Problems with Perioperative Clients

Sarah Granger, MSN, RN
Los Angeles County College of Nursing & Allied Health
sgranger@dhs.lacounty.gov

Objectives

- Describes the three phases of the perioperative experience focusing on nursing responsibilities.
- Identifies the legal/ethical behaviors, which reflect accountability for individuals with problems of the preoperative, intraoperative, and postoperative phases.
- Identifies the educational needs of individuals for the perioperative experience.
- Applies the nursing process in the care of individuals in the preoperative, operative, and postoperative stages.

2

Three Phases of Perioperative Nursing

- Preoperative
- Intraoperative
- Postoperative

3

Preoperative Phase

- Begins with decision to have surgery
- Ends when client is transferred to operating table

4

Surgical Settings

- Same-day admission
- Ambulatory surgery
  - Same-day surgery
  - Outpatient surgery
- Client/insurance perference
- Importance of client preparation & documentation

5

General Surgical Classifications

- Purpose of surgical procedure
- Degree of urgency
- Degree of risk

6

Purpose of Surgical Procedures

- **Ablative:** _____
  _____
- **Diagnosis:** _____
  _____
- **Cosmetic Improvement:** _____
  _____
- **Cure:** _____

7

Purpose of Surgical Procedures (Cont)

- **Exploration:** _____
  _____
- **Palliation:** _____
  _____
- **Prevention:** _____
  _____

8

Degree of Urgency

- Emergency Surgery
  - Performed immediately to preserve the function or the life of the client
  - Example: surgery to control internal hemorrhage
- Elective Surgery
  - Performed when surgical intervention is the preferred treatment for a condition that is not life threatening or improve quality of life
  - Example: hip replacement

9

Degree of Risk

- Surgery is classified according to the risk to the client
- Major Surgery: High Risk
  - Complicated/prolonged, large losses of blood, vital organs involved, postoperative complications likely
- Minor Surgery: Low Risk
  - Few complications and often performed in an outpatient setting

10

Factors Affecting the Degree of Risk

- Age
- Psychologic Status
- General Health
- Use of Medications

11

Age

- Neonates/Infants:
  - Small blood volume & immature temperature regulation
- Toddlers and Older Children:
  - Multiple Fears
- Older Adults (> 65 years):
  - Changes in liver and kidney functions, poorly nourished, decreased sensory function, increased incidence of chronic diseases

12

Preoperative Client Assessment

- Determine psychologic status
- Determine physiologic factors
- Establish a baseline
- Identify & document surgical site
- Identify medications
- Document results of lab & diagnostic tests
- Identify cultural & ethnic factors
- Determine if adequate information was disclosed.

13

Psychosocial Assessment

- Identification of potential stressors
- Anxiety
- Common Fears:
  Death, pain & discomfort, mutilation/alteration in body image, anesthesia, disruption of life functioning or patterns
- Hope

14

Physiologic Assessment

- Past health history
  – Previous medical conditions & surgeries
- Medications
  – Anticoagulants
  – Tranquilizers
  – Insulin/oral hypoglycemic
  – Current routine, OTC, herbal, recreational
- Allergies

15

Review of Systems

- Cardiovascular System:
  - Medical history & current treatment
  - Lab values
  - Risk of DVT
- Respiratory System:
  - History of asthma
  - Recent upper airway infection
  - Smoking

16

Review of Systems (cont)

- Neurologic System:
  - Neurologic function
  - Alterations in senses
  - Cognitive function
- Gentiourinary System:
  - Presence/history of disease or infection
  - Difficulty voiding
- Hepatic System:
  - Hepatic functioning

17

Review of Systems (cont)

- Integumentary System:
  - History of skin problems
  - Condition of skin
- Musculoskeletal System & Mobility:
  - System problems or restricted mobility
  - Use of assistive devices
- Endocrine System:
  - History of Diabetes
  - History of thyroid problems

18

Review of Systems (cont)

- Immune system:
  - History of compromised immune system
  - Use of corticosteroids
  - Acute or chronic infections
- Fluid & electrolyte status:
  - Predisposed to imbalances
- Nutritional status/Dietary Habits:
  - Over nourished
  - Under nourished

