
بسم الله الرحمن الرحیم
به‌نام خدای بخشاینده مهربان
In the name of Allah, the Beneficent, the Merciful.

Nursing Management in CVA (Cerebrovascular Accident (Stroke)

Dr Shokoh Varaei

Associate professor of TUMS

- A **<u>cerebrovascular accident</u> (CVA),**

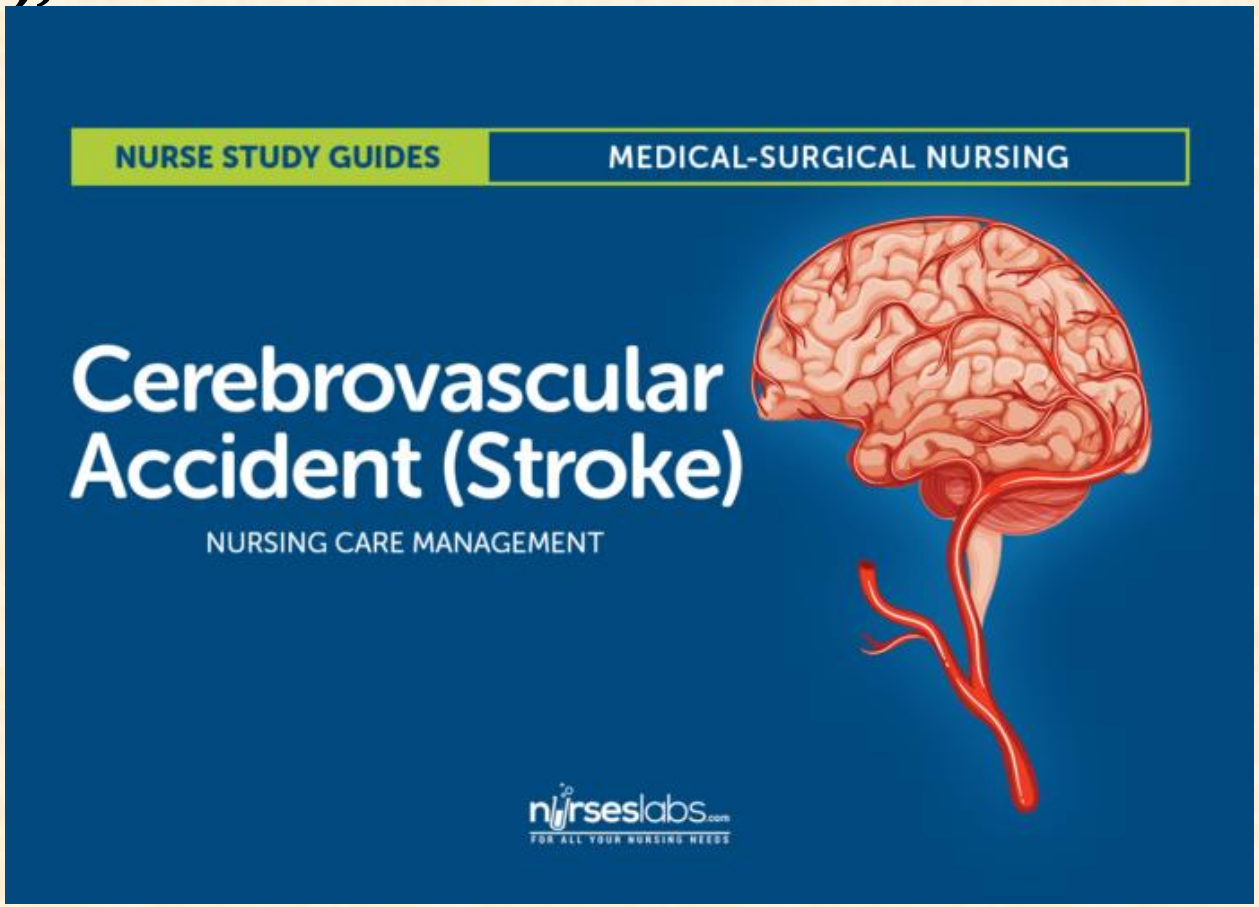
an ischemic stroke or

"brain attack," is a sudden loss

of brain function resulting from

a **disruption of the <u>blood</u> supply**

to a part of the brain.



