Lecture 5 : Medical Surgical Nursing

Cerebrovascular accident (CVA) :

- Definition: It is damage to the brain caused by a disruption of the blood supply to a part of the brain. This disruption of blood supply can be caused by a blood clot, or by a ruptured artery.
- A cerebral vascular accident is another name for a stroke.
- Affects more than 700,000 persons annually.
- Over 200,000 deaths each year
- 3 killer , Is the **3rd** cause of death in high income countries after cancer & IHD .
- Leading cause of serious long term disability in adult
- 95 % of strokes occur in people age 45 and older.
- Stroke can occur at any age, including in childhood.

Classification OF CVA:

There are two major types of stroke:

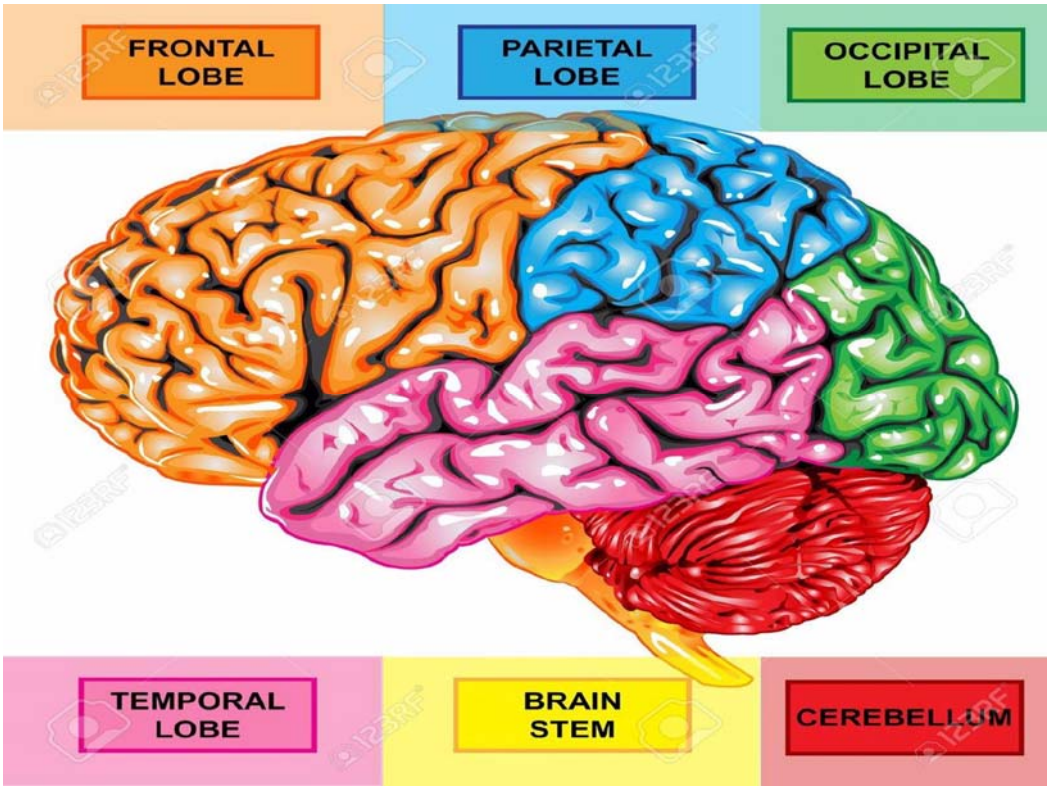
1-Ischemic stroke:

Caused when a blood vessel supplying the brain is occluded (obstructed) by clot responsible for 75% of all stroke.

2-Hemorrhagic stroke:

Occurs when a blood vessel in part of the brain becomes weak and ruptured , causing blood to leak into the brain.

