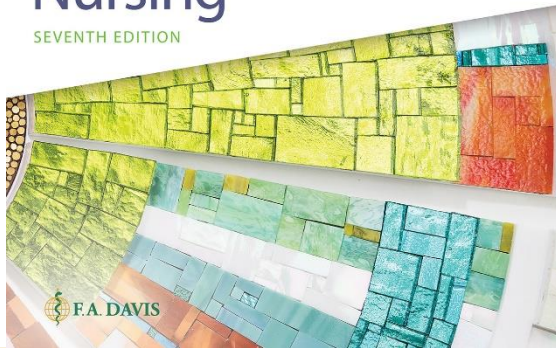


Williams | Hopper  
Otmanowski | Nowicki

Davis Advantage for

# Understanding Medical-Surgical Nursing

SEVENTH EDITION



## Chapter 49

# Nursing Care of Patients With Cerebrovascular Disorders

# Learning Outcomes

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- Describe causes, risk factors, and pathophysiology of transient ischemic attack, ischemic stroke, and hemorrhagic stroke.
- Identify emergency interventions for transient ischemic attack, ischemic stroke, and hemorrhagic stroke.
- Plan therapeutic measures for transient ischemic attack, ischemic stroke, and hemorrhagic stroke.

# Learning Outcomes (continued)

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- Identify outcomes that can be expected for a stroke victim.
- Plan nursing care for a patient with a cerebrovascular disorder.

# Transient Ischemic Attack

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- Temporary impairment of cerebral circulation
- Deprives brain of glucose and oxygen
- Symptoms resolve
- 15% of strokes preceded by a transient ischemic attack (TIA)

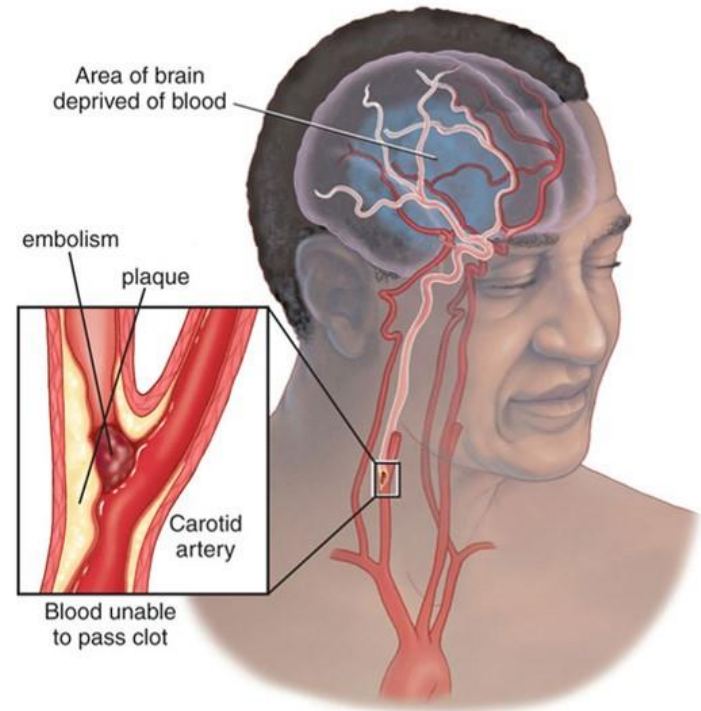
# Stroke

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- Pathophysiology
  - Also called cerebrovascular accident
  - Inadequate blood flow to brain
  - Infarction of brain tissue
  - Permanent damage if not reversed
  - Neurological deficits

# Etiology

- Ischemic
  - Deficient blood supply
    - Thrombotic
    - Embolic
- Hemorrhagic
  - Subarachnoid
  - Intracerebral



# Risk Factors


## ■ Modifiable

- Hypertension
- Smoking
- Diabetes mellitus
- Cardiovascular disease
- Atrial fibrillation
- Carotid stenosis
- TIA
- Sickle cell anemia
- Dyslipidemia
- Obesity

## ■ Nonmodifiable

- Age
- Gender
- Heredity
- Prior stroke or heart attack


# Stroke Risk Card



## Stroke Risk Scorecard

Each box that applies to you equals 1 point. Total your score at the bottom of each column and compare with the stroke risk levels on the back.

