Perioperative Nursing

The very first requirement in a hospital is
that it should do the sick no harm.
Florence Nightingale

Fundamental of Nursing II

Lec:1

Perioperative Nursing

Instructor:

Dr. Mahdi Hamzah AL- Taee

Perioperative nursing : Nursing care provided for the patient before, during, and after surgery.

Surgery: is the art and science of treating diseases, injuries, and deformities by operation and instrumentation.

Classification of surgical procedures:

Based on

1. **Urgency:**
   - **Urgent:** must be done within a reasonably short time frame to preserve health, but is not an emergency. Usually done within 24–48 hours
   - **Emergency:** must be done immediately to preserve life, a body part, or function.

Purposes of urgency surgery:

•To remove or repair a body part

• To restore function

• To improve health

• To improve self-concept

• To remove or repair a body part

• To preserve or restore health

• To prevent further tissue damage

• To preserve life .

Examples of Urgency surgery:

Tonsillectomy, hernia repair, cataract extraction and lens implantation, hemorrhoidectomy,hip prosthesis, scar revision, facelift, mammoplasty Removal of gallbladder, coronary artery bypass, surgical removal of a malignant tumor, colon resection, amputation Control of hemorrhage; repair of trauma, perforated ulcer, intestinal obstruction; tracheostomy

2. **Based on degree of risk**

   A. **Major surgery**: May be elective, urgent, or emergency To preserve life To remove or repair a body part To restore function To improve or maintain health examples are (Cholecystectomy, nephrectomy, colostomy, hysterectomy, radical mastectomy, amputation, trauma repair).

   B. **Minor surgery** : Primarily elective the purposes are To remove skin lesions to correct deformities, example are (Teeth extraction, removal of warts, skin biopsy, dilation and curettage, laparoscopy, cataract extraction, arthroscopy)

3. **Based on Purpose**

   a. **Diagnostic**

To make or confirm a diagnosis examples of diagnostic surgery is (Breast biopsy, laparoscopy, bronchoscopy, exploratory laparotomy)

   b. **Ablative**

To remove a diseased body part example is (Appendectomy, subtotal thyroidectomy, partial gastrectomy, colon resection, amputation).

   c. **Palliative:**

To relieve or reduce intensity of an illness; is not curative (Colostomy, nerve root resection, debridement of necrotic tissue, balloon angioplasties, arthroscopy)

   d. **Reconstructive :**

To restore function to traumatized or malfunctioning tissue example (Scar revision, plastic surgery, skin graft, internal fixation of a fracture, breast reconstruction).

   e. **Transplantation:**

To replace organs or structures that are diseased or malfunctioning. Example (Kidney, liver, cornea, heart, joints).

f. Constructive:

To restore function in congenital anomalies. Exaples (Cleft palate repair, closure of atrial–septal defect).

Suffix	Meaning	Example
ectomy	Excision or removal of	Appendectomy
lysis	Destruction of	Electrolysis
orrhaphy	Repair or suture of	Herniorrhaphy
oscopy	Looking into	Endoscopy
ostomy	Creation of opening into	Colostomy
otomy	Cutting into or incision of	Tracheotomy
plasty	Repair or reconstruction of	Mammoplasty

TABLE 18-5 COMMON PREOPERATIVE LABORATORY AND DIAGNOSTIC TESTS

Test	Assessment
ABGs, pulse oximetry	Respiratory and metabolic function, oxygenation status
Blood glucose	Metabolic status, diabetes mellitus
Blood urea nitrogen, creatinine	Renal function
Chest x-ray	Pulmonary disorders, cardiac enlargement, heart failure
Complete blood count: RBCs, Hgb, Hct, WBCs, WBC differential	Anemia, immune status, infection
Electrocardiogram	Cardiac disease, dysrhythmias
Electrolytes	Metabolic status, renal function, diuretic side effects
hCG	Pregnancy status
Liver function tests	Liver status
PT, PTT, INR, platelet count	Coagulation status
Pulmonary function studies	Pulmonary status
Serum albumin	Nutritional status
Type and crossmatch	Blood available for replacement (elective surgery patients may have own blood available)
Urinalysis	Renal status, hydration, urinary tract infection

Phases of the Perioperative Period

The patient who is having surgery progresses through several distinct phases, called the **perioperative period.** The three phases of perioperative patient care are:

1. **The preoperative phase**: beginning when the patient and surgeon mutually decide that surgery is necessary and will take place. It ends when the patient is transferred to the operating room (OR) or procedural bed.
2. **The intraoperative phase**: beginning when the patient is transferred to the OR bed, also called a table, until transfer to the postoperative recovery area.
3. **The postoperative phase**, lasting from admission to the recovery area to complete recovery from surgery and the last follow-up physician visit.

