extensive research that has been performed in recent years. Literally, thousands of articles have been published to educate those involved in ambulatory surgical care on methods to become more efficient in caring for the patient. The majority of research relative to improving ambulatory patient care has centered on the times patients are in Phase I or Phase II recovery areas. Unfortunately, after patients are released from Phase II to continue their convalescence at a remote location, they are more commonly ignored regarding their welfare. This situation is somewhat analogous to the phrase, "out of sight, out of mind." Are we assuming that patients are doing well immediately after discharge, when in fact they may not? Very little research has targeted Phase III of postoperative patient care, but research is projected to be concentrated in this portion of ambulatory surgical care.[4]

Table 1. Goals of Phase III Patient Care

- *To promote patient satisfaction* by minimizing disruptive influences associated with the patient's postoperative convalescence.
- *To optimize quality patient care* such that patients can be safely and efficiently discharged from the facility.
- *To educate patients and caretakers* regarding the anticipated recovery process, thus facilitating patient participation and compliance with postoperative care.
- *To provide information* regarding the prevention, early recognition, and management of potential complications.

Data from Marley RA, Moline BM: Patient discharge issues, in Burden N, DeFazio Quinn DM, O'Brien D, et al (eds): Ambulatory Surgical Nursing (ed 2). Philadelphia, PA, Saunders, 2000, p 505.

POSTDISCHARGE INSTRUCTIONS

Ambulatory patients express several concerns regarding their postdischarge care. These issues include (1) whether they will be discharged too soon, (2) concerns about their condition deteriorating after they are discharged, (3) getting adequate rest, (4) becoming a burden on their family members, and (5) apprehension about managing postoperative complications (eg, pain or postoperative nausea and vomiting [PONV]).[5] Written and verbal instructions pertaining to the anticipated home care required must be provided and made clear to outpatients. Educated and acquiescent patients, relative to their anticipated Phase III care, are integral to the success and safety of ambulatory surgery. Ambulatory facilities typically provide the patient with typed, written instructions that are procedure and patient specific. Certain discharge instructions may be appropriate for the majority of situations and are listed in Table 2.

POSTOPERATIVE SYMPTOMS

Up to 86% of all outpatients report minor complications after surgery and anesthesia.[6] The more common postoperative complications reported by outpatients after being discharged home include drowsiness, sore throat, muscle aches, vomiting (the most undesirable outcome),[7] pain, and headache. These symptoms are gone after the third postoperative day in nearly 90% of ambulatory surgical patients.[6]

Table 2. Key Education Points for Discharge Instruction

Medications
- Note the name, purpose, and dosage schedule for each medication; emphasize the importance of following the directions on the label.
- The patient should resume medications taken before surgery per the physician's order.
- If pain medication is not prescribed, nonprescription, nonaspirin analgesics (eg, acetaminophen, ibuprofen) may be effective for mild aches and pains.
- The physician may order additional pain medication after surgery. The patient should take these medications as directed, preferably with food to prevent gastrointestinal upset.

Activity restriction
- Advise the patient to take it easy for the remainder of the day after surgery. Dizziness or drowsiness is not unusual after surgery and anesthesia.
- For the next 24 hours, the patient should not
  Drive a vehicle or operate machinery or power tools.
  Consume alcohol, including beer.
  Make important personal or business decisions or sign important documents.
- Activity level: in specific behavioral terms (eg, do not lift objects heavier than 20 lb), describe any limitation of activities.

Diet
- Explain any dietary restrictions or instructions.
- If no dietary restriction exists, instruct the patient to progress as tolerated to a regular diet.

Surgical and anesthesia side effects
- Anticipated sequelae of surgery (eg, bleeding and pain) should be delineated.
- Common side effects associated with anesthesia include dizziness, drowsiness, myalgia, nausea and vomiting, or sore throat.

Possible complications and symptoms
- Instruct the patient and responsible caretaker in pertinent signs and symptoms that could be indicative of postoperative complications.
- The patient should call the responsible physician if he or she develops
  Fever $>$ 38.3°C (101°F) orally.
  Persistent, atypical pain.
  Pain not relieved by medication.
  Bleeding or unexpected drainage from the wound that does not stop.
  Extreme redness or swelling around the incision site or drainage of pus.
  Urinary retention.
  Continual nausea or vomiting.

Treatment and tests
- Procedures that the patient or responsible caretaker is expected to perform (eg, dressing changes or the application of warm moist compresses) should be described in detail.
- A complete list of necessary supplies should be included.
- If any postoperative tests are to be conducted, instructions as to the date, time, test location, and any previsit preparation should be listed.

Access to postdischarge care
- Note the telephone number of the responsible and available physician.
- Include the telephone number of the ambulatory center and the hours of operation.
- Note also the name, address, and telephone number of the appropriate emergency care facility.

Follow-up care
- Identify the date, time, and location of the patient's scheduled return visit to the clinic or surgeon.

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It is important to make the patient aware of possible side effects of the surgical procedure and anesthesia. One study found that 17% of the patients were not adequately informed of the potential complications they might experience after surgery.[8] Even before surgery, patients and those committed to their postoperative care should be informed as to what to expect in terms of a normal recuperative pathway, postoperative side effects, and follow-up care. Almost half of ambulatory patients reported feeling worse after surgery and anesthesia than what they had expected.[9] Greater than 60% of outpatients required 3 days of recuperation before they were able to resume their

usual daily activities.[6] It is important to convey to patients that it will take several days before they begin to feel as they did before surgery. The surgeons and staff should be cautioned not to build on the expectations of the patients about feeling normal the day after surgery.

POSTDISCHARGE PHYSICAL COMPLAINTS

Numerous side effects of surgery and anesthesia may become apparent before the patient is discharged from Phase II. It is expected that the nurse responsible for preparing the patient for discharge be knowledgeable in educating the patient and caretakers as to appropriate management strategies in coping with these minor sequelae. Information contained in this section is also beneficial to the nurse while communicating with the patient during the follow-up telephone call, and enable the nurse to offer assistance and guidance once the patient is home.

Surgical Discomfort

Persistent postoperative pain remains a concern in the ambulatory setting and is a major factor in delayed discharge and unanticipated hospital admissions after surgery.[10] Surgically induced pain is a common report, occurring in up to 80% of patients after ambulatory surgery, [11] and may last for up to 7 days postoperatively.[5] Severe pain is reported in over 5% of ambulatory surgical patients at 24 hours postoperatively.[12] Enhancing patient comfort while convalescing from surgery remains a top priority and one that the medical community can improve.

