

STROKE

STROKE

CVA(Stroke): Definition

- ⦿ Is a sudden loss of brain function resulting from disruption of the blood supply to a part of the brain
- ⦿ Occurs when the normal blood supply to the brain is disrupted lasting 24 hours or longer.
- ⦿ Abrupt onset of convulsive, focal neurologic deficit resulting from disrupted blood supply to the brain

STROKE...

Etiologic classification

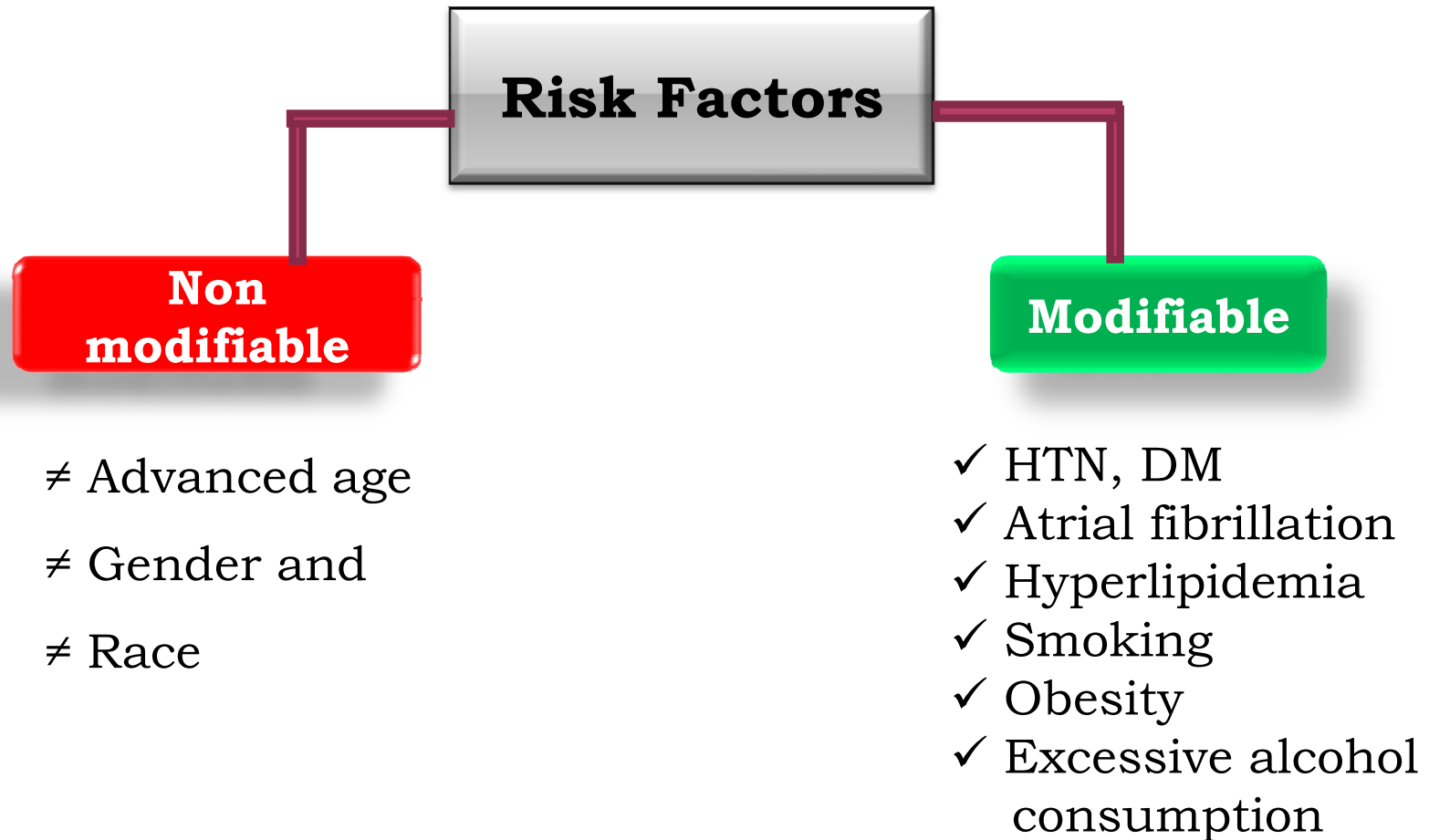
Ischemic

- ⊙ Large artery thrombosis
- ⊙ Small penetrating artery thrombosis
- ⊙ Cardiogenic embolic
- ⊙ Accounts ~ 80% - 85%

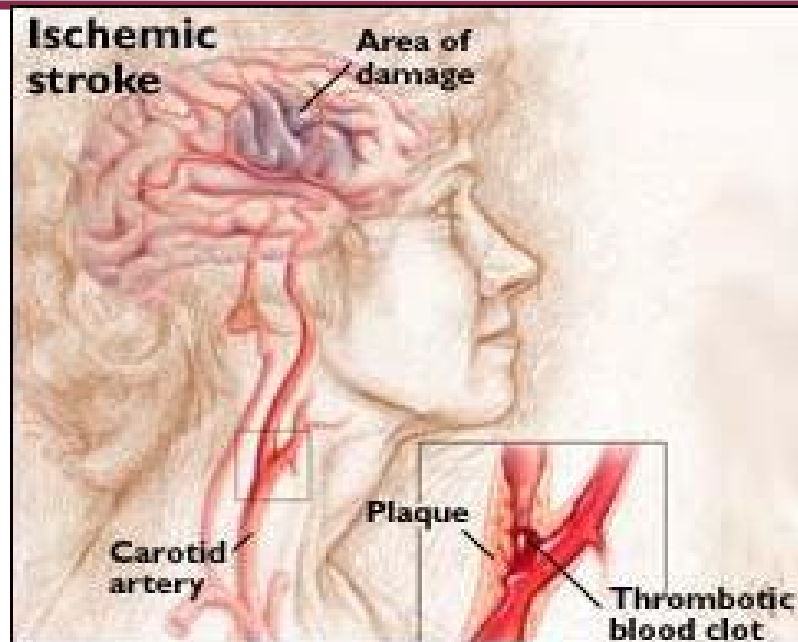
Hemorrhagic

- ❖ Intracerebral hemorrhage
- ❖ Subarachnoid hemorrhage
 - Cerebral aneurysm
 - Arteriovenous malformation
- ❖ Accounts ~ 15% - 20%

RISK FACTORS



Ischemic Stroke



STROKE...