Routine Preoperative Screening Tests

- CBC
- Type & Cross
- Electrolytes
- Fasting Blood Glucose
- BUN & Creatinine

20

Routine Preoperative Screening Tests (cont)

- LFTs
- Urinalysis
- ECG (Electrocardiogram)
- CXR (Chest X-Ray)
- Pregnancy Test

21

Informed Consent

- Informed consents must meet 3 conditions in order to be valid:
  - Adequate disclosure
    - Of diagnosis, consequences, probability of success, alternative treatments
  - Understanding/Comprehension
    - Must be demonstrated by client prior to receiving sedating medications
  - Voluntary consent
    - Client must not be coerced into consenting for procedure
- iMEDConsent

22

Informed Consent (cont)

- Implies client has been informed and involved in decisions affecting care
- Surgeon is responsible for obtaining informed consent & place in chart
- Protects the client from incorrect/unwanted procedures
- Protects the agency from litigation related to unauthorized surgeries or uninformed clients
- Nurse's role is to ensure consent is signed and to serve as witness to client's signature

23

Advanced Directives

- Written statements of a person's wishes regarding medical care.
- Directs caregivers as to the client's wishes about treatments, providing an ongoing voice for clients when they have lost the capacity to make or communicate their decisions.

24

Dimensions of Preoperative Teaching

- Information- explain what will happen, when, and what the client will experience
  - _____
  - _____
  - _____

- Psychological support to reduce anxiety

25

Dimensions of Preoperative Teaching (cont)

- Explain roles of the client and support people in preoperative preparation, during the surgical procedure, and during the postoperative period
- Outpatient surgical clients
- Skills: Teaching moving, leg exercises, deep breathing, and coughing

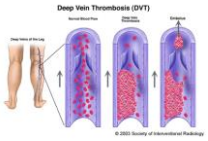
26

Purpose of Skills

- Early ambulation:
  - Increases muscle tone
  - Improves GI & GU function
  - Stimulates circulation
    - _____
    - _____
  - Increases vital capacity & maintains normal respiratory function

27

Purpose of Skills (cont)



- Leg Exercises:
  - Promote venous return
  - Prevent thrombophlebitis and thrombus formation
- Deep breathing and coughing:
  - Enhance lung expansion and mobilize secretions
  - Prevent atelectasis and pneumonia

28

General Surgery Information

- Skills teaching
- Tubes, drains, monitoring devices, or special equipment
- Individualized client teaching
- Possible changes in location

29

Ambulatory Surgery Information

- Admitted day of surgery
- Provide basic information
  - Arrival time/specific instructions/transportation
- General hygiene/surgical site prep
  - Preoperative shower
  - Enema
  - Food/fluid restrictions (NPO)

30

Preparing for Surgery

- Nutrition and fluids
- Elimination
- Hygiene
- Medications (OCTOR)
- Rest and sleep
- Care of valuables and prosthesis
- Special orders

31

Preparing for Surgery (cont)

- Skin preparation
- Safety protocols
- Vital signs
- Venous Thromboembolism (VTE) prevention:
  - Sequential compression devices (SCD)
  - Antiemboli Stockings
- Preoperative checklist

Preoperative Medications

- Benzodiazepines
- Opioids
- Histamine (H2)-receptor antagonists
- Antiemetics
- Anticholinergics
- Antibiotics
- Eyedrops
- Routine prescription drugs

33

Benzodiazepines

Medications

- Midazolam (Versed)
- Diazepam (Valium)
- Lorazepam (Ativan)

Action

- Reduce anxiety
- Induce sedation
- Amnesic effects

34

Opioids

Medications

- Morphine
- Meperidine (Demerol)
- Fentanyl (Sublimaze)

Action

- Relieve discomfort during preoperative procedures

35

Histamine (H2)-Receptor Antagonist

Medications

- Cimetidine (Tagamet)
- Famotidine (Pepcid)
- Ranitidine (Zantac)

Action

- Decrease HCl acid secretion
- Increase gastric pH
- Decrease gastric volume

36

Antiemetics

Medications

- Metoclopramide (Reglan)
- Droperidol (Inapsine)
- Ondansetron (Zofran)