RISK FACTOR	HIGH RISK	CAUTION	LOW RISK
Blood Pressure	<input type="checkbox"/> >140/90 or unknown	<input type="checkbox"/> 120-139/80-89	<input type="checkbox"/> <120/80
Atrial Fibrillation	<input type="checkbox"/> Irregular heartbeat	<input type="checkbox"/> I don't know	<input type="checkbox"/> Regular heartbeat
Smoking	<input type="checkbox"/> Smoker	<input type="checkbox"/> Trying to quit	<input type="checkbox"/> Nonsmoker
Cholesterol	<input type="checkbox"/> >240 or unknown	<input type="checkbox"/> 200-239	<input type="checkbox"/> <200
Diabetes	<input type="checkbox"/> Yes	<input type="checkbox"/> Borderline	<input type="checkbox"/> No
Physical Activity	<input type="checkbox"/> None	<input type="checkbox"/> 1-2 times a week	<input type="checkbox"/> 3-4 times a week
Weight	<input type="checkbox"/> Overweight	<input type="checkbox"/> Slightly overweight	<input type="checkbox"/> Healthy weight
Stroke in Family	<input type="checkbox"/> Yes	<input type="checkbox"/> Not sure	<input type="checkbox"/> No
TOTAL SCORE	<input type="checkbox"/> High Risk	<input type="checkbox"/> Caution	<input type="checkbox"/> Low Risk



## Risk Scorecard Results

- High Risk  $\geq 3$ :** Talk to your healthcare provider immediately and ask about a stroke prevention plan. Make an appointment today.
- Caution 4-6:** You have several risks that if elevated will place you at a higher risk for stroke. Take control now and work towards reducing your risk.
- Low Risk 6-8:** You're doing well at controlling stroke risk! Continue to stay informed about your numbers. Get tips at [www.stroke.org](http://www.stroke.org).

Ask your healthcare professional how to reduce your risk of stroke.

**To reduce your risk:**

1. Know your blood pressure.
2. Find out whether you have atrial fibrillation.
3. If you smoke, stop.
4. Find out if you have high cholesterol.
5. If diabetic, follow recommendations to control your diabetes.
6. Include exercise in your daily routine.
7. Enjoy a lower-sodium (salt), lower-fat diet.

Use **FAST** to remember warning signs of stroke:

- FACE:** Ask the person to smile. Does one side of the face droop?
- ARMS:** Ask the person to raise both arms. Does one arm drift downward?
- SPEECH:** Ask the person to repeat a simple phrase. Is their speech slurred or strange?
- TIME:** If you observe any of these signs, **call 9-1-1 immediately.**

1-800-STROKES (787-6537) • [www.stroke.org](http://www.stroke.org)



# Warning Signs

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- Sudden numbness or weakness
- Sudden confusion
- Sudden change in vision
- Sudden trouble walking/dizziness
- Sudden severe headache

**CALL 911!**

# F.A.S.T.

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- **Face**
- **Arms**
- **Speech**
- **Time – Call 911**

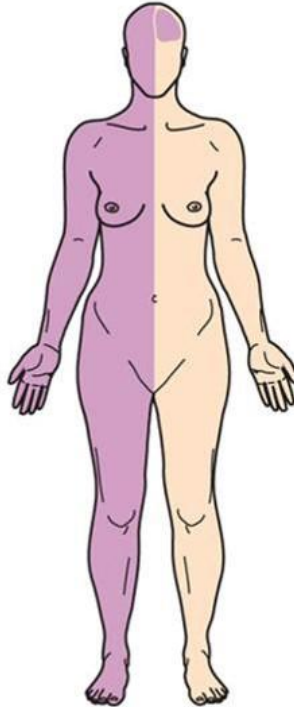
# Acute Signs and Symptoms

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- Depend on area of brain affected
- One-sided weakness/paralysis
- Dysphagia
- Sensory loss
- Mental status changes
- Visual disturbance
- Speech disturbance

