Al-Zahraa University for women
Health and Medical Technology College
Department of Anesthesiology

Nursing Science

Perioperative nursing care

Learning objectives

After completing this lecture, the students will be able to:

- **Identify various types of surgery according to the purpose, degree of urgency, and degree of risk.**
- **Describe the phases of the perioperative period.**
- **Identify essential aspects of preoperative assessment.**
- **Describe essential preoperative teaching, including pain assessment and management, moving, leg exercises, and deep-breathing and coughing exercises.**

Perioperative nursing care:

Surgery: is performed to correct anatomical or physiological defects and to provide therapeutic interventions.

Perioperative refers to the management and treatment of the client including before, during, and after surgery consist the three phases of surgery:

- Preoperative (before surgery): refers to the time interval that begins when the decision is made for surgery until the client is transferred to the operating room (or).
- The intraoperative (during surgery): Phase begins when the patient is transferred to the surgical suite and ends when the patient is admitted to the post-anesthesia care unit (PACU), also called the post-anesthesia room (PAR) or recovery room (RR).
- The postoperative (after surgery): The phase begins with the admission of the patient to the post-anesthesia area and ends when healing is complete

Surgical Classification (Types):

1. **According to purpose:**

Surgical procedures can be categorized according to their purpose:

✓ **Diagnostic (exploratory) surgery**: confirms or establishes a diagnosis (e.g., biopsy of a mass in the breast).

- ✓ **Palliative surgery**: relieves or reduces pain or symptoms of a disease but does not cure it (e.g., removal of a part of a cancerous tumor to relieve pressure on surrounding organs).
- ✓ **Ablative or curative surgery**: removes a diseased body part (e.g., removal of a gallbladder: cholecystectomy).
- ✓ **Constructive surgery:** restores function or appearance that has been lost or reduced (e.g., breast implantation).
- ✓ **Transplantation surgery**: replaces malfunctioning structures (e.g., kidney transplantation).

2. **According to the Degree of Urgency:**
   - **Emergency surgery**: is performed immediately to preserve the client's function or life. (E.g., control internal hemorrhage, trauma, or ruptured aneurysm)
   - **Urgent surgery**: occurs when the surgical problem requires attention within 24 to 48 hours, (E.g., remove a kidney stone, acute gall bladder infection)
   - **Elective surgery:** is performed when surgical intervention is the preferred treatment for a condition that is not imminently life-threatening or to improve the client's life. (E.g., cholecystectomy for chronic gallbladder disease, hip replacement surgery, and plastic surgery)
   - **Optional surgery**: Decision rests with patient, e.g,. cosmetic surgery.
3. **According to the degree of risk:**
   - **Major surgery: involves a high degree of risk, for a variety of reasons:**
   - ✓ May be complicated or prolonged,
   - ✓ Large losses of blood may occur,
   - ✓ Vital organs may be involved, or
   - ✓ Postoperative complications may be likely.
   - ✓ Examples are organ transplant, open heart surgery, and removal of a kidney.
   - **Minor surgery**
   - ✓ Normally involves little risk,
   - ✓ Produces few complications, and
   - ✓ Often performed in an outpatient setting.
   - ✓ E.g., breast biopsy, removal of tonsils

Nursing Activities in the Preoperative Phase

- ✓ Initiates initial preoperative assessment
- ✓ Initiates education appropriate to patient's needs
- ✓ Verifies completion of preoperative diagnostic testing

- ✓ Verifies understanding of surgeon-specific preoperative orders (e.g., bowel preparation, preoperative shower)
- ✓ Begins discharge planning by assessing patient's need for postoperative transportation and care

Nursing Management in the pre-operative phase:

1. Preoperative Consent:

Prior to any surgical procedure, informed consent is required from the client or legal guardian. The surgeon is responsible for obtaining the informed consent by providing the following information to the client or legal guardian:

- The nature of and the reason for the surgery
- All available options and the risks associated with each option
- The risks of the surgical procedure and its potential outcomes
- Name and qualifications of the surgeon performing the procedure
- The right to refuse consent or later withdraw consent.

The surgeon maintains legal responsibility for ensuring that the client is giving *informed* consent and ensuring that the client understands the procedure to be performed.

- ✓ Informed consent is only possible when the client understands the provided information, speaks the language, and is conscious.