CLASSES OF STROKE

- **Ischemic strokes: caused by blood clots**, such as:

Cerebral thrombosis

Cerebral embolism

- **Hemorrhagic strokes**: caused by ruptured blood vessels, such as:

Intracerebral hemorrhage

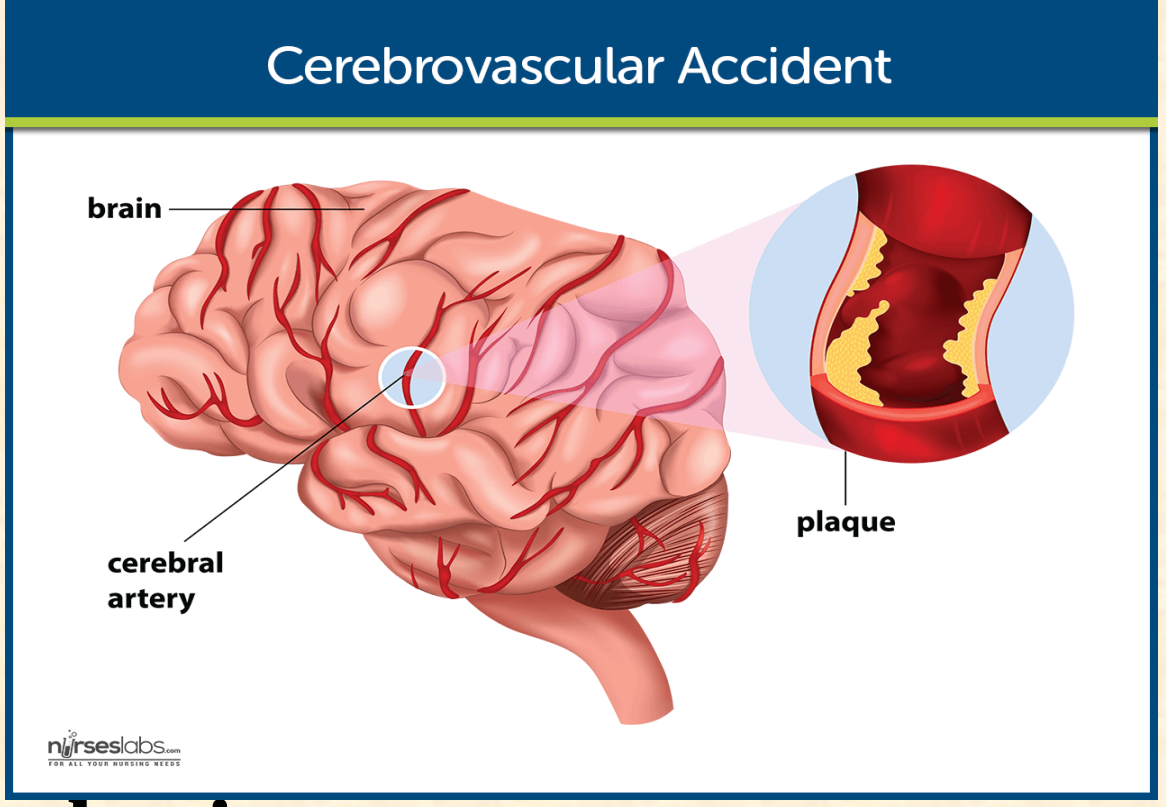
Subarachnoid hemorrhage

Pathophysiology

- **Decreased cerebral blood flow.**
- **Aerobic respiration.**
- **Anaerobic respiration.** (large amounts of **lactic acid)**
- **Loss of function.** (electrolyte balances fail)

Causes

- **Large artery <u>thrombosis</u> (atherosclerotic plaques).**



- **Small penetrating artery thrombosis. (most common type)**

- **<u>Cardiogenic</u> emboli.**

Clinical Manifestations

- **Numbness or weakness of the face.**
- **Hemiparesis (weakness** of the face, arm, and leg)
- **Hemiplegia (Paralysis** of the face, arm, and leg)
- **Visual disturbances.**
- **Homonymous hemianopsia.**
- **Loss of peripheral vision.**
- **Dysphagia.**
- **Change in mental status.**

