Nursing Management for Patients with Subdural Hematoma Undergoing Burr Hole Surgery

Introduction

Subdural hematoma (SDH) is a condition where blood accumulates between the dura mater and the brain, usually due to head injury or trauma. If untreated, it can cause increased intracranial pressure and neurological deterioration.

Burr hole irrigation is a minimally invasive neurosurgical procedure used to remove the accumulated blood and relieve pressure on the brain. Nurses play a vital role in preoperative preparation, postoperative monitoring, and rehabilitation of patients undergoing this procedure.

Learning Objectives

After completing this session, nurses should be able to:

1. Understand subdural hematoma and its causes
2. Recognize clinical signs and symptoms
3. Understand burr hole irrigation as a treatment
4. Apply preoperative and postoperative nursing management
5. Educate patients and families on recovery and complications

What is Subdural Hematoma (SDH)?

Subdural hematoma is a collection of blood between the dura mater and the brain.

Types of SDH

- Acute SDH – within 1–3 days after injury
- Subacute SDH – 4 days to 2–3 weeks
- Chronic SDH – usually more than 3 weeks after injury

Common Causes of SDH

Traumatic Causes

- Head injury
- Falls
- Sports injury
- Physical assault

Non-Traumatic Causes

- Use of blood-thinning medications
- Elderly patients with fragile blood vessels

Signs and Symptoms of SDH

Common symptoms include:

- Headache
- Nausea and vomiting
- Drowsiness
- Confusion or memory loss
- Slurred speech
- Vision problems
- Loss of balance
- Weakness or paralysis
- Seizures
- Loss of consciousness
- Diagnosis

Diagnostic investigations include:

- CT scan of the brain (most common)
- MRI scan

These imaging studies help confirm the presence and size of the hematoma.

Treatment of SDH

Surgical Management

- Burr hole irrigation
- Craniotomy
- Craniectomy

Medical Management

- Monitoring neurological status
- Control of intracranial pressure
- Supportive treatment

Burr Hole Irrigation

Burr hole irrigation is a minimally invasive surgical procedure in which a small hole is drilled into the skull to drain the accumulated blood.

Advantages

- Shorter operation time
- Faster recovery
- Less invasive than craniotomy
- Effective treatment for chronic or subacute SDH

Possible Complications

- Reaccumulation of hematoma
- Infection
- Seizures
- Bleeding
- Cerebrospinal fluid leakage
- Anesthesia complications

Preoperative Nursing Management

Patient Assessment

- Vital signs monitoring
- Neurological assessment
- Level of consciousness (GCS)
- Pupillary reaction
- Motor function assessment

Preparation for Surgery

- Confirm investigations and consent
- Maintain nil by mouth (NBM)
- Establish IV access
- Prepare surgical site if needed
- Provide psychological support to patient and family

Intraoperative Nursing Responsibilities

- Confirm patient identity
- Maintain sterile technique
- Assist surgical team
- Monitor patient condition
- Document intraoperative events

Neurological Monitoring

- Monitor **GCS regularly**
- Assess pupils and motor function
- Watch for signs of increased intracranial pressure

Vital Signs Monitoring

- Monitor temperature, pulse, respiration, blood pressure, and oxygen saturation

Airway and Breathing

- Maintain airway patency
- Provide oxygen therapy if needed

Drain and Wound Care

- Monitor drainage amount, color, and consistency
- Maintain drainage system below head level
- Observe for infection or bleeding
- Maintain aseptic wound care

Fluid and Nutrition Management

- Monitor intake and output
- Maintain IV fluids as prescribed
- Start oral feeding once patient is alert and able to swallow
- Prevent dehydration or fluid overload

Pain and Medication Management

Administer medications as prescribed:

- Analgesics
- Antibiotics
- Anticonvulsants

Monitor for side effects and effectiveness of treatment.

Prevention of Postoperative Complications

Nurses should monitor for:

- Seizures
- Infection
- Re-bleeding
- Deep vein thrombosis
- Pressure sores

Early mobilization and physiotherapy help improve recovery.

Rehabilitation and Recovery

Rehabilitation may include:

- Physiotherapy
- Range-of-motion exercises
- Balance training
- Cognitive rehabilitation
- Psychological support

Patient and Family Education

Nurses should educate patients and families about:

- Medication adherence
- Wound care
- Follow-up appointments
- Warning signs such as severe headache, weakness, seizures, or confusion

Encourage safe mobility to prevent falls.

Key Nursing Message

Effective nursing care for patients undergoing burr hole surgery includes:

- Careful neurological monitoring
- Early detection of complications
- Proper wound and drain management
- Patient education and rehabilitation support

Conclusion

Subdural hematoma is a serious neurological condition requiring timely treatment. Burr hole irrigation is an effective surgical procedure with good outcomes when combined with appropriate nursing care. Nurses play a critical role in monitoring, prevention of complications, and patient rehabilitation.