Action

- Increase gastric emptying
- Decrease nausea and vomiting
- Prevent nausea and vomiting

37

Anticholinergics

Medications

- Atropine
- Glycopyrrolate (Robinul)
- Scopolamine

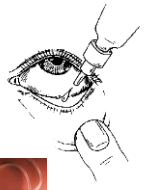
Action

- Decrease oral and respiratory secretions
- Prevent bradycardia

38

Additional Medications

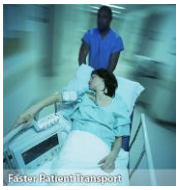
- Antibiotics
- Eyedrops
- Routine prescription drugs



39

Transportation to Operating Room

- Inpatient transportation
- Outpatient transportation
- Family instructions
- Room preparation
- Equipment



40

Special Considerations

- Cultural/Ethnic considerations
- Gerontologic considerations
  - Emotions/Anxiety
  - Anesthesia risks
  - Family support
  - Sensory deficits
  - Long-term care facilities

Preoperative Nursing Diagnoses

- Deficient Knowledge r/t a lack of education about the perioperative process
- Anxiety r/t:
  - Outcome of exploratory surgery for malignancy
  - Perceived inadequate post-op analgesia
- Disturbed Sleep Pattern r/t hospital routines or psychological stress

42

Surgical Suffixes

43

Intraoperative Phase

- Begins when client is transferred to operating table
- Ends when client is admitted to Postanesthesia Care Unit (PACU) or Postanesthesia Recovery Room (PAR)

44

Physical Environment of Operating Room

- Department layout
  - Surgical Suite
    - Unrestricted area
    - Semirestricted area
    - Restricted area
- Holding area
- Operating room

45

Role of Surgical Team

- **Registered Nurse**
  - Function of Scrubbing:
    - _____
    - _____
    - _____
      _____
  - Function of Circulating:
    - _____
    - _____
      _____

46

Role of Surgical Team (cont)

- Licensed Practical Nurse or Surgical Technologist
- Surgeon and Assistant
- Registered Nurse First Assistant (RNFA)
- Anesthesia Care Provider (ACP)

Surgical Team

Intraoperative Nursing

- Room preparation
- Transferring the client
- Scrubbing, gowning, and gloving
- Principles of aseptic technique (table 18-3)
- Assisting anesthesia care provider
- Safety considerations
  - Universal Protocol

49

Universal Protocol

- Joint Commission (2004)
- Prior to start of procedure:
  - Conduct a pre-procedure verification
  - Mark the operative site
  - A time-out is performed before the procedure
- Prevents wrong site, wrong procedure, & wrong client

50

Frequency of Incidents

- Between 2005-2012:
  - 772 incidents of unintended retention of foreign objects reported to the Joint Commission
    - 16 resulted in deaths
    - 95% resulted in additional care/extended hospitalization
- Between Jan. 1- Dec. 31, 2014:
  - 764 Sentinel Events reported
    - Unintended retention of foreign objects- 112
    - Wrong patient, site, or procedure- 67
- Hospital fines

51

Surgical Site Preparation

- Association of Operating Room Nurses (AORN) recommends the following preparation practices:
  - Clean surgical site & surrounding areas
  - Assess surgical site
  - Remove hair from surgical site
  - Prepare site with an antimicrobial agent
  - Document

Positioning an Intraoperative Patient

- _____
- _____
- _____
- _____
- _____
- _____

53

Anesthesia

- General
- Regional or Local
- Procedural Sedation (conscious sedation)

54

Selection of Anesthetic Agent

- Type of procedure
- Length of procedure
- Position/Site of procedure
- Condition of the client

55

General Anesthesia

- Loss of all sensation and consciousness
- Possible impaired ventilatory & cardiovascular function
- Protective reflexes such as cough and gag reflexes are lost
- Acts by blocking awareness center in brain so that amnesia, analgesia, hypnosis, and relaxation occur