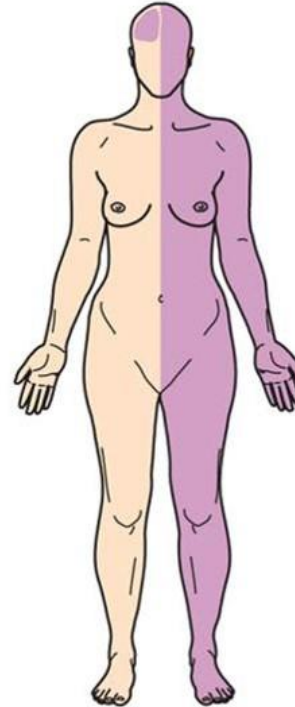
# Opposite Side Affected

Left-side infarct



Right-sided weakness or paralysis  
Aphasia (in left-brain-dominant clients)  
Depression related to disability common

Right-side infarct

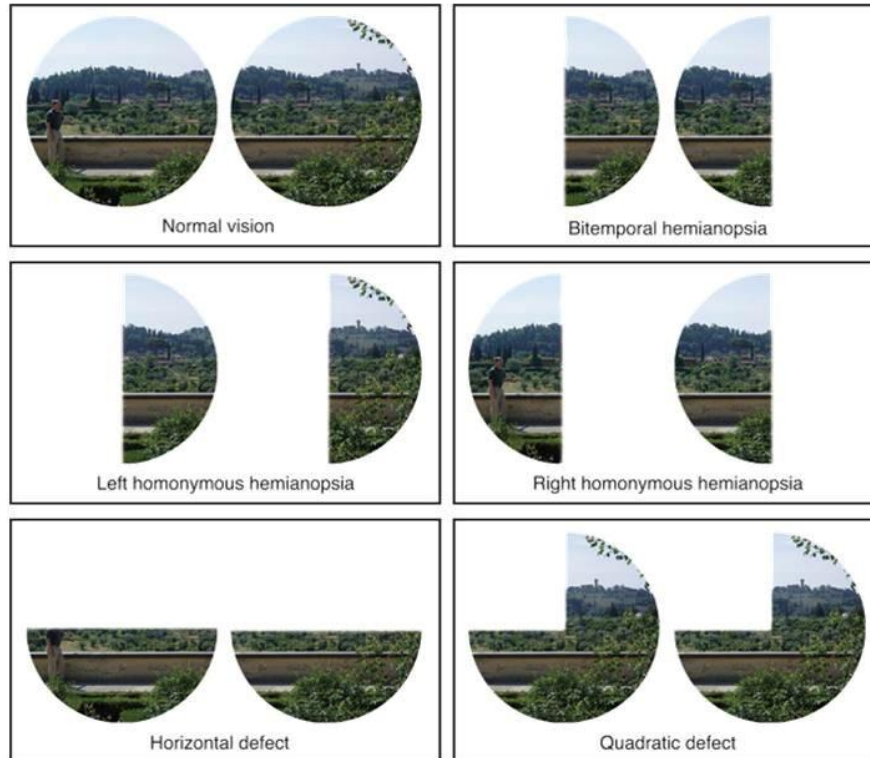


Left-sided weakness or paralysis  
Impaired judgment/safety risk  
Unilateral neglect more common  
Indifferent to disability

# One-Sided Weakness



# Visual Disturbances



# Diagnostic Tests

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- Computed tomography (CT) scan
- Electrocardiogram
- Complete blood count, electrolytes, glucose
- Metabolic panel
- International normalized ratio/  
prothrombin time
- National Institutes of Health Stroke Scale
- Carotid Doppler
- Cerebral angiogram

# Therapeutic Interventions

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- Thrombolytic therapy
- Airway management
- Control of hypertension, fever, glucose
- Seizure prevention



# Thrombolytic Therapy

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- Dissolves clot
- 3 to 4.5 hour time window
- May reverse symptoms
- TIME LOST IS BRAIN LOST!

# Postemergent Interventions

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- Treat cause of stroke.
- Physical, occupational, speech therapy
- Antiplatelet agent
- Anticoagulant agent
- Antihyperlipidemic agent
- Antiarrhythmic agent
- Maintain patent airway.