The postoperative phase can be further divided into phase I (providing patient care from a totally anesthetized state to one requiring less acute nursing interventions), phase II (preparing the patient for self or family care or for care in a phase III extended care environment).

Nursing process pre-operative phase:

Obtaining a health history and performing a physical

Assessment to establish a baseline database

• Identifying risk factors and allergies that could pose

surgical complications

• Identifying medications and treatments the patient is

currently receiving

• Determining the teaching and psychosocial needs of the

patient and family

• Determining postsurgical support and referral needs for recovery.

Health History

identifies risk factors and strengths in the patient's physical and psychosocial status and helps the nurse to individualize the preoperative assessment. Health history information significant to the surgical experience includes the patient's

1. developmental level; (Infants and older adults are at a greater risk from surgery than are children and young or middle-aged adults).

2.medical history;(provides information about past and current illnesses. Pathologic changes associated with past and current illnesses increase surgical risk as well as the risk for postoperative complications

3. Medications.

4.previous surgeries (Data about previous surgeries are important for meeting the patient's physical and psychological needs throughout the perioperative period. Physical implications of previous surgeries are important to the intraoperative and postoperative phases (e.g., previous heart or lung surgery may necessitate adaptations in anesthesia and in positioning during surgery). Complications during or after prior surgery, such as malignant hyperthermia, latex sensitivity, pneumonia, thrombophlebitis, or surgical site infection, may put the patient at risk during this surgery, necessitating individualized postoperative monitoring perceptions and knowledge of the surgery to be done.

5.Nutrition:(Both malnutrition and obesity increase surgical risk. Surgery increases the body's need for nutrients necessary for normal tissue healing and resistance to infection. A patient who is malnourished is at a higher risk for alterations in fluid and electrolyte balance, delay in wound healing, and wound infection. Obese patients are at increased risk for respiratory, cardiovascular, positional injury, deep vein thrombosis, and gastrointestinal problems.

6. use of alcohol, illicit drugs, or nicotine;(Patients with a large habitual intake of alcohol require larger doses of anesthetic agents and postoperative analgesics, increasing the risk for drug-related complications. Patients who use illicit drugs are at risk for interactions with anesthetic agents.

7. Activities of daily living and occupation.

8. Coping patterns and support systems.

9. Sociocultural needs.

- **Preparing the Patient Physically**

Hygiene and skin preparation.

Elimination:

Emptying the bowel of feces is no longer a routine procedure before surgery, but the nurse should use preoperative assessments to determine the need for an order to facilitate bowel elimination. Peristalsis does not return for 24 to 48 hours after the bowel is handled, so preoperative cleansing helps to decrease postoperative constipation. the patient should void immediately before receiving preoperative medications to ensure an empty bladder during surgery.

Nutrition and Fluids

Patients need to be well nourished and hydrated before surgery to counterbalance fluid, blood, and electrolyte loss during surgery and to facilitate anesthesia delivery and tissue healing after surgery. Although maintaining a nothing by mouth (NPO) status for at least 8 hours prior to surgery Patients, especially children, may be less anxious, better hydrated, and experience fewer headaches and nausea after surgery if permitted selected fluids (including breast milk for infants) up to within 2 to 4 hours before surgery.

Rest and sleep

Rest and sleep are important in reducing the stress before surgery and for healing and recovery after surgery.

- **Preparing the Patient on the Day of Surgery**

A preoperative checklist is often used to outline the nurse's responsibilities on the day of surgery; these activities must be completed and documented before the patient is transported to surgery.

(e.g., NPO, preoperative teaching, informed consent, skin preparation, screening tests, bladder elimination).

Intra operative phase:

Anesthesia

is a method and technique of making potentially uncomfortable interventions tolerable and safe.

General Anesthesia

the administration of drugs by the inhalation or intravenous (IV) route to produce central nervous system depression.