Clinical Manifestations

- **Trouble speaking or understanding speech.**
- **Expressive aphasia** (unable to form words).
- **Receptive aphasia** (unable to comprehend words).
- **Global aphasia** (both of them).
- **Dysarthria (difficulty speaking)**
- **Dysphasia (impaired speech) or aphasia (loss of speech)**

Clinical Manifestations

- **Apraxia (inability to perform a previously learned action**
- **Ataxia (unsteady gait)**
- Flaccid paralysis and loss of or **decrease in the deep tendon reflexes** (initial clinical feature) followed by (after 48 hours) reappearance of deep reflexes and abnormally increased **muscle tone (spasticity)**

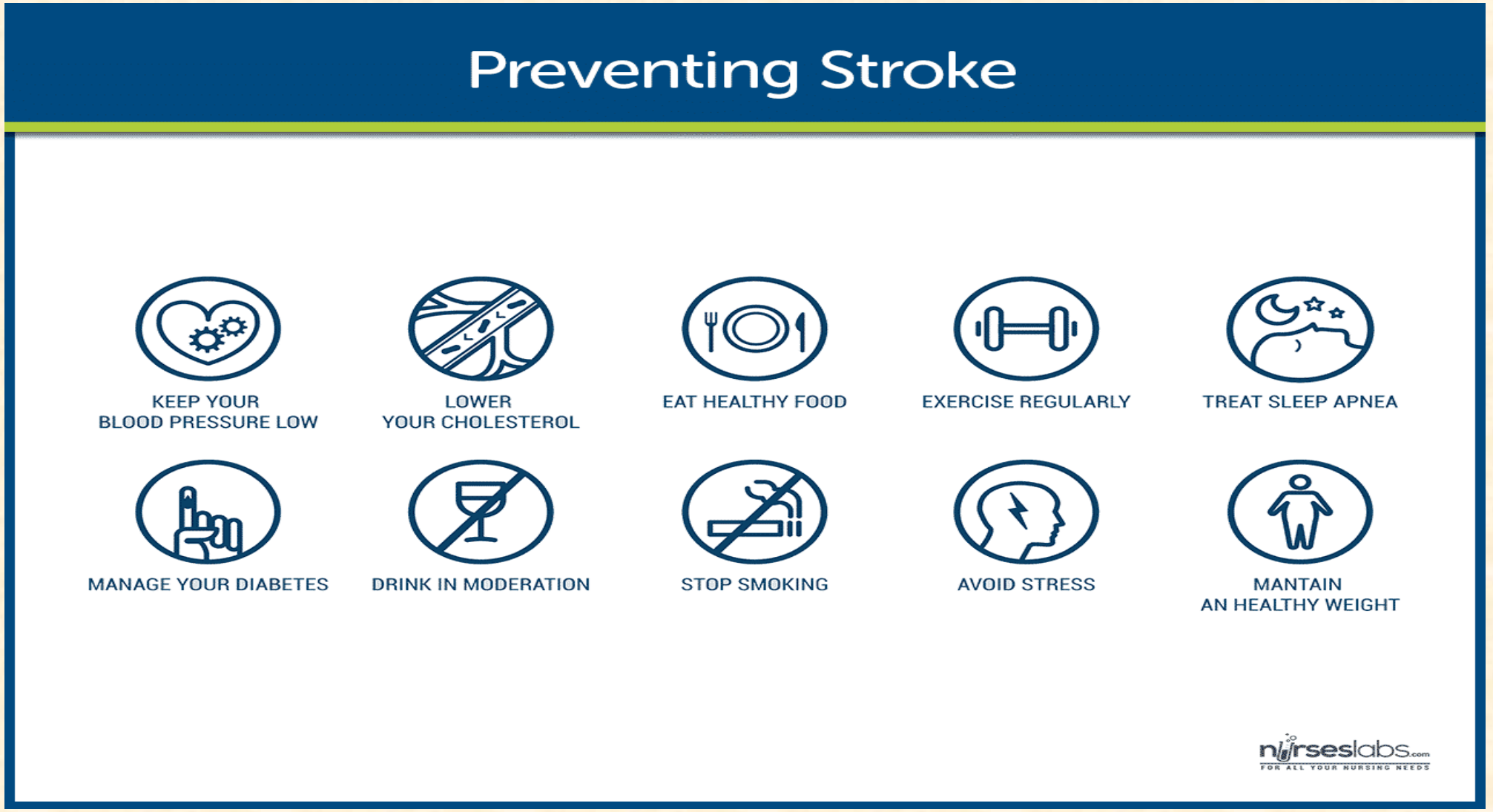
Impaired Cognitive and Psychological Effects