56

General Anesthesia Routes

- Intravenous Agents
- Inhalation Agents
  - Volatile liquids
  - Gases

57

Phases of General Anesthesia

- Preinduction
- Induction
- Maintenance
- Emergence

58

Preinduction Phase

- Period starting with preoperative medication, initiation of IV/arterial access, and application of monitors.
- Role of Perioperative Nurse:
  - Complete preoperative assessment
  - Check/confirm operative permits
  - Complete “time-out”
  - Administer aspiration prophylaxis

59

Induction Phase

- Initiation of sequence of medications that render the client unconscious, securing the airway.
- Role of Perioperative Nurse:
  - Assist with application of monitors (noninvasive and invasive)
  - Assist with airway management

60

Maintenance Phase

- Time period the surgical procedure is performed; client remains in unconscious state with measures taken to ensure safety of airway
- Role of Perioperative Nurse:
  - Adjust client position as necessary
  - Monitor client safety

61

Emergence Phase

- Surgical procedure completed; client is prepared to return to conscious state and removal of airway assisted devices.
- Role of Perioperative Nurse:
  - Assist in placement of dressing
  - Prepare the client for movement to the PACU

62

Adjuncts to General Anesthesia

- Opioids
- Benzodiazepines
- Neuromuscular Blocking Agents
- Antiemetics

63

Opioids

- Example: fentanyl (Sublimaze)
- Preoperatively: Sedation & analgesia
- Intraoperatively: Induction & maintenance of anesthesia & analgesia
- Postoperatively: Pain management
- Reversal Agent:
  - Naloxone (Narcan)

64

Benzodiazepines

- Example: midazolam (Versed)
- Preoperatively: Amnesic effects
- Intraoperately: Induction & maintenance of anesthesia
- Postoperatively: Anxiety & agitation
- Reversal Agent:
  - Flumazenil (Ramozicon)

65

Neuromuscular Blocking Agents

- Example: succinylcholine (Anectine)
- Facilitates endotracheal intubation
- Relaxation (paralysis) of skeletal muscles
- Reversal Agents:
  - Neostigmine (Prostigmin)

66

Antiemetics

- Example: droperidol (Inapsine)
- Used preoperatively, intraoperatively, and postoperatively
- Counteract emetic effects of inhalation agents and opioids
- Prophylactic prevention of N&V

67

Regional Anesthesia

- Regional anesthesia: the loss of sensation to a region of the body without loss of consciousness when a group of nerves is blocked
- Local anesthesia: the loss of sensation without the loss of consciousness & without blocking a specific nerve

68

Regional Anesthetic Techniques

- Topical
- Local
- Nerve Block
- Intravenous block or Bier block
- Spinal
- Epidural

69

Conscious Sedation

- Minimal depression of the level of consciousness in which the client retains the ability to maintain a patent airway and responds appropriately to commands
- Achieves a level of emotional and physical acceptance of a painful procedure
- Combination of anxiolytic (Versed) and opioid (Fentanyl)

70

Gerontologic Considerations

- Careful titration of anesthetic agents
- Sensory deficits
- Pressure sore risk
- Positioning during surgery

71

Catastrophic Events

- Anaphylactic Reactions
- Malignant Hyperthermia (MH)
  - Rare metabolic disease characterized by hyperthermia with rigidity of skeletal muscles
  - At risk:
    - Clients receiving volatile anesthetic agents &/or
    - Clients receiving succinylcholine
  - Treatment:
    - Prompt administration of dantrolene (Dantrium)
    - Stop inhalation anesthetic
    - Institute body cooling measures

72

Intraoperative Nursing Diagnoses

- Risk for Aspiration r/t somnolence and increased secretions secondary to intubation.
- Risk for Perioperative Positioning Injury r/t somnolence secondary to anesthesia
- Risk for Imbalanced Body Temperature r/t exposure to cool OR temperature

73

Postoperative Phase

- Begins with admission of client to PACU/PAR
- Ends when healing complete

74

Immediate Recovery Phase (PACU)

- Position of an unconscious client
- Suction as needed until cough and swallowing reflexes return
- Help client to cough and deep breathe
- Keep the client flat for specified period of time if the client had spinal anesthesia

75

Clinical Assessment

- During immediate postanesthetic phase:
  - _____
  - Oxygen saturation
  - Adequacy of ventilation
  - Cardiovascular status
  - Level of consciousness
  - Presence of protective reflexes