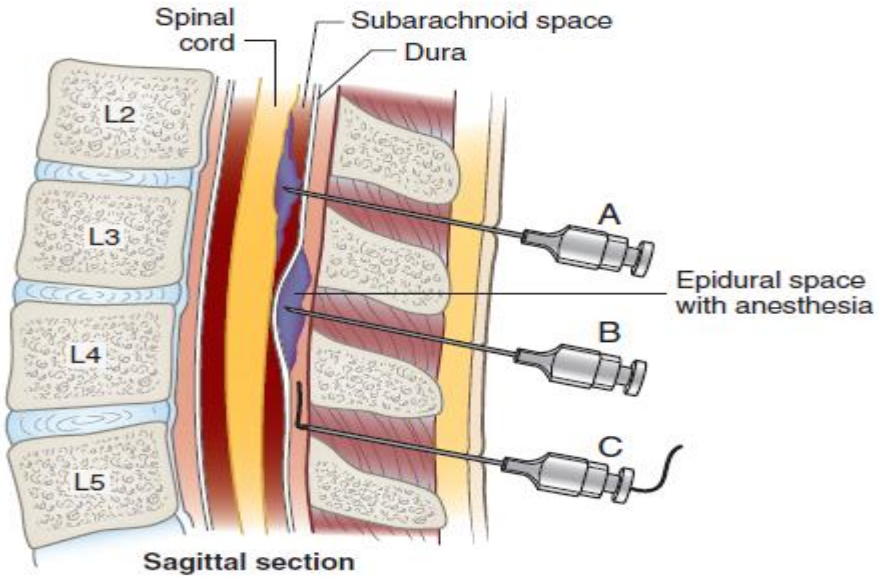
Phases of General Anesthesia are

1. Induction: begins with administration of the anesthetic agent and continues until the patient is ready for the incision.
2. Maintenance: continues from this point until near the completion of the procedure.
3. Emergence: starts as the patient begins to awaken from the altered state induced by the anesthesia and usually ends when the patient is ready to leave the operating room.

Regional anesthesia :an anesthetic agent is injected near a nerve or nerve pathway in or around the operative site, inhibiting the transmission of sensory stimuli to central nervous system receptors.

1. **Nerve blocks** are accomplished by injecting a local anesthetic round a nerve trunk supplying the area of surgery such as the jaw, face, and extremities. Onset and duration f the block depend on the anesthetic drug, its concentration, he amount injected, and the addition of epinephrine, which prolongs the block.
2. **Spinal anesthesia** is achieved by injecting a local anesthetic into the subarachnoid space through a lumbar puncture, causing sensory, motor, and autonomic blockage. his type of anesthesia is used for surgery of the lower abdomen, perineum, and legs. Adverse effects of spinal anesthesia may include hypotension, headache, and urine retention.
3. **Caudal anesthesia:**the injection of the local anesthetic into the epidural space through the caudal canal in the sacrum it may be used for procedures on the lower xtremities or perineum.

4. **Epiduralesthesia:** involves the injection of the anesthetic hrough the intervertebral spaces, usually in the lumbar egion (although it may also be used in the thoracic or cervical regions). It is used for surgeries of the arms,shoulders, thorax, abdomen, pelvis, and legs.



A, Spinal anesthesia. B, Single-injection epidural. C, Epidural catheter. (Interspaces most commonly used are L2-3, L4-5, L3-4

Topical and Local Anesthesia

Local anesthesia is the injection of an anesthetic agent such as lidocaine, bupivicaine, or tetracaine to a specific area of the body. Topical anesthesia is used on mucous membranes, open skin surfaces, wounds, and burns. Lidocaine in a 4% to 10% solution is the most commonly used agent.