1. Ischemic Stroke

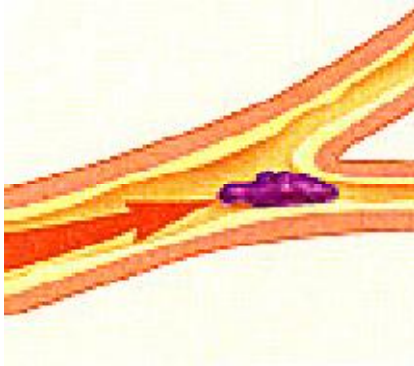
- ⦿ Ischemic stroke /CVA /Brain attack
- ⦿ Sudden loss of function resulting from disruption of the blood supply to a part of the brain.

ISCHEMIC STROKE...

Types

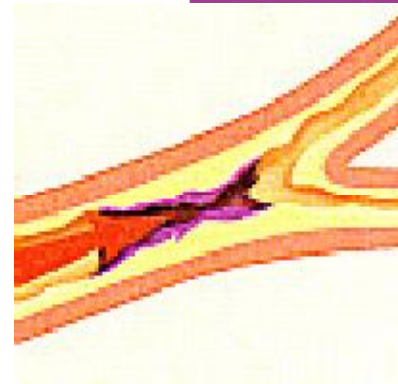
Embolic

- ❑ Blood clot travels to the brain



Thrombotic

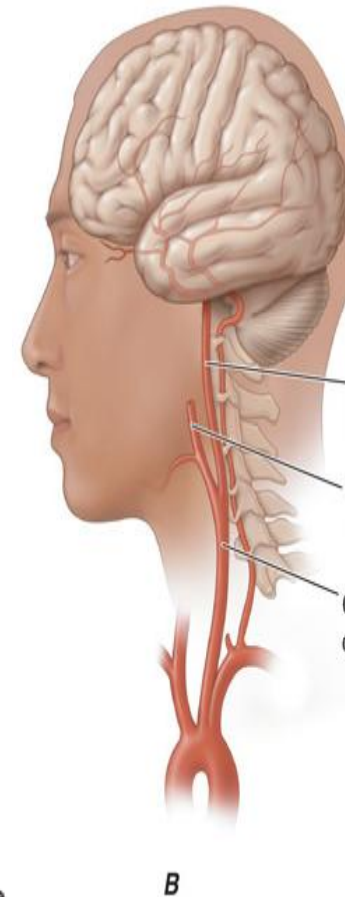
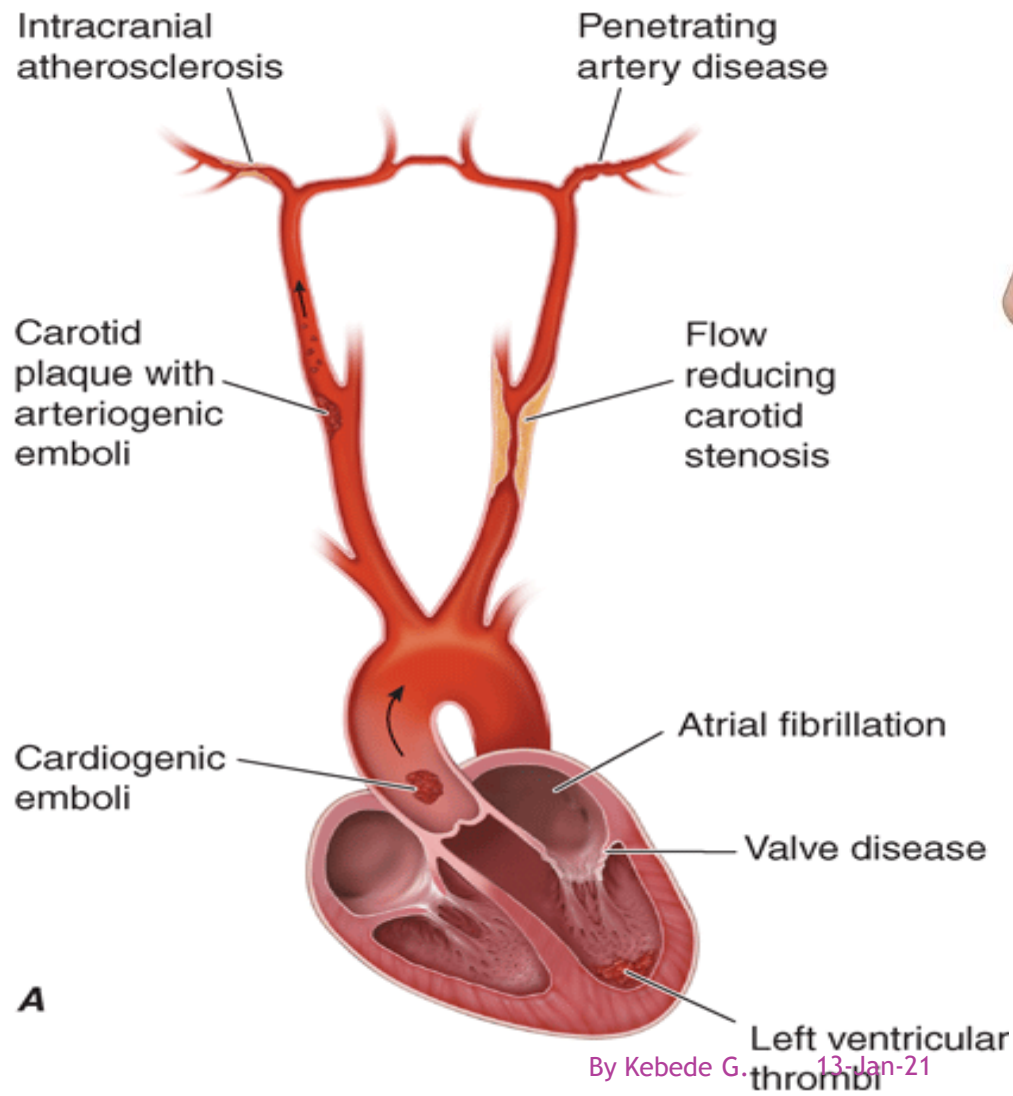
- ❑ Blood flow is blocked to the brain