# Stroke Prevention

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- Control
  - Weight
  - Hypertension
  - Cholesterol
- Smoking cessation
- Aspirin or warfarin (Coumadin)
- Early recognition and treatment

# Surgical Intervention

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- Carotid endarterectomy
- Balloon angioplasty with stent

# Long-Term Effects

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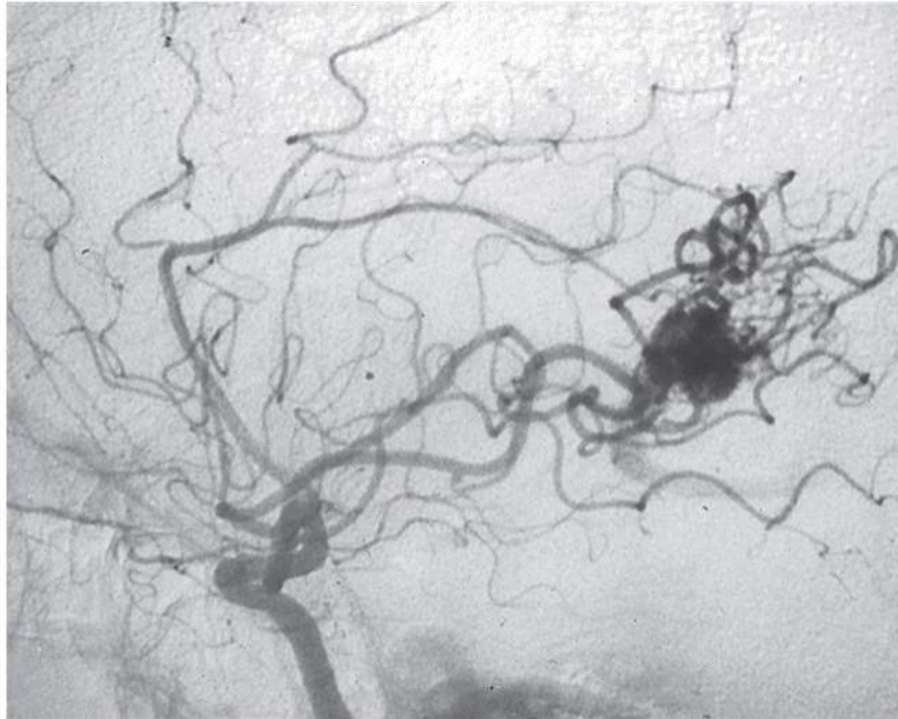
- Impaired motor function
- Impaired sensation
- Dysphagia
- Aphasia
- Pseudobulbar affect
- Impaired judgment
- Unilateral neglect

# Cerebral Aneurysm/ Subarachnoid Hemorrhage

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- Aneurysm
  - Weakness in artery wall
- Subarachnoid hemorrhage
  - Aneurysm
  - Arteriovenous malformation
  - Head trauma

# Arteriovenous Malformation



# Signs and Symptoms

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- Severe headache
- Photophobia
- Vomiting
- Disorientation
- Increased intracranial pressure
- Changes in level of consciousness
- Seizures
- Nuchal rigidity
- Pupil changes
- Motor dysfunction



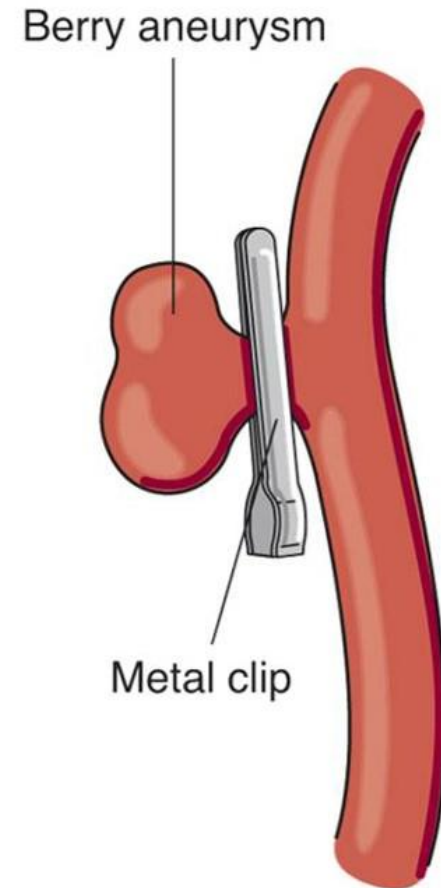
# Diagnostic Tests

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- CT scan
- Cerebral angiogram

