University of A-Ameed
College of Nursing
Adult branch
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Management of Unconscious Patients

Altered level of consciousness (LOC) is present when the patient is not oriented, does not follow commands, or needs persistent stimuli to achieve a state of alertness. LOC is gauged on a continuum, with a normal state of alertness and full cognition (consciousness) on one end and coma on the other end.

Coma is a clinical state of unarousable unresponsiveness in which there are no purposeful responses to internal or external stimuli.

Type of coma according to duration

1. Akinetic mutism: is a state of unresponsiveness to the environment in which the patient makes no voluntary movement.
2. Persistent vegetative state: is a condition in which the patient who is unresponsive resumes sleep–wake cycles after coma but is devoid of cognitive or affective mental function
3. A minimally conscious: state differs from persistent vegetative state in that the patient has inconsistent but reproducible signs of awareness

Pathophysiology

Altered LOC is not a disorder itself; rather, it is a result of multiple pathophysiologic phenomena. The underlying cause of neurologic dysfunction is disruption in the cells of the **nervous system, neurotransmitters, or brain anatomy**

The causes of the altered LOC may be:

1. Neurologic (head injury, stroke).
2. Toxicologic (drug overdose, alcohol intoxication).
3. Metabolic (hepatic or kidney injury, diabetic ketoacidosis).

Clinical Manifestations

1. **Initial alterations** in LOC are behavioral changes, such as restlessness or increased anxiety.
2. Changes occur in the pupillary response.
3. Changes in eye opening response.
4. Changes in verbal response.
5. Changes in motor response.

6. Change in pupils' reaction to light.

Assessment of patient with altered LOC

The level of consciousness is assessed based on the criteria in the Glasgow Coma Scale: eye opening, verbal response, and motor response. The patient's responses are rated on a scale from 3 to 15. A score of 3 indicates severe impairment of neurologic function, brain death, or pharmacologic inhibition of the neurologic response. A score of 15 indicates that the patient is fully responsive.

Glasgow Coma Scale

The Glasgow Coma Scale is a tool for assessing a patient's response to stimuli. Scores range from 3 (deep coma) to 15 (normal).

Eye-opening response	Spontaneous	4
	To voice	3
	To pain	2
	None	1
Best verbal response	Oriented	5
	Confused	4
	Inappropriate words	3
	Incomprehensible sounds	2
	None	1
Best motor response	Obeys command	6
	Localizes pain	5
	Withdraws	4
	Flexion	3
	Extension	2
	None	1
Total		3 to 15

Diagnostic procedures

1. Computed tomography (CT) scanning
2. Perfusion CT (PCT)
3. Magnetic resonance imaging (MRI)
4. Magnetic resonance spectroscopy (MRS)
5. Electroencephalography (EEG).
6. Positron emission tomography (PET)

Laboratory tests

1. Analysis of blood glucose
2. Serum electrolytes
3. Serum ammonia
4. Liver function tests
5. Blood urea nitrogen (BUN) levels
6. Calcium level
7. Partial thromboplastin and prothrombin times
8. Serum ketones
9. Alcohol and drug concentrations
10. Arterial blood gases.