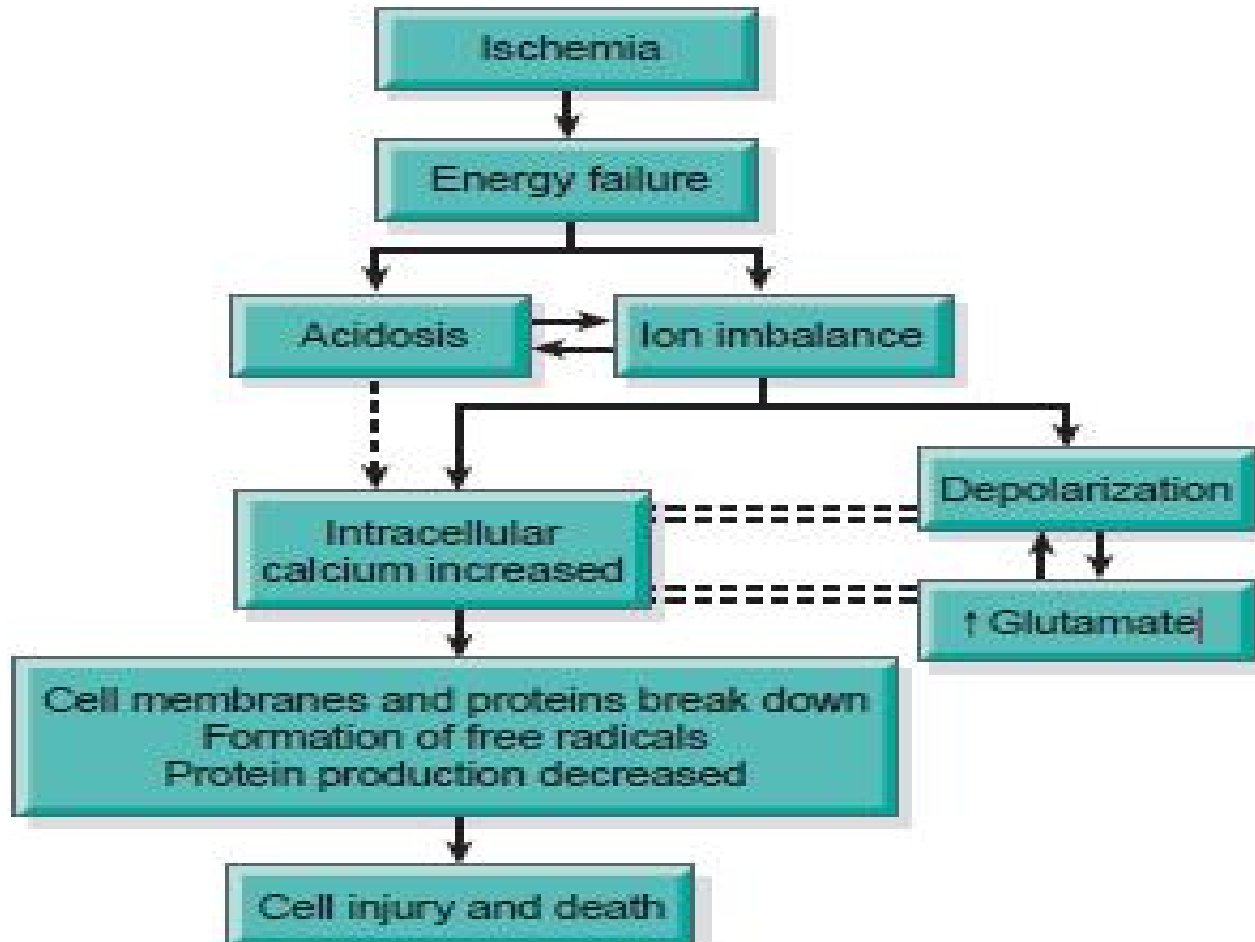
PATHOPHYSIOLOGY OF ISCHEMIC STROKE

- ⦿ Disruption of the cerebral blood flow
- ⦿ Complex series of cellular metabolic events
(ischemic cascade)
- ⦿ Ischemic cascade begins when cerebral blood flow falls to less than 25 ml/100 g/min.
- ⦿ At this point, neurons can no longer maintain aerobic respiration.
- ⦿ Early in the cascade, an area of low cerebral blood flow exists around the area of infarction.

PATHOPHYSIOLOGY ...



PATHOPHYSIOLOGY OF STROKE...



Processes contributing to ischemic brain cell injury.
Courtesy of National Stroke Association,

CLINICAL MANIFESTATIONS OF STROKE

- ◉ It can cause a wide variety of neurologic deficits.
Depends on:
 - Location of the lesion
 - Size of the area of inadequate perfusion
 - Amount of collateral blood flow
- ◉ The pt may present with any of the following c/m:
 - ❖ Numbness or weakness of the face, arm or leg especially on one side of the body
 - ❖ Confusion or change in mental status.

CLINICAL MANIFESTATIONS...

A. Motor Loss

- ⦿ **Hemiplegia** due to a lesion of the opposite side of the brain.
- ⦿ **Hemiparesis** is another sign.
- ⦿ In the early stage:
flaccid paralysis and loss or decrease in the deep tendon reflexes.

CLINICAL MANIFESTATIONS...

B. Communication Loss

- ❑ Other brain functions affected by stroke are language and communication.
 - ❖ Dysarthria (Aphasia)
 - ❖ Dysphasia
 - ❖ Apraxia (sever speech disorder)
- ❑ Stroke is the most common cause of aphasia.

C. Perceptual Disturbances

- ❖ Visual-perceptual dysfunctions

CLINICAL MANIFESTATIONS...