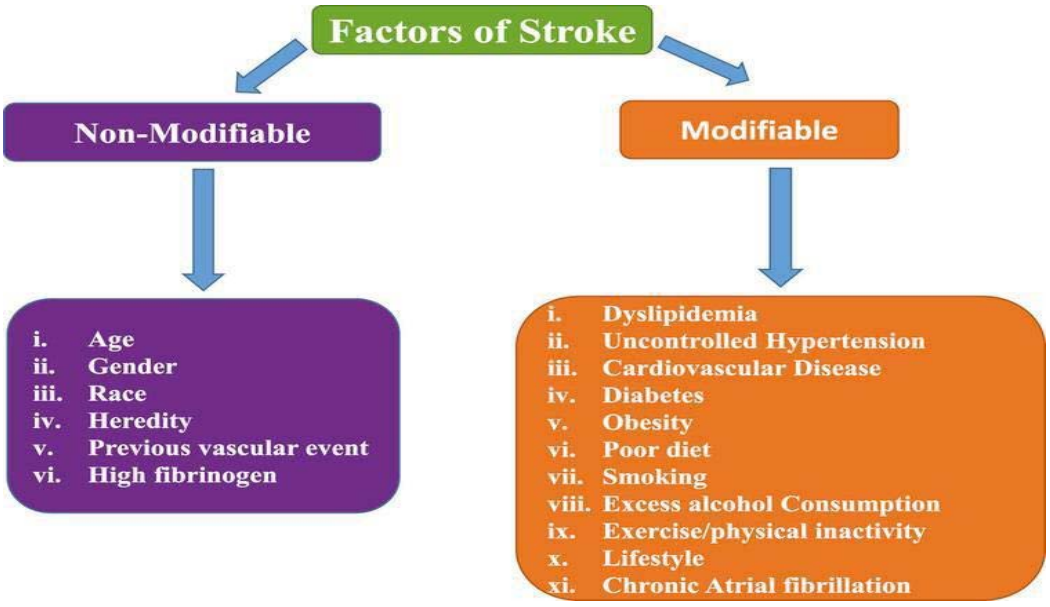
Both forms are life threatening.



Pathophysiology:

The main event of a heart attack is the occlusion by a sudden blood clot of one or more blood vessels supplying the heart muscle. A similar occlusion of blood vessels supplying the brain will result in the death of brain tissue or cerebral infarction. Another cause of stroke is hemorrhage from a ruptured blood vessel. Yet another stroke mechanism is the occlusion of a brain artery by a clot that traveled to the brain from another body location.

Risk Factors OF CVA:



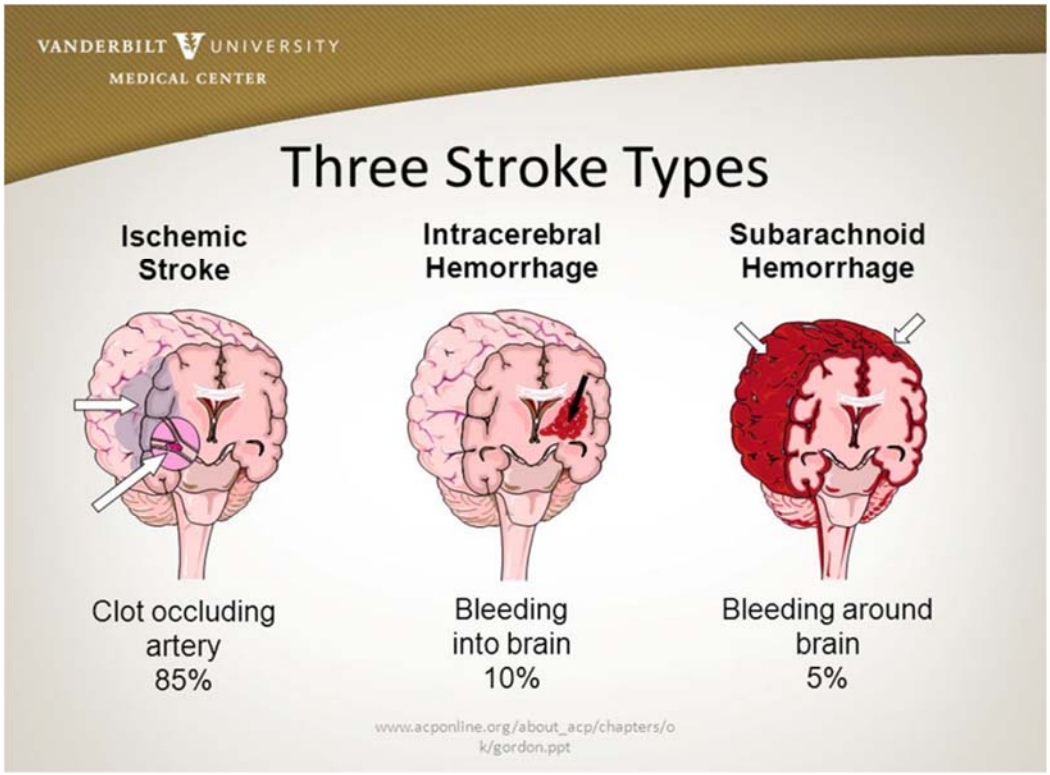
22.52 STROKE RISK FACTORS

Irreversible

- Age
- Gender (male > female, except in the very young and very old)
- Race (Afro-Caribbean > Asian > European)
- Heredity
- Previous vascular event, e.g. myocardial infarction, stroke or peripheral embolism