The goal of postoperative pain management is to have a comfortable patient who is free of analgesic side effects, eg, nausea and vomiting, somnolence, and ventilatory depression. Effective pain management begins with the preoperative education of the patient and family. Patients should be counseled as to strategies (eg, regional anesthesia, local wound infiltration, and analgesic protocols for use at home) that will be used in their care to reduce postoperative pain.[13] Careful patient evaluation of pain management effectiveness in the postoperative setting includes pain assessment evaluation, knowing the surgical procedure, and the analgesic requirement of the patient in recovery Phases I and II (Table 3).[11,12] In those patients who are at high risk for surgical discomfort, prophylactic pain management should be incorporated as part of their care plan. By minimizing postoperative pain, patients will recover quicker and be ready for discharge in a timelier manner. A multimodal analgesic strategy should be used whenever appropriate to minimize side effects attributable to any one category of analgesics (eg, reducing opioid use will reduce the chance of nausea and vomiting, somnolence, constipation, or ventilatory depression). Opioid analgesics may be required in the management of moderate to severe pain for the first postoperative days. The total amount of opioid administered can be reduced if a nonopioid analgesic (eg, ketorolac or acetaminophen) is concurrently administered.[14] In addition to adding the nonsteroidal anti-inflammatory drugs (NSAIDs) to the pain management protocol, local wound infiltration with long-acting local anesthetics and peripheral nerve blocks for residual analgesia should be in-

Table 3. Surgical Discomfort

Incidence: overall 80%; severe in 5%.
Signs and symptoms
- Self-reported pain
- Physiologic signs: tachycardia, hypertension, tachypnea
- Nonverbal behavior: simple motor responses (eg, limb withdrawal, frequent changing of position), facial expressions (eg, brows down and together, nasal root broadened and bulged, eyes tightly closed, and mouth angular and squarish), crying, grimacing

Risk factors
- Type of surgery: orthopedic, urologic, general, plastic, ENT, dental
- Gender: male
- Anesthesia time more than 90 minutes

Management
- Patient education:
  Expectations in terms of pain and pain relief
  Explicit instructions regarding analgesic medication intake, including dose adjustment for breakthrough pain, drug side effects, and drug efficacy reassessment
- Preemptive approaches
  Wound infiltration with long-acting local anesthesia (eg, bupivacaine) at the end of the procedure
  Administer analgesics before pain becomes established
- Take-home analgesia protocol
  Opioid analgesics
  Nonopioid analgesics (eg, NSAIDs)
  Local anesthesia infusion therapy
- Nonpharmacologic interventions
  Positioning for comfort
  Cryotherapy
  RICE for skeletal injuries
  Transcutaneous electrical nerve stimulation

Abbreviations: ENT, ears, nose, and throat; NSAIDs, nonsteroidal anti-inflammatory drugs; RICE, rest, ice, compression, elevation.

cluded because this will also reduce the opioid analgesic requirements. The multimodal approach to postoperative pain control affords the patient the best available measures to manage surgical discomfort with the least potential for side effects.

Nausea and Vomiting

In spite of the availability of medications to control emesis, PONV persists as a common disorder in today's outpatient surgery setting.[15] It is the primary reason for delays in discharging patients to the Phase III location,[16] and a principal factor in unanticipated hospital admissions.[17,18] Patient vomiting continues to be an important management issue in the Phase III setting. Approximately 20% of patients undergoing general anesthesia in the ambulatory setting vomit after discharge to home from the Phase II unit.[19-26] Of the patients who vomit in Phase I or II recovery, nearly 50% of them will continue vomiting after they are discharged home.[25] Patients experiencing PONV at home are likely to take an additional one or more days before returning to work or resuming normal activities.[20] Fortunately, postoperative emesis usually resolves within 24 hours; the patient and caretakers should be offered reassurance that it is self-limiting. Management of postoperative vomiting centers around the avoidance of its occurrence and the prevention of dehydration (Table 4).[27,28]

Dexamethasone is effective in reducing the incidence of PONV[29-35] and reducing time until discharge in the ambulatory surgical patient.[36] The possible mechanism of action for dexamethasone in preventing PONV has been theorized to be secondary to its anti-inflammatory properties and resultant decrease in prostaglandin release,[37] or by a reduction in serotonin release from the gut.[38] The incidence of vomiting in Phase III is reduced if dexamethasone is administered during the surgery.[39] This beneficial effect could be secondary to its long duration of action.

All of the commonly administered opioids can induce vomiting. Some points regarding opioid use in Phase III that should be communicated to the patient include the following:

- Efforts to reduce opioid usage (eg, substituting NSAIDs) should be promoted.
- Opioids increase vestibular sensitivity to motion, which may evoke emesis. Minimizing motion in patients prone to nausea after opioid intake should help allay the symptoms. When motion is necessary, it should be slow and smooth.
- Patients should be counseled not to take oral opioids on an empty stomach.
- If vomiting occurs as a result of a particular

Table 4. Nausea and Vomiting

Incidence: 7% to 28%
Signs and symptoms
- Feeling queasy
- Abdominal cramping
- Diaphoresis

Risk factors
- Motion
- Oral intake
- Opioid analgesics
- Uncontrolled pain
- Certain procedures, eg, ovum retrieval, orchiopexy, otoplasty, retinal detachment, tonsillectomy, strabismus.

Management
- Preventative measures
  - Take opioid analgesics with food.
  - Minimize opioid analgesic use; substitute with NSAID when appropriate.
  - Do not force patients to drink until they wish to drink.
  - Avoid eating or drinking for 2-4 hours once the nausea has passed.
- Prevent dehydration
  - Start with ice chips or small sips of weak tea, clear soda (Seven-Up [Dr. Pepper/Seven Up Inc, Plano, TX] or Sprite [Coca Cola Co, Atlanta, GA]), Pedialyte (Ross Products Division, Abbott Laboratories, Columbus, OH), or Rehydralyte (Ross Products Division, Abbott Laboratories), broths, or noncaffeinated clear sports drinks every 15 to 30 minutes. Large amounts of fluid could cause vomiting.
  - Consume 2 to 4 quarts of liquid per day, taking frequent, small sips.
- If vomiting does not reoccur, add semisolid and low-fiber foods gradually but stop eating if the vomiting returns. Try a bland diet, soda crackers, gelatin, ice pops, cereal, toast, eggs, rice, or chicken, for the next 24 hours.
- Avoid dairy products, caffeine, alcohol, nicotine, or fatty or highly seasoned foods if nausea persists.
- Minimize motion
- Control postoperative pain
- Antiemetic drug therapy, eg, promethazine suppositories
- Contact responsible party (eg, surgeon) if patient is unable to drink anything for 24 hours, or if a child exhibits the following signs of dehydration
  - Has not had a wet diaper in 8 hours (4-5 hours in an infant)
  - Has a dry mouth or cries without tears
  - Is unusually sleepy or drowsy or unresponsive

opioid, consider changing to another opioid in the hopes that the alternate opioid will not contribute to vomiting.[40]

Prophylactic drug intervention may be required for patients who are at high risk for PONV. Additionally, these patients should have antinausea medication (tablets or suppositories) available if vomiting continues at home.