D. Sensory Loss

- ❖ It may slight impairment of touch
- ❖ If severe with loss of proprioception.
- ❖ Difficulty in interpreting visual, tactile, and auditory stimuli.
- ❖ Agnosias(failure to recognize sensory stimuli)

E. Cognitive Deficits

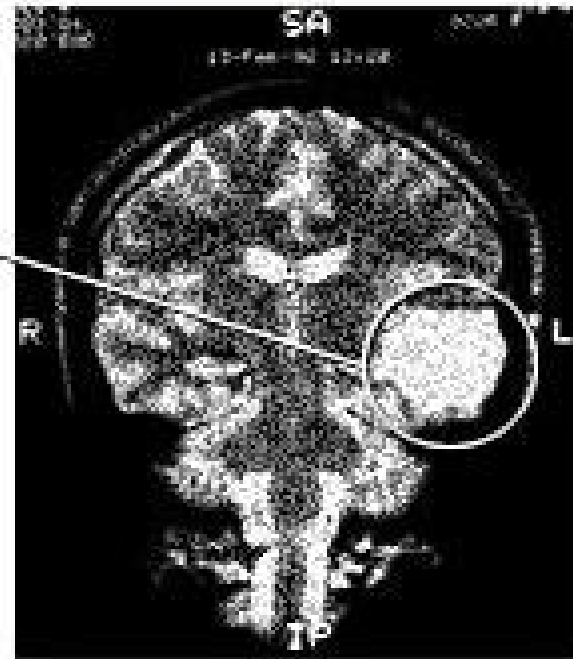
- ❖ Short- and long-term memory loss
- ❖ Decreased attention span
- ❖ Impaired ability to concentrate
- ❖ Altered judgment

ASSESSMENT AND DIAGNOSTIC FINDINGS

- ❑ Careful history and a complete physical and neurologic exam.
- ❑ CT scan
- ❑ ECG & carotid ultrasound
- ❑ MRI
- ❑ FBS, Lipid profile
- ❑ Coagulation profile: to look bleeding tendencies.

ASSESSMENT AND DIAGNOSTIC...CT SCAN

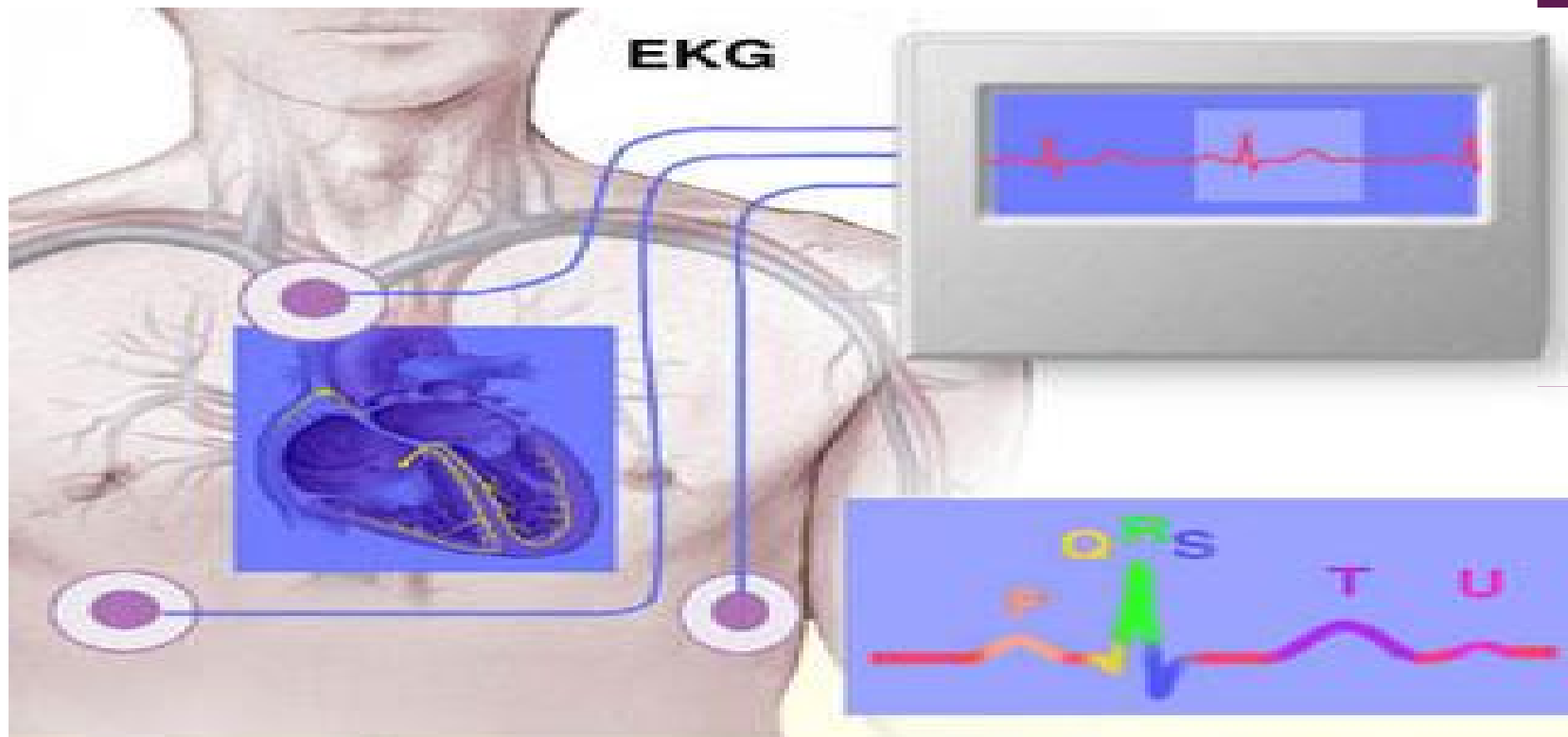
Computed tomography
(CT or CAT scan) of the brain