Medical Management

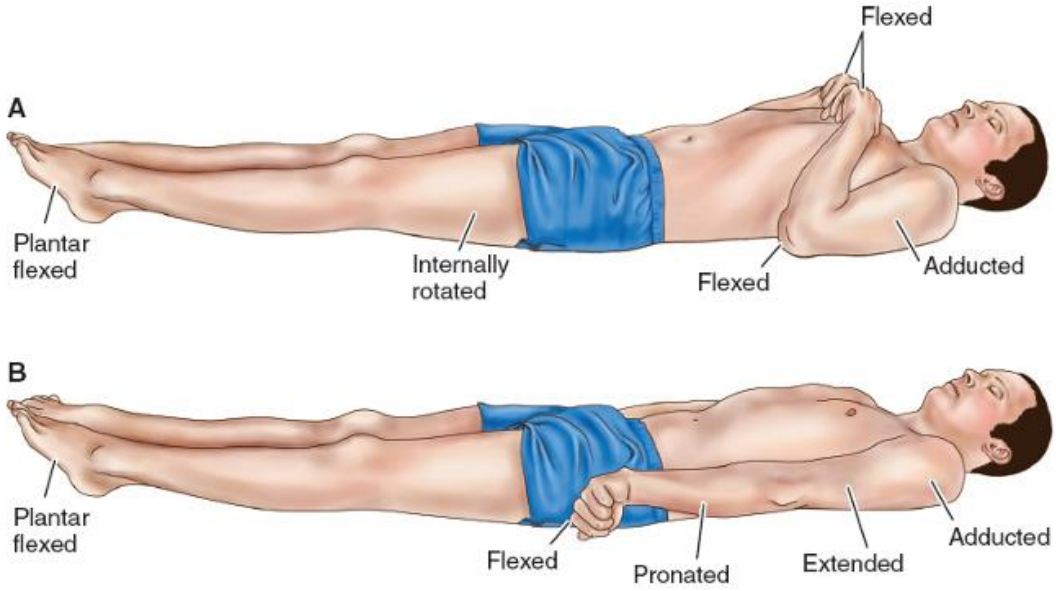
1. The first priority of treatment for the patient with altered LOC is to obtain and **maintain a patent airway**. The patient may be orally or nasally intubated, or a tracheostomy may be performed. Until the ability of the patient to breathe is determined, a mechanical ventilator is used to maintain adequate oxygenation and ventilation.
2. The circulatory status (blood pressure, heart rate) is monitored to ensure adequate perfusion to the body and brain. An intravenous (IV) catheter is inserted to provide access for IV fluids and medications.
3. Nutritional support, via a feeding tube or a gastrostomy tube, is initiated as soon as possible.
4. Determine and treat the underlying causes of altered LOC, other medical interventions are aimed at pharmacologic management and prevention of complications.

NURSING PROCESS

Assessment

Nursing Assessment of the Patient Who Is Unconscious		
Examination	Clinical Assessment	Clinical Significance
Level of responsiveness or consciousness	Eye opening; verbal and motor responses; pupils (size, equality, reaction to light)	Obeying commands is a favorable response and demonstrates a return to consciousness
Pattern of respiration	Respiratory pattern Cheyne–Stokes respiration Hyperventilation Ataxic respiration with irregularity in depth/rate	*Disturbances of respiratory center of brain may result in various respiratory patterns *Suggests lesions deep in both hemispheres; area of basal ganglia and upper brain stem* Suggests onset of metabolic problem or brain stem damage *Ominous sign of damage to medullary center
Eyes Pupils (size, equality, reaction to light)	Equal, normally reactive pupils Equal or unequal diameter Progressive dilation Fixed dilated pupils	*suggests that coma is toxic or metabolic in origin Helps determine location of lesion *Indicates increasing intracranial pressure *Indicates injury at level of midbrain
Eye movements	Normally, eyes should move from side to side	Functional and structural integrity of brain stem is assessed by inspection of extraocular movements; usually absent in deep coma
Corneal reflex	When cornea is touched with a wisp of clean cotton, blink response is normal	Tests cranial nerves V and VII; helps determine location of lesion if unilateral; absent in deep coma
Facial symmetry	Asymmetry (sagging, decrease in wrinkles)	Sign of paralysis
Swallowing reflex	Drooling versus spontaneous swallowing	Absent in coma Paralysis of cranial nerves X and XII
Neck	Stiff neck Absence of spontaneous neck movement	Subarachnoid hemorrhage, meningitis Fracture or dislocation of cervical spine
Response of extremity to noxious stimuli	Firm pressure on a joint of the upper and lower extremities Observe spontaneous movements	Asymmetric response in paralysis Absent in deep coma
Deep tendon reflexes	Tap patellar and biceps tendons	Brisk response may have localizing value. Asymmetric response in paralysis Absent in deep coma
Pathologic reflexes	Firm pressure with blunt object on sole of foot, moving along lateral margin and crossing to the ball of foot	Flexion of the toes, especially the great toe, is normal except in newborn* Dorsiflexion of toes (especially great toe) indicates contralateral