Acute Insomnia

Acute, transient insomnia is defined as poor sleep associated with a specific life event (eg, having surgery) that resolves when the occasion passes or within a period of a few days to 3 weeks after the event.[41] Acute insomnia occurs in 50% of postoperative patients,[42] and remains a problem after the patients have been discharged home.[43] Certain risk factors have been identified that place the postoperative patient at greater risk for sleep difficulties (Table 5).[44] Often, the postoperative patient who is unable to sleep exhibits irritability, daytime somnolence, anxiety, impaired concentration, or impaired memory (may be attributed to analgesics), all of which are signs of sleep deprivation. These clues to the presence of insomnia may be apparent to the caretakers but not to the patient. It is important to be aware of this condition and be prepared to counsel the patient about measures to promote better sleep.

There are several recommendations to promote sleep that should be communicated to the patient. Measures such as (1) promoting a quality sleep environment (eg, dark, quiet room), (2) minimizing distractions (eg, pain, urge to void, heartburn), and (3) maintaining a consistent sleep routine (eg, hot bath before bed, going to bed at a consistent time, awakening at same time) are important for promoting good sleep habits.

Patients who are unable to sleep often seek useless or possibly unsafe treatments (eg, alcohol or over-the-counter medications) to help them sleep.[44] Melatonin has been recommended as a sleep aid for elderly patients,[45] and might be considered for those exhibiting sleep disruption because low levels have been observed postoperatively in this population.[46] Because acute insomnia is directly related to a known causative event (in this circumstance it is surgery), short-term management with a benzodiazepine (eg, triazolam, temazepam) or hypnotics that have a benzodiaz-

Table 5. Acute Insomnia

Incidence
- 50%—difficulty falling asleep
- 77%—night awakenings

Signs and symptoms
- Somnolence
- Anxiety
- Impaired concentration
- Impaired memory
- Irritability

Risk factors
- Psychiatric/psychological
  - Excess stress (eg, concerns over loss of work, permanent disability)
  - Anxiety
  - Depression (poor health, decreased activity)
  - Boredom
- Medical
  - Pain
  - Chronic medical conditions, eg, COPD, arthritis
  - Female
  - Age $>$ 65 yrs
- Medication related
  - Stimulating medications, eg, corticosteroid, caffeine
  - β-Antagonists
  - Alcohol use
  - Opioids
  - Withdrawal from sedatives
- Poor sleep hygiene
  - Lack of exercise
  - Irregular times for sleeping and waking
  - Long time in bed

Management: Counsel patient to
- Control pain by timing analgesics, if necessary, prior to sleep
- Restrict fluids before bed
- Avoid heavy meals at least 3 hours before bedtime
- Avoid heartburn caused by tomato products, spicy foods, and too much food
- Maintain ideal room temperature and humidity
- Keep bedroom dark
- Minimize noise disturbance
- Engage in bedtime rituals, eg, hot bath, calming music
- Exercise as appropriate at least 3 hours before bedtime
- Avoid excessive napping in the afternoon or evening; limit to 20-30 minutes
- Use bed only for sleep, when appropriate
- If unable to sleep within 30 minutes, get out of bed and stay up till sleepy
- Establish a regular bedtime and waketime schedule
- Avoid caffeinated drinks (at least 6 hours before bedtime), alcohol (at least 2 hours before bedtime), and nicotine

Abbreviation: COPD, chronic obstructive pulmonary disease.

epine-like action (eg, zolpidem [Ambien; G.D. Searle and Co, Chicago, IL]) may be reasonable to promote sleep.[41] When recommending medications to improve sleep in the postoperative patient, the patient's overall health status and concurrent medications (eg, opioids) should be considered before making recommendations.

Urinary Retention

Acute postoperative urinary retention is the inability to urinate, which can lead to pain and discomfort. The reported incidence of problematic urinary retention after ambulatory surgery and anesthesia varies from 0.5% in low-risk patients to 5% in high-risk patients.[47,48] Of the 5% high-risk patients who were unable to void before discharge, 25% had voiding problems after discharge that required return to care and continuous catheter drainage. Other recent studies have reported higher incidences (18% to 38%) of difficulty voiding after skeletal surgeries.[49,50] Once the patient is discharged from the ambulatory facility, it becomes necessary to rely on the patient or caretaker to help observe for urinary retention.[51] The full, often distended bladder may be palpated above the symphysis pubis, or a patient's subjective experience of discomfort and urge to void may be the presenting symptoms.[51,52] Most patients sense an urge to void when the bladder volume reaches 150 mL. Once this volume reaches 400 mL, patients begin to experience discomfort.[52] The patient recovering in Phase III may be somewhat obtunded from the effects of opioid analgesics and unaware of acute bladder distension.

The cause of postoperative urinary retention may be attributable to several surgical- and anesthesia-related factors. Surgical contributions lending to the inability to void postoperatively include the following (Table 6):

- The type of surgery performed: certain surgical procedures have a higher incidence of urinary retention (eg, anorectal, inguinal herniorrhaphy,[53,54] urologic,[55] and major gynecologic[56,57]). Gynecologic procedures suitable for ambulatory surgery do not seem to place the patient at increased risk for voiding difficulty.[47]
- Irritation to the pelvic nerves and/or the bladder.[48,54]
- Bladder overdistention secondary to a large amount of intravenous fluids.[48] Limiting the total amount of perioperatively administered intravenous fluids to less than 1,200 mL has been advocated for high-risk procedures (eg, inguinal herniorrhaphy).[47,58] Liberalized intravenous fluids in low-risk patients do not increase the incidence of urinary retention.[47]
- Postoperative bladder neck edema.[48,54]
- Pain- or anxiety-induced reflex spasm of the internal and external urethral sphincters.[48,54]