- **Frontal lobe damage:** Learning capacity, memory, or other higher cortical intellectual functions may be impaired.
- Depression, other psychological problems: emotional lability, and lack of cooperation.

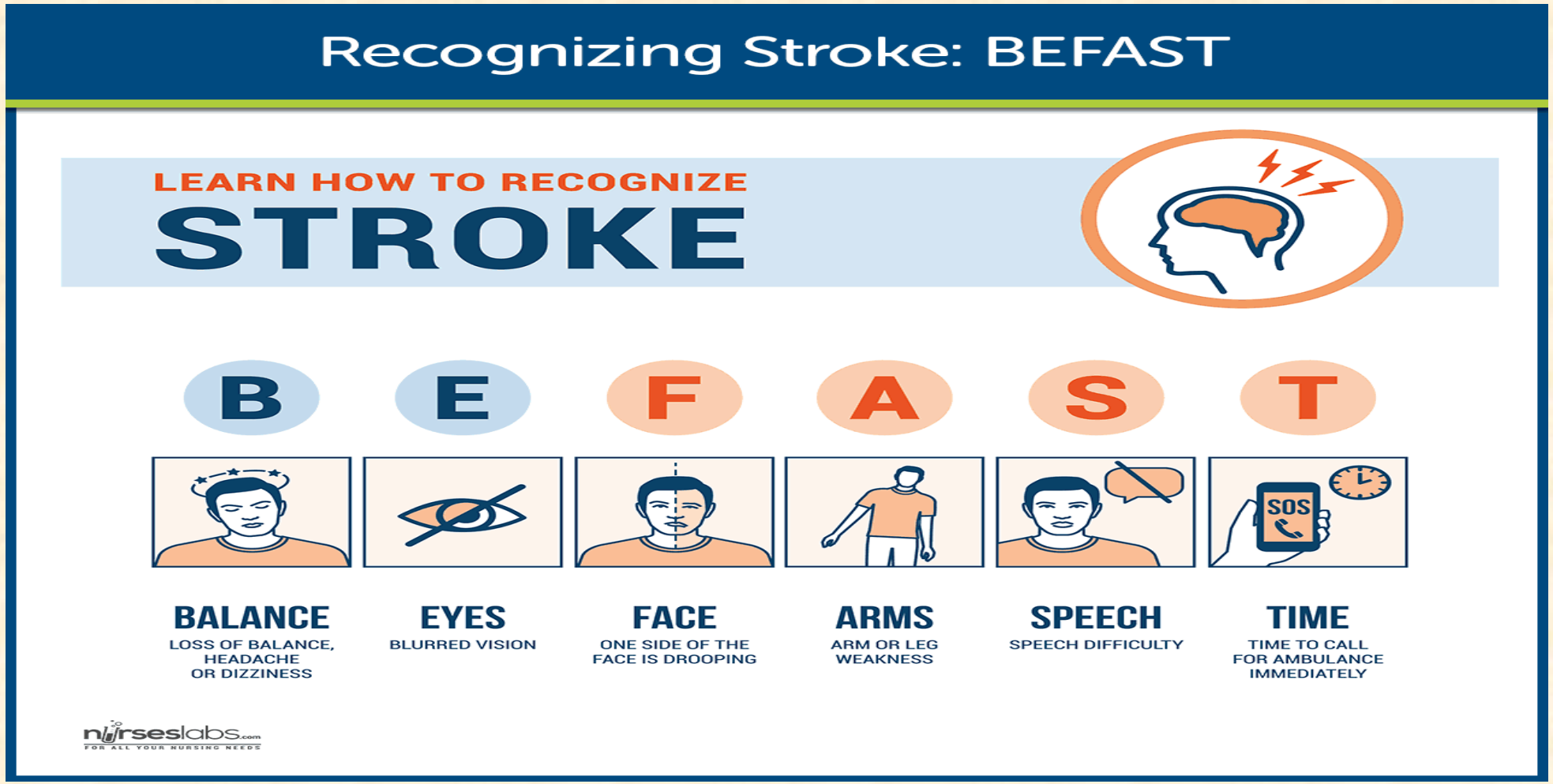
Risk Factors

- ***Nonmodifiable***
- Advanced age (older than 55 years)
- Gender (Male)
- Race (African American)
- ***Modifiable***
- Hypertension
- Atrial fibrillation
- Hyperlipidemia
- Obesity
- Smoking
- Diabetes
- Asymptomatic carotid stenosis and valvular heart disease (eg, endocarditis, prosthetic heart valves)
- Periodontal disease

Prevention of stroke



Recognizing Stroke: BEFAST



Prevention of stroke.

- **Healthy lifestyle.**
- **DASH diet. (Dietary Approaches to Stop Hypertension)**
- **Stroke risk screenings.**
- **Education.**
- **Low-dose aspirin.**

Complication

- If cerebral oxygenation is still inadequate; complications may occur.
- **Tissue ischemia.**
- **Cardiac dysrhythmias.**

Assessment and Diagnostic Findings

- **CT scan.**
- **PET scan.**
- **MRI.**
- **Cerebral angiography.**
- **Lumbar puncture.**
- **Transcranial Doppler ultrasonography.**
- **EEG.**
- **Skull x-ray.**
- **ECG and echocardiography.**
- **Laboratory studies to rule out systemic causes:**

Medical Management

- Patients who have experienced TIA or stroke should have medical management for secondary prevention.

- **Recombinant tissue plasminogen activator**
- **Increased ICP.**
- **Endotracheal Tube.**
- **Hemodynamic monitoring.**
- **Neurologic assessment**

Surgical Management

- Surgical management may include prevention and relief from increased ICP.

- **Carotid endarterectomy.** (removal of atherosclerotic plaque or thrombus)
- **Hemicraniectomy.**

Nursing management

- After the stroke is complete, management focuses on the prompt initiation of rehabilitation for any deficits

Nursing management

Dr Forozandeh Janat

Master Supervisor of Arash hospital