Post-operative assessment and intervention (Return to the unit)

Factors to Assess	Assessments and Intervention
1. Vital signs and oxygen saturation	Temperature, blood pressure, pulse and respiratory rates; oxygen saturation • Note, report, and document deviations from preoperative and PACU data as well as symptoms of complications.
2. Color and temperature of skin	Skin color (pallor, cyanosis), skin temperature, and diaphoresis
3. Level of consciousness	• Orientation to time, place, and person • Reaction to stimuli and ability to move extremities
4. Intravenous fluids	•Type and amount of solution, flow rate, security and patency of tubing • Infusion site
5. Surgical site	• Dressing and dependent areas for drainage (color, amount,

	consistency) • Drains and tubes; be sure they are intact, patent, and properly connected to drainage systems.
6. Other tubes	• Assess indwelling urinary catheter, gastrointestinal suction, and others for drainage, patency, and amount of output. • If oxygen is ordered, ensure placement of ordered application and flow rate.
7. Comfort.	Assess pain (location, duration, intensity) and determine whether analgesics. • Assess for nausea and vomiting. • Cover the patient with a blanket. • Reorient to the room as necessary.
8. Position and safety	Place the patient in an ordered position, or • If the patient is not fully conscious, place in the side-lying position. • Elevate the side rails and place the bed in low position.

Post-operative complication

1. **Early complication**
    a. Respiratory failure.
    b. Circulatory failure.

c. Wound infection.

d. Urinary tract infection.

2. **Later complications:**

A. Cardiovascular or circulatory complication include:

Hemorrhage: is an excessive internal or external blood loss, and may lead to hypovolemic shock.

Causes:

- A slipped suture,
- A dislodged clot in the wound,
- Stress on the surgical site;
- Pathophysiologic conditions or certain medications.

Common manifestations

- Restlessness.
- Anxiety.
- Frank bleeding .
- Hypotension.
- Cold, clammy skin.
- A weak, thready, and rapid pulse.
- Cool extremities.
- Deep, rapid respirations.
- Decreased urine output.
- Thirst .

Shock:

the body's reaction to acute circulatory failure as the result of an alteration in circulatory control or a loss of intravascular fluid.

Common manifestations are the same as those for hemorrhage.

The primary purpose of care for a patient in shock is to

- Improve and maintain tissue perfusion by eliminating the cause of the shock.

Nursing interventions include

- Notifying the surgeon immediately.
- Establishing and maintaining the airway;
- Placing the patient in a flat position with the legs elevated 30 to 45 degrees;
- Administering oxygen;
- Monitoring vital signs, hematocrit, and blood gas results
- Maintaining body warmth with covers;

Thrombophlebitis:

(is an inflammation of a vein associated with thrombus (blood clot) formation.)

Manifestations of thrombophlebitis are:

- Pain.
- Cramping in the calf or thigh of the involved extremity,
- Redness and swelling in the affected area,
- Elevated temperature,
- An increase in the diameter of the involved extremity.

Nursing interventions include

administering medications (e.g., anti-inflammatory agents, anticoagulants , analgesics), maintaining the patient on bed rest, applying external heat, applying thigh-high ant embolic stockings.

Respiratory complications:

Pulmonary embolus:

is a blood clot or foreign substance that is dislodged and travels through the bloodstream until it lodges in a smaller vessel.

Manifestations of a pulmonary embolus

(include dyspnea, chest pain, cough, cyanosis, rapid respirations, tachycardia , and anxiety. This is a life-threatening condition and immediate treatment is necessary.

Nursing interventions

include notifying the physician immediately, maintaining the patient on bed rest in the semi-Fowler's position, assessing vital signs frequently, administering oxygen, administering medications (e.g., anticoagulants, analgesics).

Pneumonia:

is an inflammation of the alveoli as the result of an infectious process or the presence of foreign material.

Pneumonia may occur postoperatively as a result.

Causes

- Aspiration.
- Infection.
- Depressed cough reflex.
- Increased secretions from anesthesia,
- Dehydration.
- Immobilization.

Manifestations

(fever, chills, a cough that produces rusty or purulent sputum, crackles and wheezes, dyspnea, and chest pain).

Nursing interventions include :

Prevent or monitor for respiratory complications and promoting

full aeration of the lungs by :

(positioning the patient in semi-Fowler's or Fowler's position, administering oxygen, administering medications (e.g., antibiotics, expectorants, analgesics), providing frequent oral hygiene, and ensuring rest and comfort).

Atelectasis: is the incomplete expansion or collapse of alveoli with retained mucus, involving a portion of lung and resulting in poor gas exchange**.**

Manifestations of atelectasis include

1. decreased lung sounds over the affected area,
2. dyspnea,
3. cyanosis,
4. crackles,
5. restlessness

Nursing interventions

include those used to prevent or monitor for respiratory complications, and positioning the patient in semi-Fowler's position, administering oxygen, and administering analgesics for pain.