Table 6. Urinary Retention

Incidence
- Low risk—0.5%
- High risk—5% (25% reoccurrence after discharge)

Signs and symptoms
- Suprapubic pain
- Restlessness; agitation
- Feeling of fullness in lower abdomen
- Palpable bladder
- Increased sympathetic activity
- Urge to void, inability to void

Risk factors
- Type of anesthesia: spinal or epidural
- Surgical procedures: genitourinary, major gynecologic, perianal, inguinal herniorrhaphy
- History of perioperative urinary catheterization
- History of urinary retention

Management
- Low-risk patient
  - May have been discharged from Phase II without voiding.
- High-risk patient
  - If unable to void before discharge, should have been catheterized and bladder drained.
  - Residual catheterization may be required of patients who experience urinary retention after discharge.
- Precautions with spinal anesthesia
  - Use short-acting local anesthetic
  - Reduce total dosage of local anesthetic
  - Add fentanyl to local anesthetic
  - Omit epinephrine
- Instruct patient to contact responsible party if unable to void within 8 to 12 hr after discharge. Time to contact will be individualized.
- Provide follow-up communication to confirm voiding ability in high-risk patients.

The type of anesthesia and the anesthetic agents used also influences the incidence of transient urinary retention:

- Spinal anesthesia is associated with a higher incidence of micturition dysfunction than epidural,[53,59] general,[59] or local anesthesia.[60,61] (See *Urinary retention* under *Regional Anes-*

thesia Issues section, discussed later in the article.)

- Certain anesthetic agents (eg, barbiturates [diminishes urge to void, relaxes detrusor muscle, reduces intravesical pressure, increases bladder capacity]; opioids [diminishes urge to void]; anticholinergics [inhibits bladder contraction]; and inhalation agents [reduces intravesical pressure, increases bladder capacity]) may contribute to postoperative urinary retention.[52,54] (The type of opioid used for postoperative analgesia influences urinary retention. The incidence of urinary retention is lower with fentanyl than morphine.[62,63] Intravenous administration of opioids is associated with a greater incidence of urinary retention than if administered intramuscularly.[50,64])

Nonsurgical- or anesthesia-related risk factors for the occurrence of urinary retention include the following:

- Previous history of difficulty voiding.[65]
- Perioperative urinary catheterization has been found to increase the patient's risk of voiding difficulty,[49] but this has not been supported with other investigations.[47] The inability to void after intraoperative catheter placement and urinary drainage may be attributable to insufficient volume of urine in the bladder postoperatively.[53]
- Advanced age.[48-50,54] Men under the age of 35 years are less likely to have problems with voiding postoperatively.[59]
- Male patients.[50,54,59]
- Preoperative use of β-adrenergic blocking agent.[49]

Certain measures can be undertaken to minimize inhibitory forces to voiding. Conservative measures to promote micturition include the following:

- Encourage patients to attempt to void. Suggest that catheterization may be necessary if they are unable to void.
- Provide a quiet environment: instruct the patient or caretaker to provide a private, relaxed setting.
- Promote relaxation of the urethral sphincter by audibly running water in the patient's room, or provide warm water in which the patient can place his/her hand. Hot or cold baths may prove beneficial.
- Encourage early sitting, standing, or ambulation as soon as possible.[54]
- Minimize postoperative discomfort. Pain can increase urinary sphincter tone, promoting urine retention.
- Limit opioid use by adding NSAIDs (eg, ketorolac) to the analgesic protocol.[66-69] Ketorolac 60 mg, either intravenously or injected with a local anesthetic agent for wound infiltration, has been shown to reduce the time until voiding.[70]
- Instruct the ambulatory patient or caretaker as to the specific time interval (eg, 8 to 12 hours) in which the patient should void before seeking assistance.[47]
- Before the high-risk patient is discharged, in-and-out catheterization may be required for patients unable to void or with severe retention symptoms. An indwelling catheter is required overnight with the reoccurrence of urinary retention. Self-catheterization in the Phase III setting is an option for patients at high-risk for postoperative urinary retention.[71]

Parasympathomimetic drugs (eg, carbachol) have been administered to increase detrusor muscle tone and encourage micturition.[65,72] Interestingly, carbachol has been found to be ineffective in preventing postoperative urinary retention.[73,74]

Acute Constipation

Constipation is defined as either the infrequent (less than 3 defecations per week) passage of small, hard, dry feces or as subjective symptoms of defecatory dysfunction (eg, incomplete evacuation or excessive straining).[75,76] Constipation is reported to be moderate or severe in as high as 20% of the general population.[77] Postoperatively, patients are susceptible to constipation as a result of (1) dietary modification (eg, fasting before or after the surgery); (2) surgical influences (eg, manipulation of the bowel); (3) surgical- or anesthetic-imposed alteration in normal level of physical activity; (4) environmental factors (eg, surgical schedule interferes with timing of patient's urge to defecate); (5) relative dehydration secondary to postoperative fever or vomiting; and (6) side effects of perioperatively administered medications (eg, opioids) (Table 7).[75,76,78,79] When considering the clinical course, prevention of constipation is better than the cure. Proper dietary instructions

Table 7. Acute Constipation

Incidence: approximately 50%

Signs and symptoms
- Abdominal and rectal pain
- Flatulence, nausea and vomiting
- Fecal incontinence and overflow diarrhea
- Anorexia, lassitude, and depression
- Restlessness and confusion

Risk factors
- Age >65 years
- Gender: female
- Dietary factors: low caloric intake, low dietary fiber, reduced fluid intake
- Anorectal pain: postoperative hemorrhoidectomy or anal fissurectomy
- Inactivity
- Medication related
  - Opioids
  - Antidepressants
  - Anticonvulsants
  - Anticholinergic agents
  - Sympathomimetics
  - Diuretics
  - Antihistamines
  - 5-HT_3 antagonists, eg, ondansetron, dolasetron
  - Antacids
  - Nonsteroidal anti-inflammatory agents

Management
- Increase dietary fiber (20 to 35 g daily); reduce sugar and fat intake
- Increase fluid intake: 6 to 8 glasses of water daily, fruit juices (prune, orange), vegetable soup
- Reduce use of analgesics when possible
- Increase activity level when possible, eg, walking a few miles daily
- Maintain normal bowel routine: devote 15 to 20 min for defecation, preferably in the mornings or within 30 minutes after completing meal
- Mild laxatives when indicated

before the patient's discharge from Phase II is important for the patient at risk for postoperative constipation. Several recommendations for the management of postoperative constipation (eg, increasing activity, increasing dietary fiber intake, increasing hydration) have not undergone controlled studies to validate the beneficial assumptions.