2. Preoperative Assessment:

Preoperatively, the nurse performs a brief but complete physical assessment, paying particular attention to systems that could affect the client's response to anesthesia or surgery.

- **Current health status**: Essential information includes general health status and the presence of any chronic diseases, such as diabetes or asthma, that may affect the client's response to surgery or anesthesia.
- **Allergies**: Include allergies to prescription and nonprescription drugs, food allergies, and allergies to tape, latex, soaps, or antiseptic agents.
- **Medications:** List all current medications (prescribed and OTC). It may be vital to maintain a blood level of some medications (e.g., anticonvulsants) throughout the surgical experience; others, such as anticoagulants or aspirin, increase the risks of surgery and anesthesia and need to be discontinued several days prior to surgery.
- **Previous surgeries:** Previous surgical experiences may influence the client's physical and psychological responses to surgery or may reveal unexpected responses to anesthesia.

- **Mental status:** The client's mental status and ability to understand and respond appropriately can affect the entire perioperative experience. Note any developmental disabilities, mental illness, history of dementia, or excessive anxiety related to the procedure.
- **Understanding of the surgical procedure and anesthesia.**
- **Smoking:** Smokers may have more difficulty clearing respiratory secretions after surgery, increasing the risk of postoperative complications such as pneumonia and atelectasis and delayed wound healing.
- **Alcohol and other mind-altering substances**: Use of substances that affect the central nervous system, liver, or other body systems can affect the client's response to anesthesia and surgery, and postoperative recovery.
- **Obstructive sleep apnea (OSA)** is caused by a partial or complete obstruction of the upper airway during sleep people with OSA may be at higher risk for pulmonary complications during or following general anesthesia.

3. Screening Tests

The surgeon and/or anesthesiologist orders preoperative diagnostic tests. Abnormalities may warrant treatment prior to surgery. The nurse's responsibility is to check the orders carefully, to see that they are carried out, and to ensure that the results are obtained and in the client's record prior to surgery.

TABLE 37–2 Routine Preoperative Screening Tests

TEST	RATIONALE
Complete blood count (CBC)	RBCs, hemoglobin (Hgb), and hematocrit (Hct) are important to the oxygen-carrying capacity of the blood; WBCs are an indicator of immune function
Blood grouping and crossmatching	Determined in case blood transfusion is required during or after surgery
Serum electrolytes (Na^+, K^+, Ca^{2+}, Mg^{2+}, Cl^-, HCO_3^-)	To evaluate fluid and electrolyte status
Fasting blood glucose	High levels may indicate undiagnosed diabetes mellitus
Blood urea nitrogen (BUN) and creatinine	To evaluate renal function
ALT, AST, LDH, and bilirubin	To evaluate liver function
Serum albumin and total protein	To evaluate nutritional status
Urinalysis	To determine urine composition and possible abnormal components (e.g., protein or glucose) or infection
Chest x-ray	To evaluate respiratory status and heart size
Electrocardiogram (ECG) (all clients over 40 years of age and/or clients with preexisting cardiac conditions)	To identify preexisting cardiac problems or disease
Pregnancy test (all female clients of childbearing age)	To identify if the client is pregnant

4. Preoperative Physical Preparation:

❖ **Nutrition and fluids:**

✓ Adequate hydration and nutrition promote healing.

- ✓ It is important to identify and record any signs of any signs of malnutrition or fluid imbalance. If the client is on intravenous (IV) fluids or measured fluid intake, nurses must ensure that the fluid intake and output are accurately measured and recorded.
- ✓ The order "NPO after midnight" has been a long-standing tradition because it was believed that anesthetics depress gastrointestinal functioning and there was a danger the client would vomit and aspirate during the administration of a general anesthetic.

The current guidelines allow for:

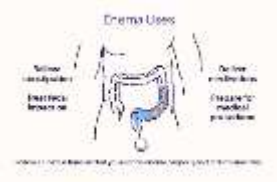
1. The consumption of clear liquids up to 2 hours before elective surgery requiring general anesthesia, regional anesthesia, or sedation-analgesia
2. The consumption of breast milk 4 hours before surgery
3. A light breakfast (e.g., formula, milk, a light meal such as tea and toast) 6 hours before the procedure
4. A heavier meal 8 hours before surgery.

❖ **Elimination.**

- **Enemas** before surgery are no longer routine, but cleansing enemas may be ordered if bowel surgery is planned.