76

Clinical Assessment (cont)

- Activity, ability to move extremities
- Skin color
- Fluid status
- Condition of operative site
- Patency/character/amount of drainage from catheters, drains, and tubes
- Discomfort
- Safety

77

Postoperative Orders

- Food and fluids permitted by mouth
- IV solutions
- Position in bed
- Medications ordered
- Intake and output
- Laboratory tests
- Activity permitted, including ambulation

78

Review of PACU record

- Operation performed
- Presence/location of any drains
- Anesthetic used
- Postoperative diagnosis
- Estimated blood loss (EBL)
- Medications administered in recovery room

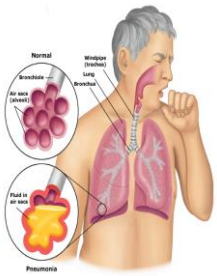
79

Ongoing Postoperative Phase

- Regular assessments of:
  - Level of consciousness
  - Vital signs
  - Skin color and temperature
  - Comfort
  - Fluid balance
  - Dressing and sheets
  - Drains and tubes

Potential Respiratory Complications

- Airway obstruction
- Hypoventilation
- Aspiration of vomitus
- Atelectasis
- Pneumonia
- Hypoxemia



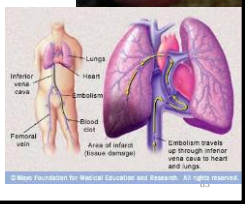
Nursing Implementation-Respiratory

- Assess respiratory status
- Auscultate breath sounds
- Characteristics of sputum
- Positioning postoperative clients
- Encourage cough and deep-breathing techniques/use of incentive spirometer (IS)
- Splinting
- Position changes/ambulation

82

Potential Cardiovascular Complications

- Circulatory:
  - Dysrhythmias
  - Hemorrhage
  - Hypotension
  - Hypertension
  - Hypovolemia
  - Venous thromboembolism



83

Nursing Implementation-Cardiovascular

- Administration of IV fluids/bolus
- Accurate I&O
- Early ambulation (may be progressive)
- Laboratory findings
- Pharmacologic prophylaxis (DVT)
- Assessment of vital signs
- Assessment of dressing/wound

84

Potential Neurologic/Psychologic Complications

- Emergence delirium
- Delayed emergence
- Postoperative cognitive dysfunction (POCD)
- Delirium
- Anxiety and depression
- Alcohol withdrawal delirium

85

Nursing Implementations-Neurologic/Psychologic

- Assess LOC
- Assess pupils
- Serve as advocate/maintain safety
- Maintain normal physiologic function
- Tools to orient client
- Observation of behavior
- Provide adequate support

86

Potential Gastrointestinal Complications

- Nausea & vomiting
- Distention and flatulence
- Paralytic ileus
- Delayed gastric emptying

87

Nursing Implementation-Gastrointestinal

- Assess abdominal distention & presence of bowel sounds
- Administer IV fluids & antiemetics
- NPO
- Advance diet as tolerated
- Early & frequent ambulation

88

Potential Urinary Complications

- Urinary Retention
- Urinary Tract Infection

Nursing Implementations

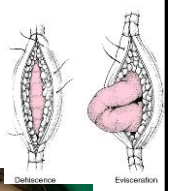
- Promote urinary elimination
  - Male clients
  - Female clients

- Assess bladder distention
- Report to MD if client does not void within 8 hours

89

Potential Integumentary Complications

- Surgical Site Infection (SSI)
  - 3-5 days post-op
  - 2-5% of surgical clients
- Hematoma
- Dehiscence and evisceration
- Keloid formation



90

Wound Care

- Dressing inspected regularly
- Assess for excess drainage
- Assess wound
- Presence of drains/tubes
- Surgical incisions heal by primary intention

Drains & Suction

- Penrose Drains
- Closed-Wound Drainage System
  - Jackson-Pratt
  - Hemovac
- Pigtail Drain

92

Penrose Drain

- Inserted to permit drainage of excessive serosanguineous fluid/purulent drainage
- Promote healing of underlying tissue
- Prevent complications