# Therapeutic Interventions

- Craniotomy
  - Clamp
  - Wrap
  - Remove
- Nonsurgical
  - Thrombose aneurysm
  - Monitoring
  - Blood pressure control

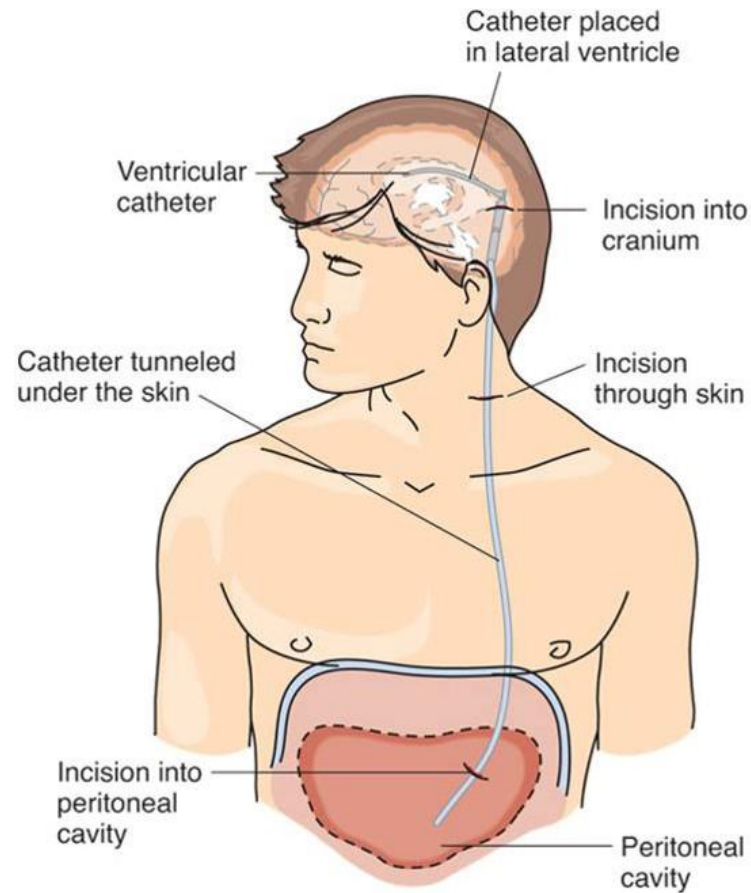


# Complications

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- Rebleed
- Hydrocephalus
- Vasospasm
- Others similar to stroke

# Ventriculoperitoneal Shunt



# Nursing Process: Assessment

- Level of consciousness
- Restlessness
- Dizziness
- Vision changes
- Pupil changes
- Vital signs
- Pain
- Peripheral oxygen saturation (SpO<sub>2</sub>)
- Paresthesias
- Weakness
- Paralysis
- Seizures
- Respiratory status
- Swallowing

# Nursing Diagnoses

---

- *Risk for Ineffective Cerebral Tissue Perfusion*
- *Ineffective Airway Clearance*
- *Risk for Injury*
- *Impaired Physical Mobility*
- *Imbalanced Nutrition*
- *Disturbed Sensory Perception*
- *Risk for Impaired Skin Integrity*
- *Incontinence (Bowel or Overflow Urinary or Functional Urinary)*

# Nursing Diagnoses (continued)

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- *Self-Care Deficit (Bathing, Dressing, Feeding, Toileting)*
- *Impaired Verbal Communication*
- *Acute or Chronic Confusion*
- *Risk for Falls*
- *Deficient Knowledge*
- *Risk for Caregiver Role Strain*

# *Risk for Ineffective Cerebral Tissue Perfusion*

- Monitor.
  - Neurological status
  - Vital signs
  - SpO<sub>2</sub>
  - Blood glucose
  - Coagulation studies
  - Medication effects
- Report changes.
- Keep head of bed up 20 to 30 degrees.
- Monitor medication effects.