A reduction in caloric intake, which might occur postoperatively secondary to nausea, increases the likelihood of constipation.[75] Inadequate fiber and fluid intake are commonly reported reasons for constipation,[78] and may contribute to its occurrence postoperatively. Gradually increasing dietary fiber intake (eg, whole wheat bread, bran cereal, fruits, and vegetables) is recommended to help prevent or treat the occurrence of constipation,[79,80] even though scientific validation has not shown low fiber intake to be associated with constipation.[75] The patient should take sufficient amounts of water, 6 to 8 glasses per day, when increasing dietary fiber intake. Similarly, although instructing patients that increasing fluid intake postoperatively is important, extra fluid intake has not been shown to benefit constipation in normal healthy subjects[81] or in constipated nonsurgical children.[82] Postoperative constipation involves unique circumstances that distinguish it from constipation in the nonsurgical population and has not been thoroughly investigated. An assumption might be made that the postoperative patient is at risk for relative dehydration secondary to a number of perioperative influences (eg, fever, vomiting, or reduced appetite).

Opioid analgesics reduce gut motility and reduce intestinal secretion, which lead to constipation.[83,84] The incidence of constipation approaches 60% in patients receiving opioid therapy.[83] Increasing the patient's physical activity helps increase whole-gut transit time. Adequate hydration is important because a consequence of opioid analgesic therapy is a reduction in intestinal secretion. Initially, a saline laxative such as milk of magnesia may be recommended if other management options (eg, hydration, fiber, exercise) have been unsuccessful.[77] Frequently patients taking opioids will require a combination of a stimulant laxative (eg, bisacodyl [Dulcolax; Boehringer Ingelheim Pharmaceuticals Inc, Ridgefield, CT]) and a softener (eg, docusate sodium [Colace; Shire US, Inc, Florence, KY]) or hyperosmolar agent (eg, sorbitol or lactulose) to treat constipation.[78]

Opioid antagonists (eg, naloxone, naltrexone, and methylnaltrexone) are effective in decreasing the incidence of opioid-induced constipation.[85-90] Oral preparations of naloxone[86,90] and methylnaltrexone[87,91] have been shown to be effective in preventing opioid-induced constipation without impairment of antinociception. Although naloxone is effective in treating constipation, it can be at the expense of analgesia because naloxone crosses the blood-brain barrier. Latasch et al reported a 15% reduction in analgesic effect after naloxone administration, which was effectively managed by increasing the opioid dose.[90] Methylnaltrexone is a peripheral opioid receptor antagonist capable of reversing peripherally mediated gastrointestinal

opioid influences (eg, delayed gut transit time); however, because it is a quaternary ammonium compound, it does not cross the blood-brain barrier and reverse analgesia.[85]

Myalgia

Muscle aches occur in up to 64% of patients after surgery and anesthesia.[6] Succinylcholine, a short-acting depolarizing muscle relaxant, has received the most attention as contributing to postoperative myalgia even though recent evaluations have found a similar incidence of muscle soreness when nondepolarizing muscle relaxants are used in place of succinylcholine.[92-94] Fasciculations associated with succinylcholine may add to the postoperative muscle pain.[95] Muscle soreness typically lasts 1 to 2 days, but may last for up to 5 days.[96] Treatment is supportive (eg, bed rest, analgesics), based on the symptoms the patient exhibits.

It is important to recognize that factors other than the use of muscle relaxants (eg, type of surgery, abdominal distention with laparoscopy, intubation trauma, use of potent opioids postoperatively, position of patient, duration of surgery) can contribute to myalgia.[92] Ambulatory surgery patients are more likely to report muscle aches because they are more active than inpatients. Additionally, the lithotomy position has been associated with a higher incidence of myalgia than if the patient is kept supine.

Pharyngitis

Postoperative sore throat is a common complaint occurring in up to half of all patients,[97] but it is typically a minor aggravation when it does occurs. After general anesthesia, pharyngitis is associated with trauma to the larynx and pharynx usually secondary to airway maintenance (eg, laryngoscopy with endotracheal intubation, use of laryngeal mask airway or pharyngeal airways, and pharyngeal suctioning). Classically, the postoperative sore throat will resolve within a few days without specific treatment. Strategies to consider in managing the postoperative sore throat include the following:

- The potent opioid analgesics are not normally required to ease the symptoms, rather, discomfort can usually be controlled with acetaminophen every 4 hours as needed.
- Encourage the patient to drink plenty of fluids (eg, cool fluids, ice chips, or fruit-flavored ice pops) once it is appropriate for the patient to resume oral intake. Drinking tea with honey may also have a soothing effect. Over-the-counter throat lozenges should be available to soothe the throat.
- Gargling with warm salt water (one teaspoon of salt with a glass of warm water) may be helpful in relieving the symptoms. Be sure to instruct the patient not to swallow the salt water.
- Other measures to consider that will prove helpful include (1) resting the voice, (2) humidify the inspired air, (3) avoid spicy foods or acid juices (eg, orange juice), and (4) avoid air pollutants (eg, smoke).

Fever

A low-grade fever the day after surgery is common and reflects the body's natural healing reaction.[24,98] An elevated body temperature is usually considered significant when it exceeds 102°F orally or 103°F rectally.[99] A slightly elevated temperature postoperatively may not require any treatment. Treatment with antipyretic therapy (eg, acetaminophen) may mask the patient's symptoms, making it harder to determine the cause of the fever.