The Enemas Help:

- ✓ prevent postoperative constipation and contamination of the surgical area (during surgery) by feces.



- **Foley catheter** may be ordered to ensure that the bladder remains empty:
  - ✓ This helps prevent inadvertent injury to the bladder, particularly during pelvic surgery.
  - ✓ If the client does not have a catheter, it is important to empty the bladder prior to receiving preoperative medications.

❖ **Hygiene and Skin Preparation:**

- ✓ Clients are asked to bathe or shower the evening or morning of surgery (or both). The purpose of hygienic measures is to reduce the risk of wound infection by reducing the number of bacteria on the client's skin
- ✓ The client's nails should be trimmed and free of polish, and all cosmetics should be removed so that the nail beds, skin, and lips are visible when circulation is assessed during the perioperative phases.

- ✓ Before going into the operating room, the client should remove all hair pins and clips because they may cause pressure or accidental damage to the scalp when the client is unconscious.
- ✓ The client also wears a surgical cap removes personal clothing and puts on an operating room gown. The surgical site is cleansed with an antimicrobial to remove soil and reduce the resident microbial count to sub-pathogenic levels.

❖ **Medications:**

Commonly used preoperative medications include the following:

- ✓ **Sedatives** such as lorazepam (Ativan) to reduce anxiety and ease anesthetic induction
- ✓ **Narcotic analgesics** such as morphine provide client sedation and reduce the required amount of anesthetic
- ✓ **Anticholinergics** such as atropine to reduce oral and pulmonary secretions and prevent laryngospasm
- ✓ **Antiemetic agents** such as ondansetron (Zofran) to prevent nausea and vomiting
- ✓ **Histamine-receptor antihistamines** such as cimetidine (Tagamet) and ranitidine (Zantac) to reduce gastric fluid volume and gastric acidity

❖ **Valuables and Prostheses**

- ✓ Valuables such as jewelry and money should be sent home or labeled and placed in a locked storage area per the agency's policy. Removing jewelry also means removing body-piercing jewelry; there is a risk of injury from burns if an electrosurgical unit is used.
- ✓ All prostheses (artificial body parts, such as partial or complete dentures, contact lenses, artificial eyes, and artificial limbs) and eyeglasses, wigs, and false eyelashes must be removed before surgery. Partial dentures can become dislodged and obstruct an unconscious client's breathing.

❖ **Special Orders**

- ✓ The nurse checks the surgeon's orders for special requirements (e.g., the insertion of a nasogastric tube prior to surgery, the administration of medications, such as insulin, or the application of anti-embolic stockings

❖ **Vital Signs**

- ✓ The nurse assesses and documents vital signs for baseline data. The nurse reports any abnormal findings, such as elevated blood pressure or elevated temperature.

❖ **Ant emboli Stockings.**

✓ Ant emboli (elastic) stockings are firm elastic hose that compress the veins of the legs and thereby facilitate the return of venous blood to the heart. They also improve arterial circulation to the feet and prevent edema of the legs and feet.

❖ **Patient Safety Protocol**

✓ Universal protocol for preventing wrong site, wrong procedure, and wrong person surgery

5. Preoperative Teaching:

It is purpose to:

✓ To reduce the client's anxiety and postoperative complications.

✓ Increase satisfaction with the surgical experience.

✓ Facilitates client's successful and early return to work and other ADLs.

Preoperative teaching involves:

a. Information, including:

- What will happen to the client?
- What the client will experience, such as expected sensations and discomfort

b. Psychological support to reduce anxiety.

c. Roles of client and relative in preoperative preparation, the surgical procedure, &during postoperative phase.

d. Skill training including:

✓ Deep breathing and coughing exercises.

✓ Leg and foot moving (exercises).

✓ Using an incentive spirometer.

✓ Splinting incisions with a hand or a pillow.

References

1. Berman, A., Snyder, SH., & Frandsen, G. (2022). Kozier and Erb's Fundamentals of nursing: concepts; 12 process; and practices. Ninth edition. Pearson education, Inc. United states of America: 960-973.

2. Kozier, B., Erb, G., Berman, A., Snyder, SH., & Frandsen, G., Buck, M., Ferguson, L., Yiu, L., and Stamler, L. (2018). Fundamentals of Canadian Nursing: Concepts, Process, and Practice. 4th edition. Pearson Canada Inc., Pp. 984-998