Modifiable

- Hypertension
- Heart disease (heart failure, atrial fibrillation, endocarditis)
- Diabetes
- Hyperlipidaemia
- Smoking
- Excess alcohol consumption
- Polycythaemia
- Oral contraceptives



Clinical Manifestations of CVA:

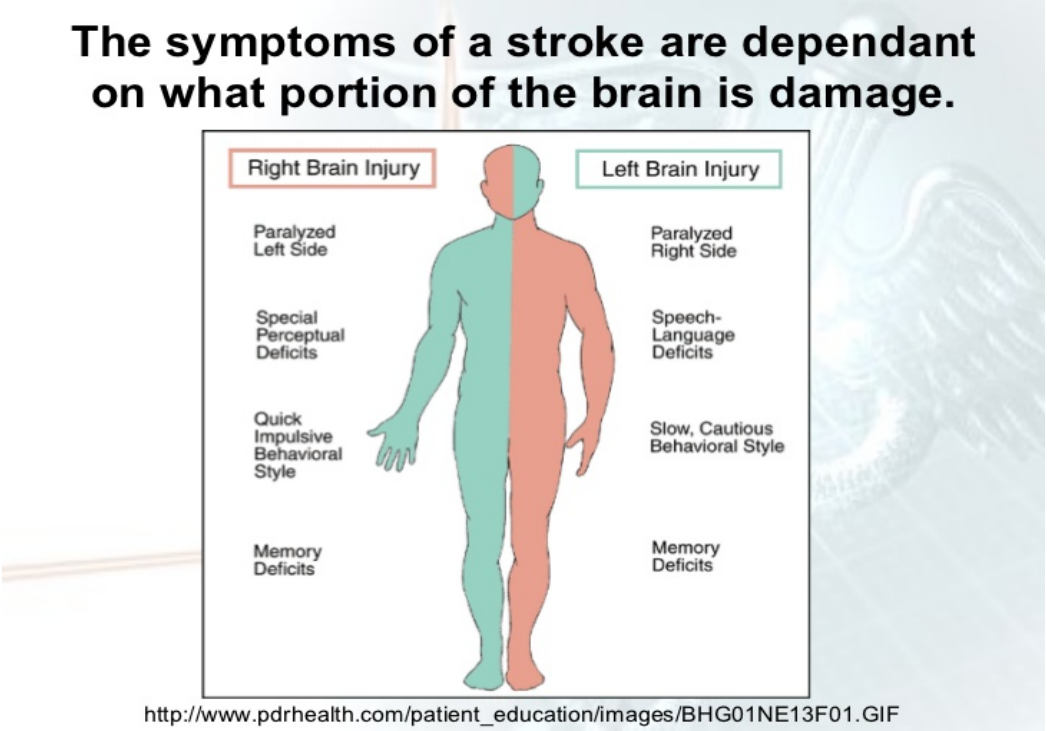
- The symptoms of a stroke usually develop over minutes or hours occasionally over several days. Depending on the site, cause and extent of damage . The more serious cases lead to rapid loss of consciousness, coma, and death or to severe physical or mental handicap.
- Hemiplegia – weakness or paralysis on one side of the body is one of the more common effects of a serious stroke.
- A headache may occur, especially if the stroke is caused by bleeding in the brain. The headache:
  - Starts suddenly and may be severe
  - Occurs when lying flat
  - Wakes you up from sleep

- Gets worse when you change positions , strain, or cough.

- Other symptoms depend on the severity of the stroke and what part of the brain is affected. Symptoms may include:
- Changes in taste
- Changes in hearing
- Confusion or loss of memory
- Difficulty of swallowing
- Difficulty writing or reading
- Dizziness or abnormal sensation of movement
- Lack of control over the bladder or bowels
- Loss of balance
- Loss of coordination
- Muscle weakness in the face, arm, or leg
- Numbness or tingling on one side of the body
- Personality, mood, or emotional changes
- Visual disturbance double vision, or total loss of vision.
- Sensation changes that affect touch and the ability to feel pain, pressure, different temperatures, or other stimuli
- Trouble speaking or understanding others who are speaking
- Trouble walking