# *Ineffective Airway Clearance*

---

- Monitor lung sounds, cough, respirations.
- Position to maintain open airway.
- Encourage to cough and deep breathe.
- Suction as needed.

# *Risk for Injury*

---

- Monitor neurological status and report changes.
- Monitor for hemorrhage.
- Administer anticonvulsant as ordered.
- Implement seizure precautions.
- Assist with transfers and ambulation.

# *Impaired Physical Mobility*

---

- Refer to physical therapy, occupational therapy.
- Consider constraint therapy.
- Maintain good body alignment.
- Perform range-of-motion exercises.
- Mobilize: Chair or ambulate.
- Turn every 2 hours.

# *Imbalanced Nutrition*

---

- Keep NPO until swallowing evaluated.
- Perform dysphagia screen.
- Try sip of water.
- Request speech therapist swallowing evaluation.
- Implement aspiration precautions.
- Consider tube feeding if necessary.

# *Disturbed Sensory Perception*

---

- Assess for sensory deficits.
- Teach patient to scan environment.
- Protect skin.

# *Risk for Impaired Skin Integrity*

---

- Monitor skin for breakdown.
- Keep perineal area clean and dry.
- Use barrier cream as needed.
- Turn patient every 2 hours.
- Use lift sheet to reposition.
- Consider pressure-reducing mattress.

# *Incontinence*

---

- Monitor for incontinence.
- Determine usual elimination patterns.
- Provide assistance with toileting schedule.
- Respond quickly to requests for help.

# *Self-Care Deficit*

---

- Assess ability to perform activities of daily living.
- Encourage independence.
  - Place objects in reach.
  - Provide assistive devices.
- Assist to learn use of nondominant side.
- Involve and educate family.