ASSESSMENT AND DIAGNOSTIC...MRI

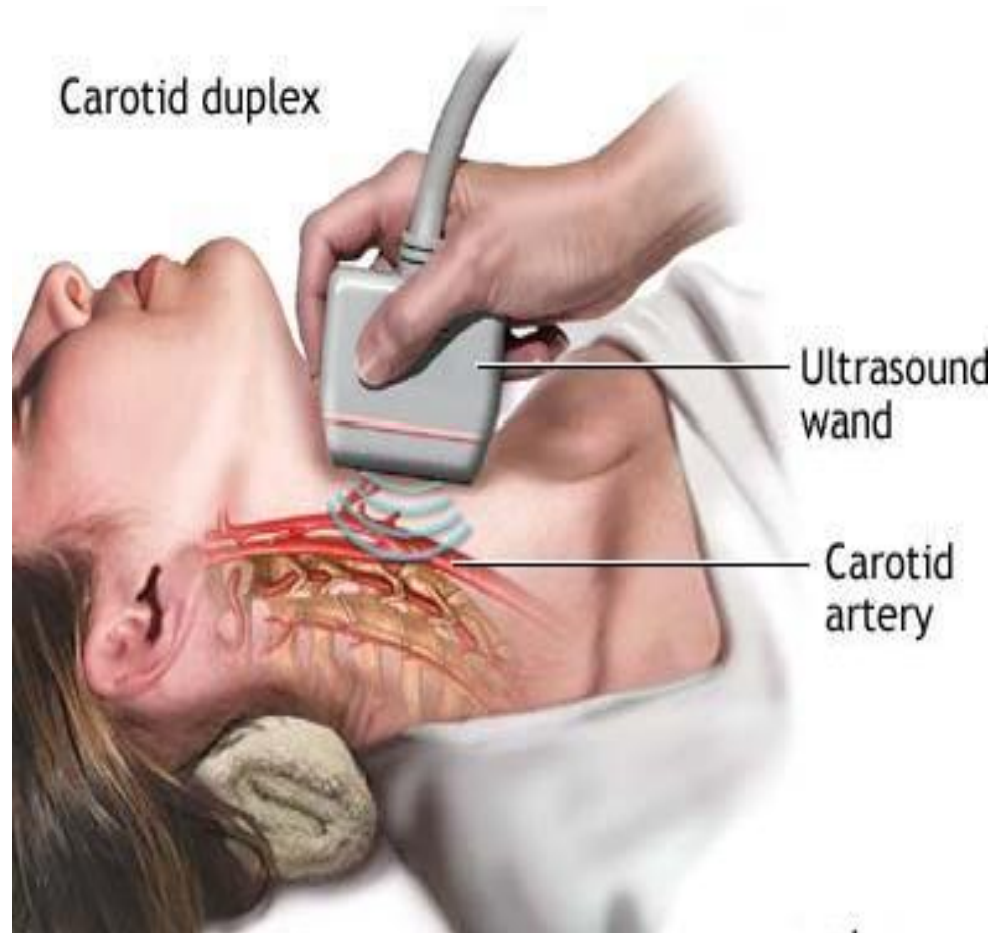


ASSESSMENT AND DIAGNOSTIC...



The EKG breaks down each heartbeat into a series of electrical waves. Three of the waves, the P wave, the QRS complex and the T wave, are associated with the heart's contractions. The P wave reflects activity in the heart's upper chambers. The QRS complex and T wave reflect activity in the lower chambers.

ASSESSMENT AND DIAGNOSTIC...



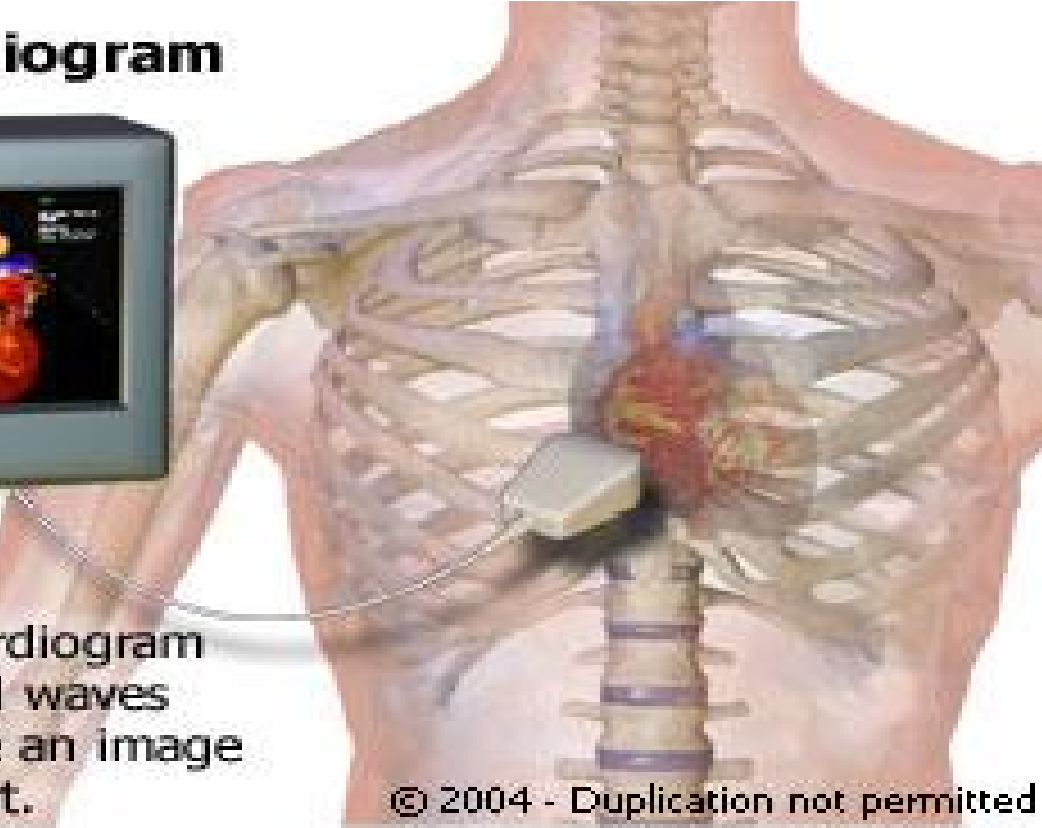
Arteriogram showing severe internal carotid artery (ICA) stenosis.

ASSESSMENT AND DIAGNOSTIC...

Echocardiogram



An echocardiogram uses sound waves to produce an image of the heart.



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Echocardiogram - detects if any thrombus (blood clot) within the heart chambers

MANAGEMENT

Medical

- Platelet-inhibiting medications; ASA
 - ❖ Currently the most cost-effective **antiplatelet** regimen is ASA 50 mg/d and dipyridamole 400 mg/d

Thrombolytic Therapy

- *Dissolves the blood clot* that blocks blood flow to the brain.
- Initiation of thrombolytic therapy (**within 3 hrs**)

MANAGEMENT...

tPA (Tissue Plasminogen Activator)

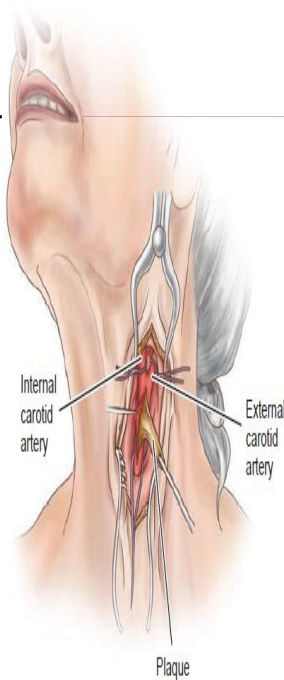
- ⦿ A drug called t-PA, that dissolves blood clots obstructing blood flow to the brain.
- ❖ Aspirin
- ❖ Aggrenox
- ❖ Plavix
- ❖ Blood pressure medication if appropriate
- ❖ Cholesterol lowering medicines, if needed

MANAGEMENT...