Table 8.2 Presenting focal neurological symptoms of TIA/stroke

Type of injury	Symptoms
Motor	Weakness or clumsiness of one side of body (mono/hemiparesis) Bilateral weakness Swallowing problems Unsteadiness
Sensory	Altered feeling on one side of the body (para/quadriparesis)
Speech and language	Difficulty in understanding or expressing speech (dysphasia) Reading difficulties (dyslexia) Writing difficulties (dysgraphia) Slurred speech (dysarthria)
Visual	Loss of vision in one eye Visual field defect: hemi or quadrantanopia Double vision
Others	Vertigo Amnesia Visuospatial symptoms



Diagnosis:

- Neurological examination
- Echocardiogram in suspected Cardiac emboli

Tests can help your doctor determine the type, location, and cause of the stroke and rule out other disorders that may be responsible for the symptoms.

- CT scan of the brain is often done soon after symptoms of a stroke begin. An MRI scan of the brain may be done instead or afterwards.
- Electrocardiograph (ECG) and heart rhythm monitoring can help determine if an irregular heartbeat such as atrial fibrillation caused the stroke .
- Laboratory tests will include a complete blood count (CBC), bleeding time and blood clotting tests .
- Cerebrospinal fluid exam (CSF)

- Also check blood cholesterol and sugar.

Management of CVA:

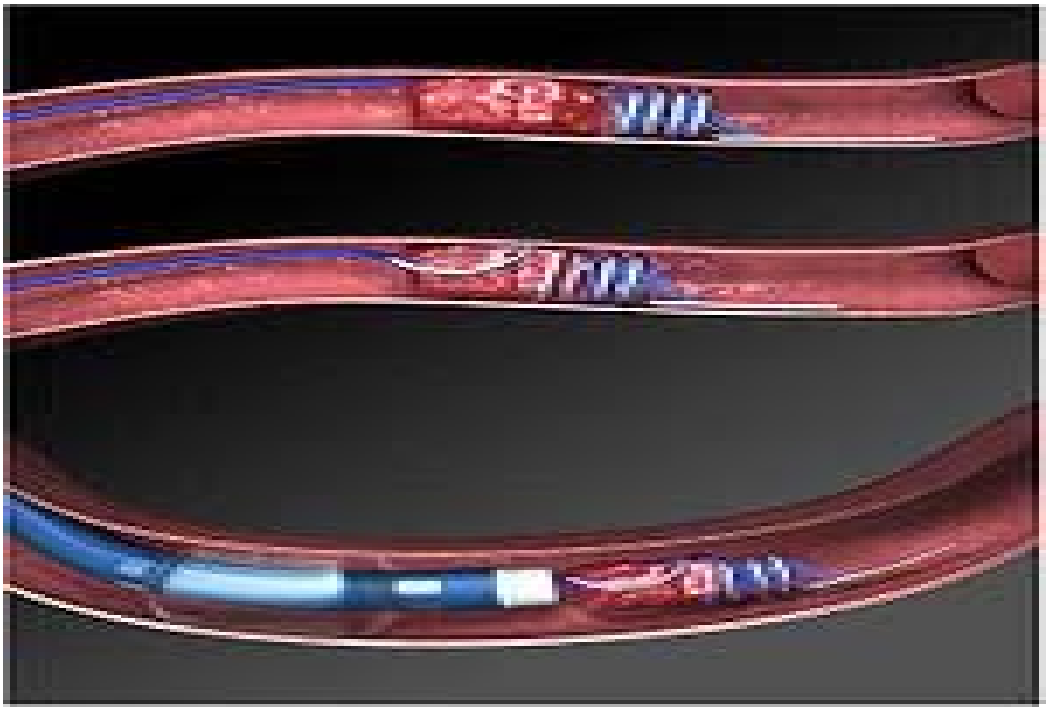
A stroke is a medical emergency. Immediate treatment can save lives and reduce disability.