Postoperative pyrexia is most commonly caused from atelectasis, but may be secondary to (1) allergic reactions, (2) surgical stress, (3) surgical site necrosis, (4) hematoma, or rarely, (5) a wound infection (primarily bacterial).[100,101] Remain cognizant that a low-grade fever, up to 100.4°F, can be a normal response to the surgical trauma. An advantage of outpatient surgery in preventing atelectasis is the role that early ambulation plays. This population of patients is less likely to remain as sedentary as their inpatient counterparts. Other recommendations to the patient if atelectasis is considered the cause of the fever are to deep breathe and cough (Table 8).[40,99,100]

An elevation in body temperature may be missed in the ambulatory surgical patient because many are no longer in the hospital when the fever develops. A bacterial surgical site infection may not become apparent until 3 to 5 days postoperatively.[40] Patients should be counseled to call the surgeon if they exhibit signs of bacterial infection (eg, wound redness, foul smell discharge, or purulent drainage).[100]

Table 8. Postoperative Fever

Incidence: 16%
Signs and symptoms
- Sweating
- Shivering
- Muscle aches
- Lack of appetite
- Dehydration
- General weakness
- Fever between 103°F to 106°F may cause hallucinations, confusion, or convulsions

Risk factors
- Surgical stress
- Surgical incision may lead to infection
- General anesthesia contributing to atelectasis
- Immunosuppressed
- Infection induced, eg, bacterial
- Medication allergy or sensitivity; especially antibiotics, antihypertensives, or anticonvulsants

Management
- Identify cause of fever; do not initially treat low-grade fever of unknown cause because it may mask symptoms
- Low-grade fevers may help eliminate viruses and inhibit bacterial growth
- Acetaminophen, every 4 hr, or ibuprofen, every 6-8 hr, may be indicated to lower a very high fever
- Encourage patient to drink plenty of fluids to avoid dehydration
- Encourage ambulation, deep breathing, and coughing if atelectasis is suspected
- Antibiotic therapy if bacterial infection is suspected
- Call surgeon if patient exhibits
  Mental confusion, listlessness, or irritability
  Fever > 38.3°C (101°F) orally

Headache

Headache after general anesthesia has been reported to range from 10% up to 38% during the first 24 hours.[1,102,103] When patients are monitored for the occurrence of headache during the first week after surgery, this number increases to 48%.[102] However, the incidence of chronic daily headache in the general population ranges from 5% to 30%[104-106]; thus a portion of patients, had they not had surgery, would have been prone for the development of a headache anyway (Table 9).[107-109]

The acute withdrawal from caffeine in the preoperative phase contributes to the incidence of postoperative headache.[108-110] Patients who routinely drink caffeinated beverages are 3 times as likely to have a postoperative headache after general anesthesia than those who do not routinely drink caffeinated beverages.[108] The symptoms of acute caffeine withdrawal can occur within 8 hours of abstinence.[108] The following values represent a typical amount of caffeine per 5- to 6-oz beverage serving: tea from leaf/bag = 30 mg, ground roasted coffee = 85 mg, instant coffee = 60 mg, and cola = 18 mg.[111] Caffeine withdrawal symptoms can occur when daily consumption of caffeine is as little as 100 mg.[112] For every 100-mg increase in daily caffeine consumption by patients, there is a 12% increase in the incidence of headache in the first 24 hours postoperatively.[110]

In patients who consume caffeine on a daily basis, the incidence of postoperative headache is reduced when they are permitted a caffeinated drink on the morning of surgery.[108] Similarly, patients at risk of caffeine withdrawal can reduce the likelihood of postoperative headache if they are administered intravenous caffeine 200 mg while still in the Phase I or II recovery areas.[109] These patients should additionally be encouraged to drink a caffeinated drink after surgery when it is appropriate for oral intake. Taking caffeine tablets before and after surgery in a dose approximating the patient's customary daily caffeine intake is equally effective in minimizing postoperative headache.[113]

Bleeding

Continuous bleeding is defined as bleeding and bloody ooze that persists for more than 6 to 8 hours after surgery, or a need to change a blood-soaked wound bandage more than twice in the first 6 to 8

Table 9. Headache

Incidence: 10% to 38%
Symptoms
- Headache, typically frontal
- Additional symptoms of caffeine withdrawal
  Fatigue, malaise
  Irritability
  Anxiety

Risk factors
- Acute caffeine withdrawal
- History of frequent headaches
- Age <51 yrs
- Dehydration

Management
- Oral analgesics, eg, NSAIDs
- Minimize preoperative fasting interval; allow clear liquid caffeinated beverage before surgery when time appropriate
- Resume caffeine intake, eg, caffeinated drink or tablet, after ambulatory surgery
- Encourage fluid intake postoperatively to rehydrate patient

hours after surgery.[40] It is essential for the patient to be knowledgeable of the projected wound drainage and to be capable of managing dressing changes and drain care, if relevant.

Regional Anesthesia Issues

Residual block. With appropriate patient selection and discharge instructions, individuals receiving peripheral nerve blocks (eg, brachial plexus or foot blocks) can be discharged with residual anesthesia. Patient and caretaker instructions should detail limb protection and address the appropriate return of sensory and motor function to the extremity.

Postdural puncture headache (PDPH). In today's anesthesia practice, cerebral spinal fluid (CSF) leakage through the dural rent caused by the spinal needle, which is sufficient to cause symptoms of decreased intracranial pressure (eg, headache), approximates 1%.[114,115] The incidence of PDPH after spinal anesthesia in ambulatory surgical patients is reported to vary from 1% to 2% in adult patients,[114,116,117] and slightly higher (5% to 9%) after spinal anesthesia in children.[118-120] This represents an improvement from earlier descriptions of PDPH in which headaches were described approximately 7% of the time.[121,122]

The reduction in the incidence of PDPH is attributable to changes in spinal needle size and design. Contemporary spinal anesthesia technique sees the small-diameter spinal needles of 24 to 27 gauges being routinely used instead of larger-sized (eg, 22 gauge) needles. The smaller-diameter spinal needles are very functional for spinal anesthetic placement and have a lower incidence of PDPH than the larger-diameter needles.[123,124]

In the early 1990s, a new type of spinal needle shaped like a pencil tip was developed with the belief that spreading the dural fibers (as with the pencil-type needles) would result in less trauma, thus less CSF leakage, than with the cut-bevel needles. The pencil-point spinal needles (eg, Whitacre [Becton-Dickinson Division, Franklin Lakes, NJ] or Sprotte [Avid Medical Inc, Toano, VA]) have been shown to have a lower incidence of PDPH than comparably sized cut-bevel needles (eg, Quincke [Becton-Dickinson Division] or Atraucan [BBraun, Melsungen, Germany]).[125-127] Interestingly, this reduced incidence of PDPH with the pencil-tip needles might be secondary to a higher inflammatory reaction than seen with the cut-bevel needles.[128] This inflammatory reaction has been shown by using electron microscopy to form an edematous plug around the dural puncture site.