Surgical

Noncardiac vascular procedure- carotid endarterectomy

- It is the removal of an atherosclerotic plaque thrombus from the carotid artery.

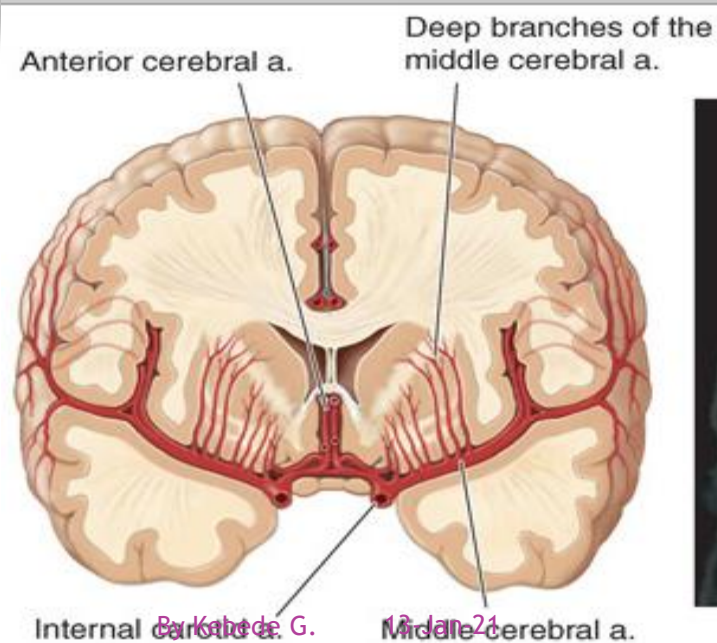


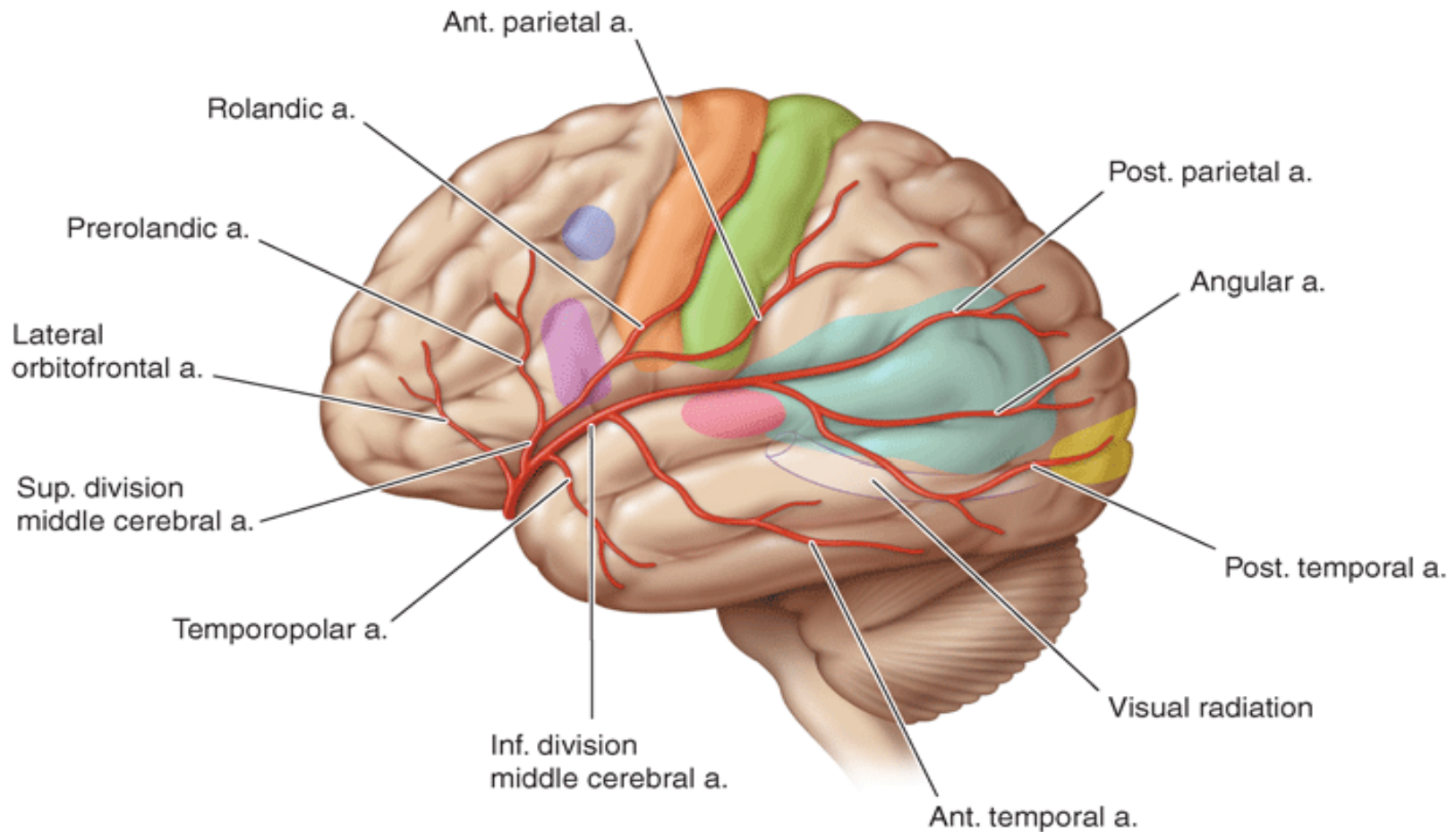
MANAGEMENT...