93

Closed-Wound Drainage System

- Jackson-Pratt (JP) or Hemovac
- Reduce risk of microorganisms
- Drainage tubes sutured in place and connected to reservoir
- Purpose: To drain excess exudate that might interfere with the formation of granulation tissue

94

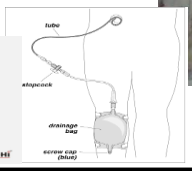
Closed-Wound Drainage System

- Jackson-Pratt (JP)
- Hemovac

95

Pigtail Drain

- Facilitate the drainage of body fluids from an organ, duct or abscess
- Inserted under the radiological guidance
- Sterile, thin, long, universal catheter



96

Types of Wound Closures

- Types of Sutures:
  - Interrupted
  - Continuous
  - Retention
- Staples
- Steri-strips

97

Types of Sutures

- Interrupted:
  - Each stitch is tied and knotted separately
- Continuous:
  - One thread runs in a series of stitches and tied only at the beginning and the end.
- Retention sutures:
  - Very large sutures used in addition to skin sutures
  - To support incisions in obese clients or in cases of prolonged healing.

Staples vs. Steri-strips

Staples

- A piece of stainless steel wire used to close surgical wounds

Steri-strips

- Strips of tape used to securely close the edges of an incision.
- Alternative to sutures
- Fall off in 10 days

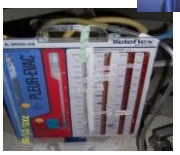
Sequential Signs of Healing

- Absence of bleeding and appearance of a clot binding to wound edges
- Inflammation at wound edges for 1-3 days
- Reduction in inflammation when the clot diminishes
- Scar formation
- Diminished scar size over a period of months to years

100

Suction

- Types of tubes:
  - Nasogastric
  - Chest tube
  - Wound drain
- Intermittent versus continuous
- Monitor F&E
- Monitor drainage



101

Pain Management

- Greatest 12-36 hours postoperatively
- Decreasing 2-3 days postoperatively
- Treatments:
  - Patient-controlled analgesia (PCA)
  - Epidural analgesia
  - PRN medications
  - Anti-inflammatory agent
  - On-Q pump

On-Q Pain Management System

- Provides a continuous infusion of a local anesthetic directly into the surgical site
- Alternate post operative pain management
- Placed by surgeon during operation
- Assessment:
  - VS & pain score every 4 hours
  - Redness, swelling, pain and/or discharge at the catheter site every 8 hours
  - Dressing is secure

103

Nursing Responsibility

- Make sure clamps are open
- Make sure there are not any kinks in tubing
- System does not get wet
- Nothing is injected into the system
- Dressing is not removed
- Monitor of signs of toxicity:
  - ↓BP, ↓HR, palpitations, metallic taste, N&V, oral numbness

Discharge Planning & Follow-up Care

- Care of incision/dressing
- Action/side effects/scheduling of medications
- Activity restrictions
- Dietary restrictions
- Symptoms to be reported
- Information on follow-up care
- Address individual concerns/questions

105

Gerontologic Considerations

Postoperative client:

- Decreased respiratory function
- Decreased cardiovascular function
- Decreased renal perfusion/liver function
- Increased risk of postoperative delirium (15%-35%)
- Decreased sensory function

106

Postoperative Nursing Diagnoses

- Ineffective Airway Clearance r/t immobility secondary to post anesthesia state and pain
- Acute Pain r/t tissue damage
- Risk for Infection r/t invasive surgical procedure
- Ineffective Therapeutic Regimen Management r/t insufficient knowledge of care of operative site, restriction (diet/activity), medications, S/S of complications

107

108

References

- Berman, A., Snyder, S., & Kozier, B. (2012). *Kozier & Erb's Fundamentals of nursing: Concepts, process, and practice.* (9th ed.). New Jersey: Prentice-Hall, Inc.
- Lewis, S. M., et.al. (2014) *Medical surgical nursing- Assessment and management of clinical problems* (9th ed.). St. Louis: Elsevier.
- Litwack, K. (2009) *Clinical coach for effective perioperative nursing care*. Philadelphia: F.A. Davis Company.

109