The symptoms of decreased intracranial pressure not only include headache, but auditory or ocular disturbances occur after spinal administration in 0.4% of patients (Table 10).[129-131] The classic feature is a headache, typically frontal, that worsens on rising from the horizontal position and improves with recumbency. Patients over the age of 45 years are less likely to develop PDPH.[132] It used to be thought that women had a higher incidence of PDPH,[133] but more recent studies with the smaller gauge pencil-tip spinal needles have not found a gender variation.[116,134,135] The onset of PDPH is usually within the first 3 days postspinal (one third by the first 24 hours), and the duration has been reported to range from 1 day to 12 months[129]; 85% will resolve in less than 5 days.[136]

Management of the patient with PDPH depends

Table 10. Postdural Puncture Headache

Incidence: 0.5% to 1.8%
Symptoms
- Ocular disturbances: diplopia, blurring, difficulty in focusing, spots before the eyes, photophobia, and scintillation
- Auditory disturbances: decreased hearing, tinnitus, unilateral or bilateral deafness, hyperacuity
- Headache
  - Frontal (50%) or occipital (25%) most common, vertex, nuchal, or a combination
  - Postural component—worse with sitting; improved with recumbency
  - Coughing or sudden movement makes it worse
  - Improves with abdominal pressure

Risk factors
- Age: higher in patients <45 yrs
- Pregnancy: greatest risk factor
- Needle gauge: higher incidence with larger gauge spinal needles
- History of PDPH
- State of hydration

Management
- Mild symptoms:
  - Bed rest
  - Reduce environmental stimulation if ocular or auditory disturbances present
  - Normal fluid intake
  - Analgesics
  - Caffeine: 300 mg orally, or, 500 mg/1 L intravenously over 1 to 2 hours
- Moderate-severe symptoms
  - Epidural blood patch

on the degree of symptoms exhibited. Allowing 24 hours of conservative therapy is recommended because most are milder headaches and will resolve spontaneously.[133] Milder postdural puncture headaches may be initially managed by instructing the patient to follow these conservative therapies:

- Reduce environmental noise: excessive noise and visual stimulation will aggravate the auditory and ocular symptoms.
- Reduced activity and the recumbent position: although bed rest is not beneficial in the prevention of PDPH,[137,138] reducing the patient's activity with lying down will reduce the severity of the headache.
- Normal fluid intake: although intravenous hydration[139,140] or increased oral fluid intake[141] on the operative day has not been shown to prevent PDPH, it is commonly recommended as part of conservative treatment of the symptoms. The belief is that normalizing intravascular volume by encouraging the patient to drink generous amounts of fluids will be of benefit by increasing CSF production. Although adequate hydration is important in the postoperative care of the ambulatory patient, aggressive hydration has been challenged as to whether it offers any consistent benefit in the conservative treatment of PDPH.[133,136]
- Analgesics: advise the patient to continue as needed with analgesics (eg, NSAIDs or opioids) to alleviate the symptoms. Medications ordered for the control of postoperative surgical discomfort may be considered for headache control.
- Oral caffeine: 300 mg of oral caffeine has shown to be effective in some patients with PDPH; however there is a high incidence of reoccurrence of the symptoms.[142]

Abdominal binders have been used in an attempt to reduce the pressure difference across the dura, however they have not been proven effective[143] and are no longer recommended.[133]

If the previously described measures prove unsuccessful in attenuating the discomfort associated with PDPH, the patient should be advised to seek follow-up evaluation with the anesthesia care provider. Intravenous caffeine sodium benzoate (500 mg/1 L of intravenous fluids administered over 1 to 2 hours) may be attempted, depending on the severity of symptoms.[144,145] If the headache is not relieved after 2 to 4 hours, the caffeine treatment is repeated. This technique has been shown to be effective approximately 75% of the time in relieving the symptoms of PDPH.

An epidural blood patch is the standard treatment for persistent, moderate to severe PDPH that has not responded to the conservative therapy.[146] Only a fraction (less than .5%) of these patients fail to respond to conservative therapy and will require an epidural blood patch to stop the CSF leakage.[114,119] Immediate relief of PDPH is obtained in more than 85% of patients after an epidural blood patch.[147]

Transient neurologic symptoms (TNS). Formerly referred to as transient radicular irritation, TNS is a set of temporary symptoms involving the back and legs after recovery from a spinal anesthetic.[148] The mechanism of this short-lived neural insult is thought to be secondary to a direct action on sensory neurons from a lidocaine-induced increase in intracellular calcium.[149] Lidocaine is more neurotoxic after spinal anesthesia than the other local anesthetic agents (eg, bupivacaine or tetracaine)[150-156] but remains popular in the ambulatory setting because of its quick onset, relatively short duration of action when compared with other local anesthetics, and safety profile.[157] The incidence of transient neurologic symptoms is relatively rare, with a reported occurrence of 1 in 1,300 lidocaine spinal anesthetics.[158] Transient neurologic symptoms have been described with local anesthetic agents other than lidocaine, but to a lesser extent.[159,160] The symptoms associated with this syndrome are pain or occasionally numbness in the buttocks and lower extremities (one or both) after recovery from spinal anesthesia (Table 11). These signs appear 1 to 24 hours after complete recovery from the spinal anesthesia (typically,

Table 11. Transient Neurologic Symptoms

Incidence: 1:1,300 after lidocaine spinal
Symptoms
• Pain or dysesthesia in the buttock and lower extremity (one or both sides)
• Occurs 1 to 24 hours after complete resolution of the spinal block
Risk factors
• Intraoperative patient position—lithotomy
• Early ambulation
Management
• Oral analgesics

there is a pain-free phase after resolution of the block) and usually resolve within 1 week. Risk factors for the development of TNS include intraoperative patient positioning and outpatient status. Surgeries such as knee arthroscopy[161] or those in which the lithotomy position[162] is used (eg, some urologic or gynecologic procedures) are associated with a higher occurrence of TNS. Outpatients are believed to be at risk because of early ambulation, which is now encouraged after surgery. Management of the pain associated with TNS can usually be achieved with NSAIDs or the more potent analgesics that might be ordered for the treatment of the surgical pain.