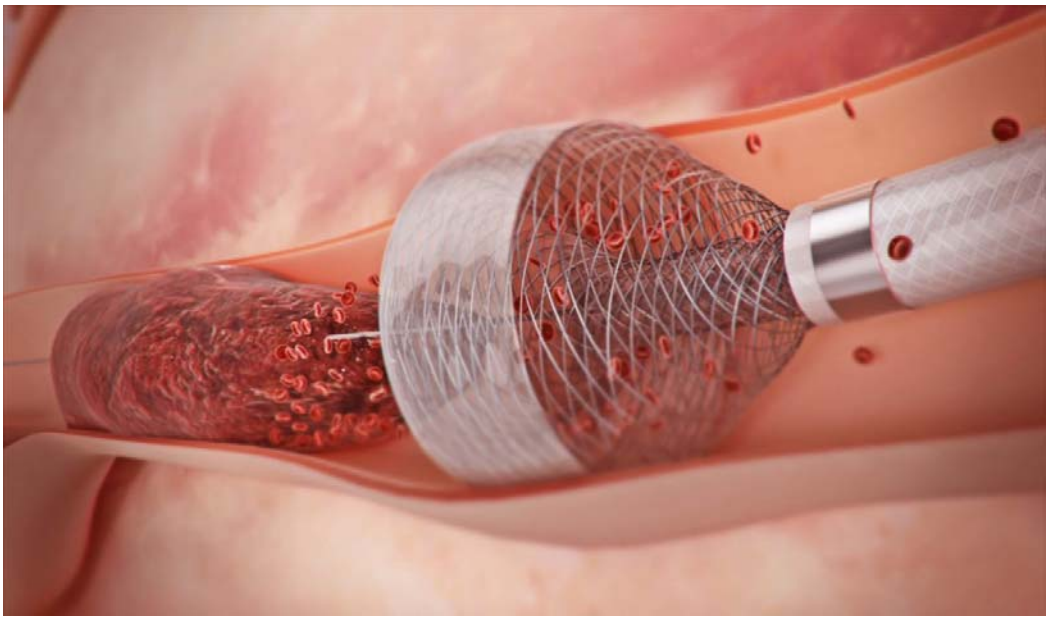
It is very important for people who are having stroke symptoms to get to a hospital as quickly as possible. If the stroke is caused by a blood clot, Anticoagulation drug may be given to dissolve the clot.

Treatment of ischemic stroke:

- Anticoagulation Drug (thrombolytic therapy)
- Heparin or warfarin may be used to treat strokes due to blood clots. Painkillers may be given to control severe headache .
- Other medical therapies are aimed at minimizing clot enlargement or preventing new clots from forming by giving aspirin , Plavix .
- Removing the clot mechanically (thrombectomy) , Another intervention for acute ischemic stroke is remove the thrombus directly by inserting a catheter into the femoral artery , directing it into the cerebral circulation.
- In addition to definitive therapies, management of acute stroke includes control of blood sugars, ensuring the patient has adequate oxygenation and adequate intravenous fluids.

Mechanical thrombectomy:





Treatment of Hemorrhagic stroke:

- Patients with intracerebral hemorrhage require neurosurgical evaluation to detect and treat the cause of the bleeding, although many may not need surgery. Antithrombotic, key in treating ischemic stroke, can make bleeding worse and cannot be used in intracerebral hemorrhage. Patients are monitored for changes in the level of consciousness, and their blood pressure, blood sugar, and oxygenation are kept at optimum levels.

LONG-TERM TREATMENT:

The recovery time and need for long-term treatment differs from person to person, the patient need a long-term treatment if he suffer from :

- Bladder and bowel problems
- Muscle and nerve problems
- Speech problems
- Stroke rehabilitation
- Swallowing and eating problems
- Thinking and memory problems