		pathology of corticospinal tract (Babinski reflex) Helps determine location of lesion in brain
Abnormal posture	Observation for posturing (spontaneous or in response to noxious stimuli) Flaccidity with absence of motor response Decorticate posture (flexion and internal rotation of forearms and hands) Decerebrate posture (extension and external rotation)	Deep extensive brain lesion Seen with cerebral hemisphere pathology and metabolic depression of brain function Decerebrate posturing indicates deeper and more severe dysfunction than does decorticate posturing; implies brain pathology; poor prognostic sign



Abnormal posture response to stimuli. A. Decorticate posturing and flexion of the upper extremities, internal rotation of the lower extremities, and plantar flexion of the feet. B. Decerebrate posturing, involving extension and outward rotation of upper extremities and plantar flexion of the feet

Diagnosis

NURSING DIAGNOSES

Based on the assessment data, major nursing diagnoses may include the following:

1. Impaired breathing due to neurologic impairment.
2. Risk for injury associated with lack of adaptive and defensive resources due to decreased LOC

3. Risk for impaired nutritional intake associated with inability to ingest nutrients to meet metabolic needs
4. Risk for impaired skin integrity associated with prolonged immobility
5. Risk for injury associated with diminished or absent corneal reflex
6. Impaired thermoregulation associated with damage to hypothalamic center
7. Bowel incontinence associated with impairment in neurologic sensing and control and also associated with changes in nutritional delivery methods

Planning and Goals

The patient with altered LOC is subject to all of the complications associated with immobility. Therefore, the goals of care for the patient with altered LOC include normalization of breathing, protection from injury, attainment of fluid volume balance, maintenance of nutritional needs, achievement of intact oral mucous membranes, maintenance of normal skin integrity, absence of corneal injury, attainment of effective thermoregulation, and effective urinary elimination. Additional goals include bowel continence, restoration of health maintenance, maintenance of intact family or support system, and absence of complications.

Nursing Interventions

1. Achieving an adequate breathing pattern:
   The most important consideration in managing the patient with altered LOC is to establish an adequate airway and ensure normalization of the breathing pattern by:
   a. Elevating the head of the bed to 30 degrees helps prevent aspiration.
   b. Suctioning and oral hygiene
   c. Chest physiotherapy and postural drainage may be initiated to promote pulmonary hygiene, unless contraindicated by the patient's underlying condition.
   d. The chest should be auscultated at least every 8 hours to detect adventitious breath sounds or absence of breath sounds.

Nursing actions for the patient who is mechanically ventilated include

a. maintaining the patency of the endotracheal tube or tracheostomy
b. providing frequent oral care
c. monitoring arterial blood gas measurements

d. maintaining ventilator settings

2. Protecting the patient:
   a. For the protection of the patient, side rails are padded. Two rails are kept in the raised position during the day and three at night.
   b. Care should be taken to prevent injury from invasive lines and equipment
   c. Care should be taken to prevent injury from other potential sources of injury should be identified, such as restraints, tight dressings, environmental irritants, damp bedding or dressings, and tubes and drains.
3. Maintaining fluid balance and managing nutritional needs:
   a. Hydration status is assessed by examining tissue turgor and mucous membranes, assessing intake and output trends, and analyzing laboratory data. Fluid needs are met initially by administering the required IV fluids. The IV solutions for patients with intracranial conditions must be given slowly. If they are given too rapidly, they can increase ICP. The quantity of fluids given may be restricted to minimize the possibility of cerebral edema.
   b. If the patient does not recover quickly and sufficiently enough to take adequate fluids and calories by mouth, a feeding or gastrostomy tube will be inserted for the administration of fluids and enteral feedings. Research suggests that patients fed within 48 hours of injury have improved outcomes over those in whom nutrition is delayed.
4. Providing mouth care:
   a. The mouth is inspected for dryness, inflammation, and crusting. The patient who is unconscious requires careful oral care, because there is a risk of parotitis if the mouth is not kept not clean
   b. If the patient has an endotracheal tube, the tube should be moved to the opposite side of the mouth daily to prevent ulceration of the mouth and lips.
5. Maintaining skin and joint integrity:

   Preventing skin breakdown requires continuing nursing assessment and intervention. Special attention is given to patients who are unconscious, because they cannot respond to external stimuli.
   a. A regular schedule of turning to avoid pressure, which can cause breakdown and necrosis of the skin. Turning also provides kinesthetic

(sensation of movement), proprioceptive (awareness of position), and vestibular (equilibrium) stimulation.

b. Dragging or pulling the patient up in bed must be avoided, because this creates a shearing force and friction on the skin surface.
c. Passive exercise of the extremities to prevent contractures
d. Assess the heels of the feet are for pressure areas.

6. Preserving corneal integrity:

Some patients who are unconscious have their eyes open and have inadequate or absent corneal reflexes.

a. The eyes may be cleansed with cotton balls moistened with sterile normal saline to remove debris and discharge
b. Artificial tears or methylcellulose may be prescribed to provide lubrication.
c. Eye patches should be used cautiously because of the potential for corneal abrasion from contact with the patch; eye shields may provide eye protection with less risk of injury.

7. Maintaining body temperature:

High fever in the patient who is unconscious may be caused by infection of the respiratory or urinary tract, drug reactions, or damage to the hypothalamic temperature-regulating center. A slight elevation of temperature may be caused by dehydration.

Strategies for reducing fever include:

a. Removing all bedding over the patient (with the possible exception of a light sheet, towel, or small drape)
b. Administering acetaminophen or ibuprofen as prescribed giving cool sponge baths using a hypothermia blanket
c. Monitoring temperature frequently to assess the patient's response to the therapy and to prevent an excessive decrease in temperature and shivering.

8. Preventing urinary retention:

The patient with an altered LOC is often incontinent or has urinary retention. The bladder is palpated or scanned at intervals to determine whether urinary retention is present, because a full bladder may be an overlooked cause of overflow incontinence.

a. If the patient is not voiding, a program of intermittent catheterization should be devised in order to reduce the patient's risk of urinary tract infection
b. The area around the urethral orifice is inspected for drainage and cleansed routinely
c. The urinary catheter is usually **removed** if the patient has a stable cardiovascular system and if no diuresis, sepsis, or voiding dysfunction existed before the onset of coma
d. An external catheter (condom catheter) for the male patient and absorbent pads or female incontinence device for the female patient can be used for patients who are unconscious and can urinate spontaneously, although involuntarily

9. Promoting bowel function:

The abdomen is assessed for distention by listening for bowel sounds and measuring the girth of the abdomen with a tape measure. There is a risk of diarrhea from infection, antibiotic agents, and hyperosmolar fluids. Immobility and lack of dietary fiber can cause constipation.

10. Restoring health maintenance:

Once increased ICP is not a problem, the nurse assists the patient and family to restore the health of the patient who is unconscious. This involves using auditory, visual, olfactory, gustatory, tactile, and kinesthetic activities to stimulate the patient emerging from coma

11. Monitoring and managing potential complications:

a. Pneumonia, aspiration, and respiratory failure are potential complications in any patient who has a depressed loc and who cannot protect the airway or turn, cough, and take deep breaths. The longer the period of unconsciousness, the greater the risk of pulmonary complications.
b. The patient with altered loc is monitored closely for evidence of impaired skin integrity, and strategies to prevent skin breakdown and pressure injuries are continued through all phases of care, including hospitalization, rehabilitation, and home care factors that contribute to impaired skin integrity (e.g., incontinence, inadequate dietary intake, pressure on bony prominences, edema)
c. The patient should also be monitored for signs and symptoms a deep vein thrombosis (DVT) or pulmonary embolism (PE).The nurse observes for

signs and symptoms of DVT or PE and during acute care, the patient is turned every 2 hours and passive range of motion performed at least twice a day.