Urinary retention. Acute urinary retention is an often mentioned side effect of spinal anesthesia that is only problematic during the first 24 hours after surgery.[65] The transient inability to void is a result of sympathetic and parasympathetic block at the S2-S4 level of the nerves innervating the bladder, detrusor, and sphincter muscles. This leads to a loss of bladder tone, and thus a loss of the reflex to void. The sensory block after spinal anesthesia has to regress to the second or third sacral (S_2 to S_3) segments before spontaneous voiding occurs.[163-165] Typically, patients are able to ambulate 1 to 2 hours before the micturition reflex returns.[130] Strategies to reduce the time until micturition after spinal anesthesia include the following:

- Reduce the total amount of local anesthesia used for the spinal blockade.[166]
- Use the shorter-acting local anesthetic agent (eg, lidocaine) as opposed to the longer-acting agents (eg, bupivacaine or tetracaine).[59,65,163,167,168]
- Add fentanyl to the local anesthesia agent. Reducing the total amount of lidocaine (from 50 to 20 mg) by adding fentanyl 10 to 25 μg had a beneficial effect of reducing the time to patient voiding by approximately 30 minutes.[169,170]
- Omit the addition of epinephrine to the lidocaine because it prolongs the block and thus the time to micturition.[171-173]

SUMMARY

Although the vast majority of ambulatory surgical patients are quite satisfied with their perioperative experience, there are patients who encounter difficulties postoperatively. Postoperative complications are a major contributor to patient dissatisfaction.[174] The perianesthesia nurse needs to remain vigilant as to common postoperative complaints and the recommended strategies for managing these situations. The ambulatory nurse, who can identify and appropriately address these postoperative sequelae, is an important link in the continued care of these patients after they are discharged from the ambulatory facility.

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PATIENT CARE AFTER DISCHARGE FROM AMBULATORY SURGERY POSTTEST 3.7 CONTACT HOURS

Directions: The multiple choice examination below is designed to test your understanding of patient care after discharge from the ambulatory surgical center according to the objectives listed. To earn contact hours from the American Society of PeriAnesthesia Nurses (ASPAN) Continuing Education Provider Program: (1) read the article; (2) complete the posttest by indicating the answers on the test grid provided; (3) tear out the page (or photocopy) and submit postmarked before December 31, 2003, with check payable to ASPAN (ASPAN member, $12.00 per test; nonmember, $15.00 per test); and (4) return to ASPAN, 10 Melrose Ave, Suite 110, Cherry Hill, NJ 08003-3696. Notification of contact hours awarded will be sent to you in 4 to 6 weeks.

POSTTEST QUESTIONS

1. Which of the following statements regarding dexamethasone is false?
   a. Dexamethasone is beneficial in Phase III recovery secondary to its long duration of action.
   b. Dexamethasone can reduce the time until discharge in the ambulatory surgical patient.
   c. The possible mechanism of action for dexamethasone in reducing PONV has been theorized to be secondary to its anti-inflammatory properties, which results in an increase in prostaglandin release.
   d. The possible mechanism of action for dexamethasone in reducing PONV has been theorized to be secondary to its anti-inflammatory properties, which result in a reduction in serotonin release from the gut.

2. Acute insomnia occurs in ____of postoperative patients, and remains a problem after the patients have been discharged home.
   a. 25%
   b. 50%
   c. 75%
   d. 100%

3. The cause of urinary retention postoperatively may be attributable to several surgical and anesthesia related factors. Surgical contributions lending to the inability to void postoperatively include
   a. the type of surgery performed.
   b. irritation to the pelvic nerves and/or the bladder.
   c. bladder overdistention secondary to large amount of intravenous fluid.
   d. postoperative bladder neck edema.
   e. a and c only.
   f. b and d only.
   g. a, b, c, and d.

4. Intravenous administration of opioids is associated with a greater incidence of urinary retention than if administered intramuscularly.
   a. True
   b. False

5. Postoperatively, patients are susceptible to constipation as a result of
   a. dietary modification.
   b. surgical influences.
   c. alteration in level of physical activity.
   d. side effects of medications administered perioperatively.
   e. a and b only.
   f. c and d only.
   g. a, b, c, and d.

6. Which of the following statements is false?
   a. Opioid analgesics reduce gut motility and reduce intestinal secretions, which lead to constipation.
   b. The lithotomy position has been associated with a lower incidence of myalgia than if the patient is supine.
   c. After general anesthesia, pharyngitis is associated with trauma to the larynx and pharynx usually secondary to airway maintenance.
   d. Postoperative pyrexia may be caused by surgical stress.

7. For every 100-mg increase in daily caffeine consumption by patients, there is a ___ increase in the incidence of headache in the first 24 hours postoperatively.
   a. 8%
   b. 12%
   c. 20%
   d. 35%

8. Management of the patient with PDPH is dependent on the degree of symptoms exhibited. Examples of conservative treatment include all but which of the following:
   a. reduce environmental noise
   b. reduced activity and the recumbent position
   c. epidural blood patch
   d. adequate hydration
   e. analgesics

9. The sensory block after spinal anesthesia has to regress to the second or third sacral (S_2 toS_3) segments before spontaneous voiding occurs.
   a. True
   b. False

10. Which of the following statements regarding postoperative pain is false:
    a. Severe pain is reported in over 5% of ambulatory surgical patients at 24 hours postoperatively.
    b. NSAIDs are an important part of postoperative pain management.
    c. RICE is an important nonpharmacological intervention for skeletal injuries.
    d. Local wound infiltration with lidocaine (a long-acting local anesthetic) can reduce the need for opioid analgesic requirements in Phase III.

ANSWERS

System W011203. Please circle the correct answer

1.	a.	2.	a.	3.	a.	4.	a.	5.	a.
	b.		b.		b.		b.		b.
	c.		c.		c.				c.
	d.		d.		d.				d.
					e.				e.
					f.				f.
					g.				g.
6.	a.	7.	a.	8.	a.	9.	a.	10.	a.
	b.		b.		b.		b.		b.
	c.		c.		c.				c.
	d.		d.		d.				d.
					e.				

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EVALUATION: Patient Care After Discharge From the Ambulatory Surgical Center
(SD, strongly disagree; D, disagree; ?, uncertain; A, agree; SA, strongly agree)

	SD	D	?	A	SA
1. To what degree did the content meet the objectives	1	2	3	4	5
a. Objective #1 was met.	1	2	3	4	5
b. Objective #2 was met.	1	2	3	4	5
c. Objective #3 was met.	1	2	3	4	5
d. Objective #4 was met.	1	2	3	4	5
e. Objective #5 was met.	1	2	3	4	5
2. The program content was pertinent, comprehensive, and useful to me.	1	2	3	4	5
3. The program content was relevant to my nursing practice.	1	2	3	4	5
4. Self-study/home study was an appropriate format for the content.	1	2	3	4	5
5. Identify the amount of time required to read the article and take the test.	1	2	3	4	5
25 min 50 min 75 min 100 min 125 min					

Test answers must be submitted before December 31, 2003, to receive contact hours.