Assessment in acute phase

During the **acute phase**, a neurologic flow sheet:

- Change in level of **consciousness or responsiveness.**
- Presence or absence of **voluntary or involuntary movements** of extremities.
- **Stiffness or flaccidity** of the neck.
- **Eye** opening, comparative size of pupils, and pupillary reaction to light.
- **Color of the face** and extremities; temperature and moisture of the skin.
- **Ability to speak**.
- Presence **of bleeding.**
- Maintenance of **blood pressure**.

Assessment in **post-acute phase**

- **Mental status** (memory, attention span, perception, orientation, affect, speech/language).
- **Sensation and perception** (usually the patient has decreased awareness of pain and temperature).
- **Motor control** (upper and lower extremity movement); swallowing ability, nutritional and hydration status, skin integrity, activity tolerance, and bowel and bladder function.
- Continue focusing nursing assessment on **impairment of function** in patient's daily activities.

Nursing Diagnosis

- **Impaired physical mobility** related to hemiparesis, loss of balance and coordination, spasticity, and brain injury.
- **Acute pain** related to hemiplegia and disuse.
- **Deficient self-care** related to stroke sequelae.
- **Disturbed sensory perception** related to altered sensory reception, transmission, and/or integration.
- **Impaired urinary elimination** related to flaccid bladder, detrusor instability, confusion, or difficulty in communicating

Nursing Diagnosis

- **Disturbed thought processes** related to brain damage.
- **Impaired verbal communication** related to brain damage.
- **Risk for impaired skin integrity** related to hemiparesis or hemiplegia and decreased mobility.
- **Interrupted family processes** related to catastrophic illness and caregiving burdens.
- **Sexual dysfunction** related to neurologic deficits or fear of failure.