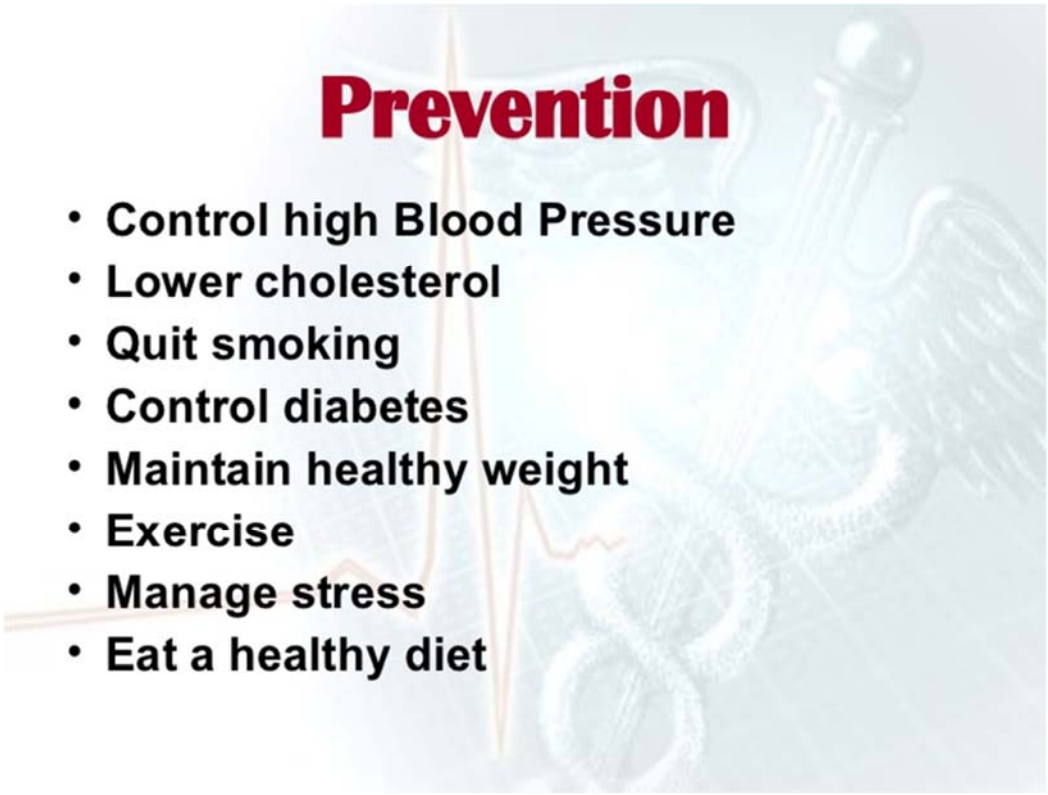
Complication:

Within 72 hours of stroke :

- Cerebral swelling
- Increase intracranial pressure (↑ ICP)
- Intracerebral hemorrhage
- Epileptic seizures

Gradually as a result of immobility :

- Bedsores (pressure ulcer)
- Blood clots
- Deep vein thrombosis (DVT)/ pulmonary edema (PE)
- Malnutrition
- Urinary tract infection (UTI)
- Painful shoulder
- Depression/ anxiety



NURSING PROCESS:

Assessment:

- Change in the level of consciousness
- Presence or absence of voluntary or involuntary movements
- Stiffness of the neck
- Eye opening, comparative size of pupils and pupillary reactions to light
- Color of the face and extremities; temperature and moisture of the skin
- Quality and rates of pulse and respiration; arterial blood gas values as indicated, body temperature, and arterial pressure
- Ability to speak
- Volume of fluids ingested or administered; volume of urine excreted each 24 hours
- Presence of bleeding
- Maintenance of blood pressure within the desired parameters

NURSING DIAGNOSES:

- Impaired physical mobility related to hemiplegia, loss of balance and coordination, spasticity, and brain injury.
- Acute pain (painful shoulder) related to hemiplegia .
- Self-care deficits (hygiene, toileting,, and feeding) related to stroke
- Disturbed sensory perception related to altered sensory reception
- Impaired swallowing

- Incontinence related to defect bladder.
- Disturbed thought processes related to brain damage, confusion.
- Impaired verbal communication related to brain damage
- Risk for impaired skin integrity related to hemiplegia, or decreased mobility.
- Sexual dysfunction related to neurologic deficits or fear of failure

Planning and Goals:

- The major goals for the patient (and family) may include improved mobility, and decrease the shoulder pain, achievement of self-care, relief of sensory and continence of bowel and bladder, improved thought.
- processes, achieving a form of communication, maintaining skin integrity, improved sexual function,
- Absence of complications.

Nursing Interventions:

- Improving mobility and preventing Joint deformities
- Teaching Patients Self-Care
- Maintaining skin integrity
- Changing Positions
- Establishing an Exercise Program
- Preventing shoulder pain
- Managing sensory-Perceptual difficulties
- Managing dysphagia

- Managing Tube Feedings
- Managing bowel and bladder
- Improving communication and thought
- Improving family coping
- Helping the Patient cope With sexual dysfunction

Nursing Evaluation:

- Achieves improved mobility

  Participates in prescribed exercise program
- Reports absence of shoulder pain

  a. shoulder exercises

  b. Elevates arm and hand at intervals
- Achieves self-care; performs hygiene care.
- Demonstrates improved swallowing ability
- Achieves normal bowel and bladder elimination
- Demonstrates improved communication
- Maintains intact skin without breakdown
- Family members demonstrate a positive attitude and coping mechanisms , Encourage patient in exercise program, Take an active part in rehabilitation process.