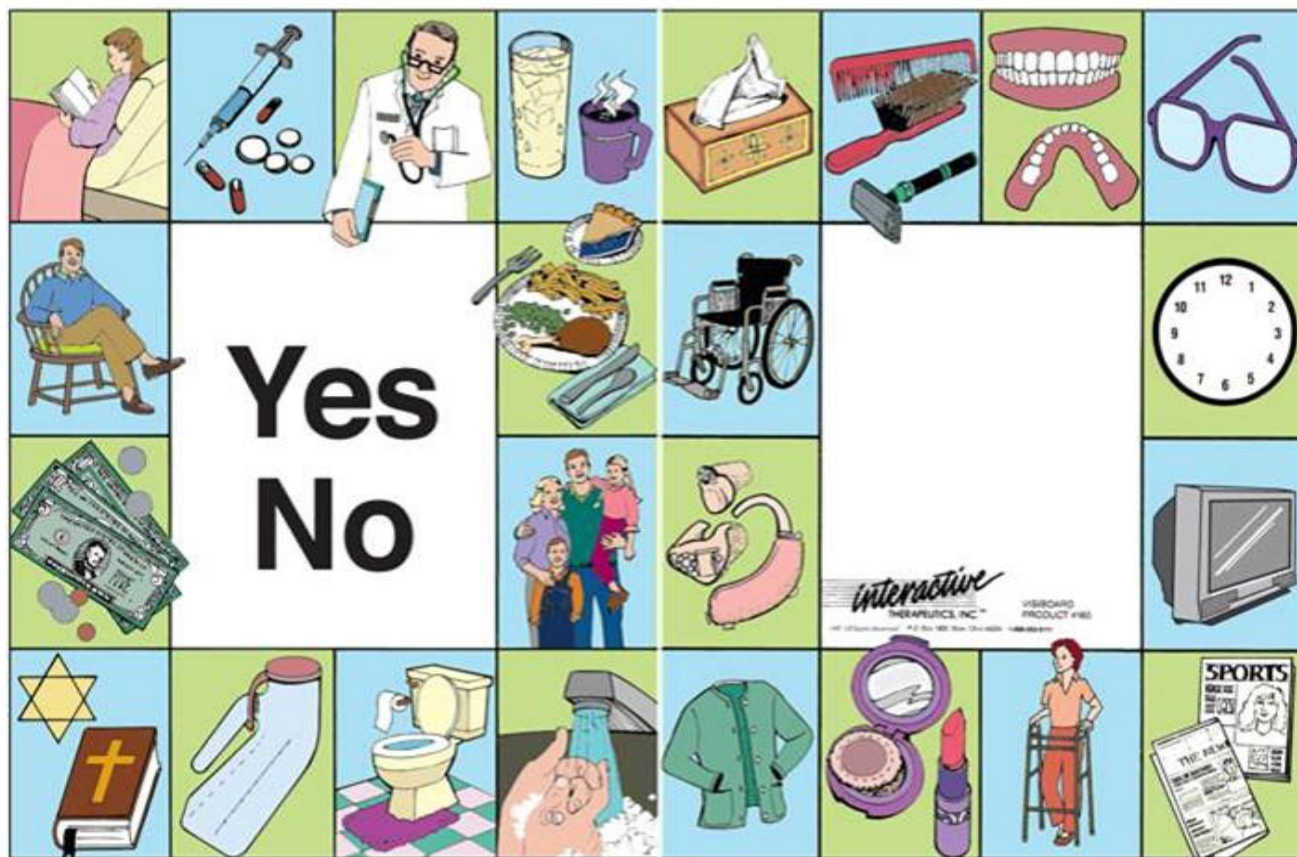


# *Impaired Verbal Communication*

---

- Assess verbal ability.
- Consult speech pathologist.
- Answer call light in person.
- Listen patiently.
- Provide communication aids.
- Keep communication appropriate.
  - Don't assume patient does not understand.

# Picture Board



# *Acute or Chronic Confusion*

---

- Monitor changes in thought processes.
- Place calendars, clocks in environment.
- Reduce stressors.
- Maintain patient's usual routines.
- Communicate slowly and clearly.
- Involve family.

# *Risk for Falls*

---

- Perform fall risk assessment.
- Instruct to ask for help to get up.
- Keep call light within reach.
- Provide frequent toileting.
- Avoid restraints.

# *Deficient Knowledge*

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- Explain what happened to patient.
- Explain tests and procedures.
- Orient patient and family to setting.
- Provide instruction for care at home.
- Evaluate need for home nursing.

# *Risk for Caregiver Role Strain*

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- Assess impact of patient's needs on caregiver.
- Assist caregiver to identify resources.
- Consult social worker or case manager.
- Consider skilled nursing facility as needed.

# Review Question #1

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**What are modifiable risk factors of stroke?**

*Select all that apply.*

1. Age
2. Diabetes mellitus
3. Obesity
4. Hyperkalemia
5. Gender

# Review Question #1 Answer

---

**Correct Answer: 2, 3**



## Review Question #2

---

**What are warning signs of stroke?** *Select all that apply.*

1. Sudden severe headache
2. Sudden dizziness
3. Sudden dyspnea
4. Sudden muscle spasticity
5. Sudden numbness on one side

# Review Question #2 Answer

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**Correct Answer: 1, 5**

# Review Question #3

---

**Following ischemic stroke, thrombolytic therapy must be given within how many hours?**

- 1. 1.5
- 2. 2
- 3. 4.5
- 4. 6

# Review Question #3 Answer

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**Correct Answer: 3**

## Review Question #4

---

**To protect from aspiration, what intervention should be carried out first following a stroke?**

1. Sit patient upright for meals.
2. Have a swallowing evaluation done.
3. Avoid use of straws.
4. Use a thickener for liquids.

# Review Question #4 Answer

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**Correct Answer: 2**

# Review Question #5

---

**Which speech and language deficit is a patient experiencing who is unable to comprehend all language?**

1. Receptive dysphasia
2. Expressive dysphasia
3. Receptive aphasia
4. Expressive aphasia

# Review Question #5 Answer

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**Correct Answer: 3**