Nursing Care Planning & Goals

- **Improve mobility.**
- **Avoidance of shoulder pain.**
- **Achievement of self-care.**
- **Relief of sensory and perceptual deprivation.**
- **Prevention of aspiration.**
- **Continence of bowel and bladder.**

Nursing Care Planning & Goals

- Improved thought processes.
- Achieving a form of communication.
- Maintaining skin integrity.
- Restore family functioning.
- Improve sexual function.
- Absence of complications.

Nursing Interventions

- **Positioning.**
- **Prevent flexion.**
- **Prevent adduction.**
- **Prevent edema.**
- **Full range of motion.**
- **Prevent venous stasis.**

Nursing Interventions

- Regain balance.
- Personal hygiene.
- Manage sensory difficulties.
- Visit a speech therapist.
- Voiding pattern.
- Be consistent in patient’s activities
- Assess skin.

Teaching points

- Teach patient to resume as much self care as possible; provide assistive devices as indicated.
- Have occupational therapist make a home assessment and recommendations to help the patient become more independent.
- Coordinate care provided by numerous health care professionals; help family plan aspects of care.
- Advise family that patient may tire easily, become irritable and upset by small events, and show less interest in daily events.
- Make a referral for home speech therapy. Encourage family involvement. Provide family with practical instructions to help patient between speech therapy sessions.

Teaching points

- Discuss patient’s depression with the physician for possible antidepressant therapy.
- Encourage patient to attend community-based stroke clubs to give a feeling of belonging and fellowship to others.
- Encourage patient to continue with hobbies, recreational and leisure interests, and contact with friends to prevent social isolation.
- Encourage family to support patient and give positive reinforcement.
- Remind spouse and family to attend to personal health and wellbeing.

Evaluation

- Improved mobility.
- Absence of shoulder pain.
- Self-care achieved.
- Relief of sensory and perceptual deprivation.
- Prevention of aspiration.
- Continence of bowel and bladder.
- Improved thought processes.
- Achieved a form of communication.
- Maintained skin integrity.
- Restored family functioning.
- Improved sexual function.
- Absence of complications.

Discharge and Home Care Guidelines

- Consult an occupational therapist.
- Physical therapy.
- Antidepressant therapy.
- Support groups. (similar problems share their experiences).
- Assess caregivers.

Documentation Guidelines

- Individual findings including level of function and ability to participate in specific or desired activities.
- Needed resources and adaptive devices.
- Results of laboratory tests, diagnostic studies, and mental status or cognitive evaluation.
- family support and participation.
- Plan of care and those involved in planning.
- Teaching plan.
- Response to interventions, teaching, and actions performed.
- Attainment or progress toward desired outcomes.
- Modifications to plan of care.

stroke in pregnancy

stroke in pregnancy

- **Risk factors for stroke:**
- **Maternal age >35 years,**
- **Migraine,**
- **Gestational diabetes,**
- **pre-eclampsia or eclampsia, and**
- **pre-existing hypertension,**

- **Fatality in haemorrhagic stroke of pregnancy is 13.9%, compared with 3.4% in ischaemic stroke in pregnancy.**
- **Disability is higher in haemorrhagic stroke (50%) compared with ischaemic stroke (33%) events in pregnancy,**

stroke in pregnancy

- **The incidence of stroke in young and middle-aged adults is increasing, with pregnancy-related strokes occurring in 30 in 100 000 pregnancies**

- **strokes are three times more common among pregnant than among nonpregnant individuals aged 15–44 years.**

- **Most strokes (90%) occur peripartum or in the 6 weeks following delivery.**

stroke in pregnancy

- The ‘time is brain’ approach to treatment is:

- **Thrombolysis with recombinant tissue plasminogen** activator administered within **4.5 hours of stroke** onset
- **Mechanical thrombectomy is appropriate in only 10% of patients with acute ischaemic stroke**, but has been shown to improve outcome if performed within **6 hours of onset and can be performed up to 24 hours in highly selected cases.**

As **recurrent strokes occur in 25–30**% of cases, identification of risk factors for stroke in a young woman is important

rt-PA = recombinant tissue plasminogen activator

- American Heart Association/American Stroke Association guidelines, intravenous administration of rt-PA considered in pregnancy when:
- The benefits of treating moderate or severe stroke outweigh the increased risks of uterine bleeding.