Nursing Interventions

- ❖ Improving Mobility
- ❖ Preventing shoulder adduction
- ❖ Changing position
- ❖ Enhancing Self-Care
- ❖ Managing sensory-perceptual difficulties
- ❖ Assisting with nutrition
- ❖ Position the head & fingers

HEMORRHAGIC STROKE





KEY

 Broca's area	 Sensory cortex	 Auditory area	 Motor cortex
 Contraversive eye center	 Wernicke's aphasia area	 Visual cortex	

HEMORRHAGIC STROKES

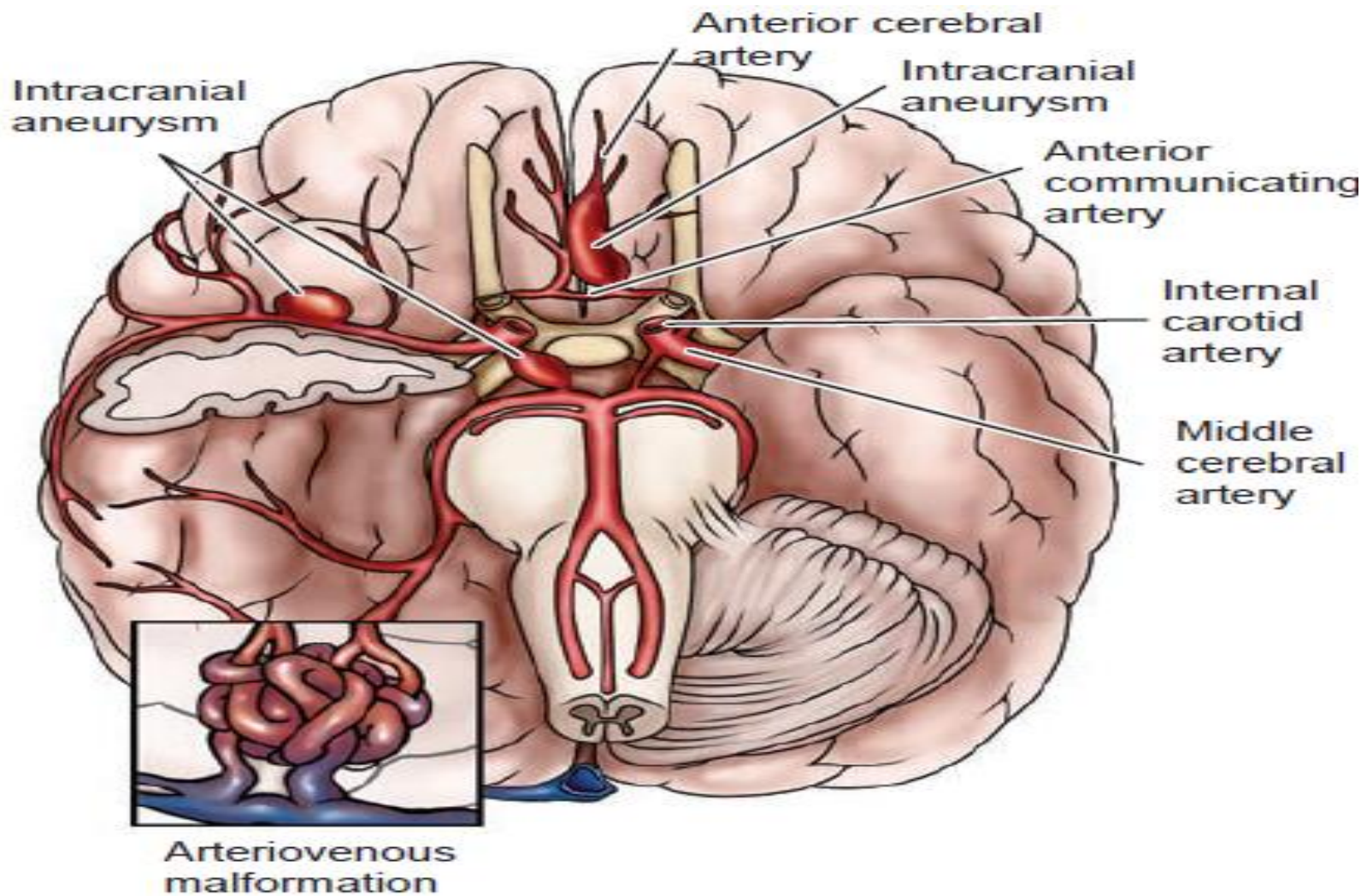
- ⦿ Bleeding occurs from **vessels within** the brain.
 - ❖ Brain tissue
 - ❖ Ventricles of the brain or
 - ❖ Subarachnoid space.

Cause

- ❖ High blood pressure
 - ❖ Ruptured blood vessel or an aneurysm.
- ⦿ Intracerebral hemorrhage from rupture of small vessels ~ 80% of the cases by uncontrolled HTN.

H.STROKES...PATHOPHYSIOLOGY

- Uncontrolled HTN, aneurism, AVM and other causes->rupture of blood vessels and bleeding in to brain tissue, brain ventricles and subarachnoid space
- Increased ICP
- Brain metabolism is disrupted
- Cell injury and death