- Although **rt-PA does not cross the placenta**, there is a theoretical risk of **placental bleeding and intrauterine fetal death**
- Mechanical thrombectomy with **stent** retriever devices was superior to intravenous rt-PA alone in acute anterior circulation ischaemic stroke

Management of intracerebral haemorrhage

- Immediate treatment is:

- Haemostasis, correction of coagulopathy and thrombocytopenia and hyper/hypoglycaemia, blood pressure control and venous thromboembolism prophylaxis.
- Patients on warfarin with a prolonged international normalised ratio for prothrombin time should have their warfarin withheld and receive intravenous vitamin K and prothombin complex.
- Aggressive blood pressure control (lower systolic blood pressure to 140 mmHg)

Management of cerebral venous thrombosis

- The treatment of CVT:

- Anticoagulation with low molecular weight heparin **(LMWH)** to prevent propagation of the thrombus and emboli.
- If anticoagulation is contraindicated, or if the patient does not respond to anticoagulation, **thrombolysis or thrombectomy** can be considered.

Stroke unit care

- All patients managed in a multidisciplinary stroke unit

- with expert nursing care, specialist medical treatment, optimised treatment protocols, coordination of rehabilitation services and patient education.

- Admission to a stroke unit usually means separation of mother and baby, and may affect bonding and feeding.

Secondary prevention strategies in Acute Ischemic Stroke (AIS)

- **Recurrent strokes account for 25–30% of all strokes.**
- **Secondary prevention** strategies are:
- **Blood pressure** management is one of the key elements of secondary prevention. In patients with a blood pressure of <220/120 mmHg who did not receive thrombolysis or mechanical thrombectomy requiring acute antihypertensive treatment, **within the first 48–72 hours after an AIS** (Acute Ischemic Stroke)
- Administration of **aspirin** is recommended in AIS within **24–48 hours** of **onset for 21 days**, can be beneficial for early secondary stroke prevention.
- The safety of aspirin in pregnancy is well documented.

Secondary prevention strategies in Acute Ischemic Stroke (AIS)

- **patients with AIS and atrial fibrillation, initiate oral anticoagulation within 4–14 days of the onset of neurological symptoms.**
- **Warfarin is a vitamin K antagonist that crosses the placenta**
- **The anticoagulant of choice in pregnancy is LMWH (LMWH does not cross the placenta)**
- **Smoking cessation is an important part of secondary prevention**

Mode of delivery

- To date, no studies have suggested that a caesarean delivery is safer than a vaginal delivery following stroke;
- therefore, the decision as to the mode of delivery requires multidisciplinary input and should be **individualised**

Postpartum management and contraception

- The postpartum period is the highest risk period for venous thromboembolism and stroke.
- **Anticoagulation** should be continued for **at least 6 weeks postpartum**, depending on the timing and aetiology of stroke.
- **A multidisciplinary approach** to postnatal care is as important as during the acute phase to ensure implementation of secondary prevention strategies, rehabilitation and further investigations if indicated
- A complete thrombophilia screen should be arranged **6 weeks postnatally to ensure optimal anticoagulation in future pregnancies.**
- **Warfarin, LMWH and aspirin are safe to take while breastfeeding**

Multidisciplinary care

- Advice on postpartum and **long-term contraception** must be considered carefully. **Combined hormonal contraception** is **contraindicated** and **non-hormonal** forms of contraception are **recommended**.
- **Patient education** is vital. Patients should be provided with information, advice and the opportunity to talk **about the impact of the illness on their lives.**
- Stroke in pregnancy presents unique challenges and emphasizes the need for a **multidisciplinary approach** to this uncommon complication of pregnancy.

سپاس از توجه شما