Common sites of intracranial aneurysms and an AVM

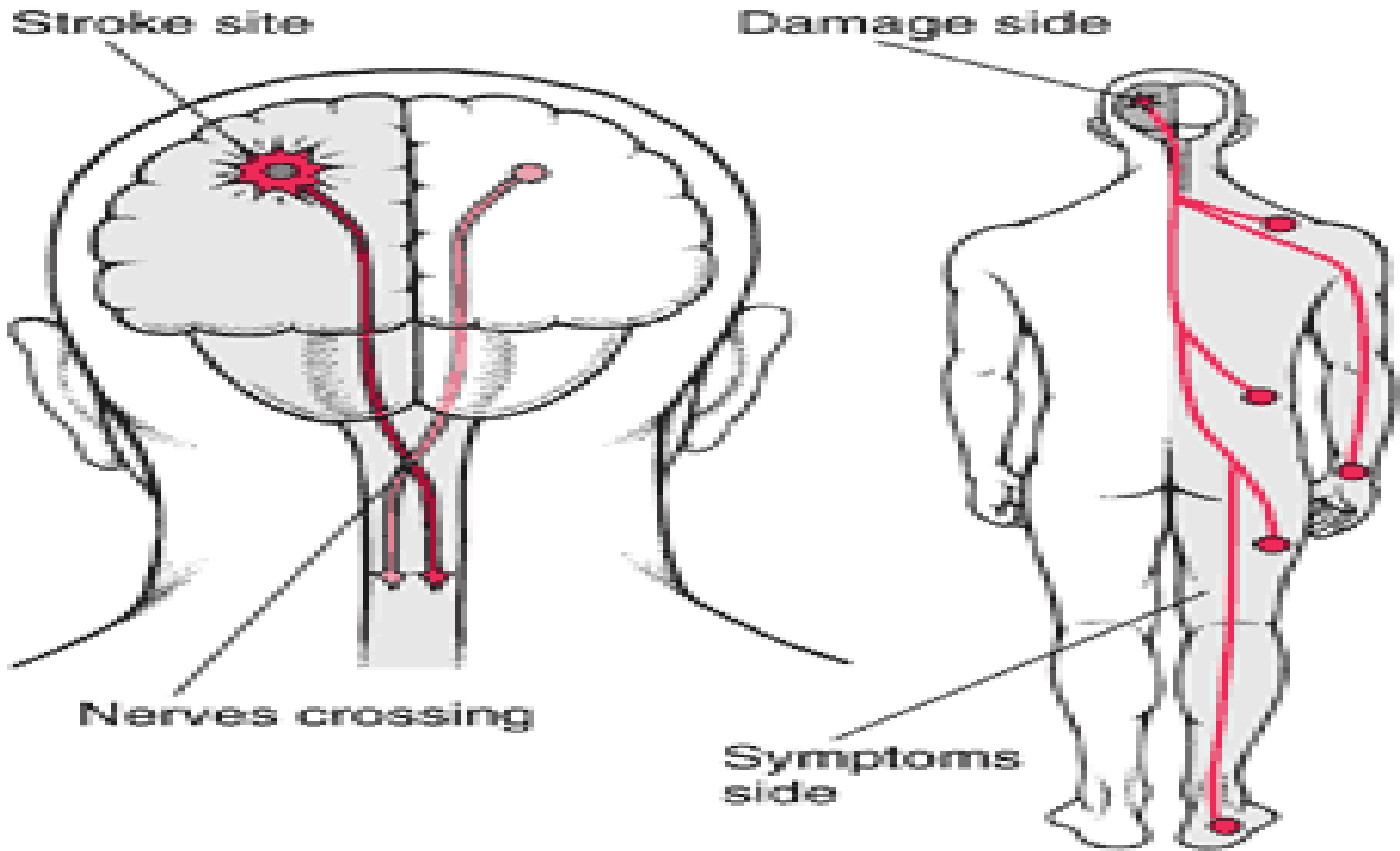
CLINICAL MANIFESTATIONS

- Present with a wide variety of neurologic deficits, similar to the patient with ischemic stroke.

❖ Sudden numbness or weakness:

- ✓ Face
 - ✓ Arm or
 - ✓ Leg
- } especially on one side of the body

CLINICAL MANIFESTATIONS...



Strokes occur in the brain and affect the opposite side of the body

CLINICAL MANIFESTATIONS...

- ❖ Confusion, trouble speaking or understanding
 - ❖ Trouble seeing in one or both eyes
 - ❖ Dizziness, loss of balance or coordination
 - ❖ Sudden, severe headache with no known cause
- ❑ Most of the symptoms are suddenly happens

ASSESSMENT AND DIAGNOSTIC FINDINGS

- ◉ CT scan

- ◉ MRI

To determine:

- ❖ Type of stroke
- ❖ Size and location of the hematoma
- ❖ presence or absence of ventricular blood and hydrocephalus

ASSESSMENT & DX

◎ Cerebral Angiography

- ❖ Confirms the diagnosis of an intracranial aneurysm or AVM.
- ❖ Provide information about the affected arteries, veins, adjoining vessels, and vascular branches.

◎ LP

- ❖ When CT scan results are negative
- ❖ No evidence of increased ICP

COMPLICATIONS

- ⦿ Rebleeding or hematoma expansion
- ⦿ Cerebral Hypoxia following Decreased Blood Flow
- ⦿ Cerebral Vasospasm
- ⦿ Increased Intracranial Pressure
- ⦿ Seizures

MANAGEMENT

Medical Management

- Goals of medical treatment for hemorrhagic stroke:
 - To allow the brain to recover from bleeding.
 - To prevent or minimize the risk of rebleeding.
 - To prevent or treat complications.
- Bed rest with sedation to prevent agitation and stress.
- If the bleeding is caused by anticoagulation with warfarin, may be corrected with fresh-frozen plasma and vitamin K.

MANAGEMENT...

Medical Mgt...

- ⦿ Antiseizure agents are often administered prophylactically.
- ⦿ Analgesic agents may be prescribed for head and neck pain.
- ⦿ Antihypertensive medications - after discharge

MANAGEMENT...

Surgical Management

- ⊙ Surgical evacuation frequently accomplished via a ***craniotomy***
- ⊙ Hematoma **exceeds** 3 cm and **GCS↓**score
- ⊙ Patient with an **intracranial aneurysm** is done as soon as his or her condition is considered stable

MANAGEMENT...

Postoperative complications includes:

- ⊙ Psychological symptoms
 - ❖ Disorientation
 - ❖ Amnesia
- ⊙ Postoperative internal artery occlusion.
- ⊙ Intraoperative embolization

PREVENTION OF FURTHER STROKE

- ❑ Control of hypertension
- ❑ Control blood sugar in diabetics
- ❑ Ceasation of smoking
- ❑ Physical activity and weight reduction
- ❑ Anticoagulation for atrial fibrillation

PREVENTION OF FURTHER STROKE

Nursing Interventions

- ❖ Optimizing Cerebral Tissue Perfusion
- ❖ Implementing aneurysm precautions
- ❖ Relieving Sensory Deprivation and Anxiety
- ❖ Monitoring and Managing Potential Complications
- ❖ Promoting Home and Community-Based Care

A scenic landscape featuring a winding river in the foreground, terraced rice fields in the middle ground, and lush green mountains in the background. The text "THANK YOU" is overlaid in large, orange, serif capital letters at the top. Below it, the text "LET'S GO THROUGH WAYS OF NURSING" is overlaid in red, serif capital letters, angled diagonally across the middle of the image.

THANK YOU

LET'S GO
THROUGH WAYS
OF NURSING