

# Cerebrovascular Disorders

R.Thomas



---

---

---

---

---

---

---

---

## Prevention

- ▶ Non-modifiable risk factors
  - Age (older than 55 years), male gender, African Americans
- ▶ Modifiable risk factors
  - Hypertension is the primary risk factor
  - Cardiovascular disease
  - Elevated cholesterol or elevated hematocrit
  - Obesity
  - Diabetes
  - Oral contraceptive use
  - Smoking and drug and alcohol abuse



---

---

---

---

---

---

---

---

## Prevention

- ▶ Health maintenance measures including a healthy diet, exercise, and the prevention and treatment of periodontal disease
- ▶ Carotid endarterectomy
- ▶ Anticoagulant therapy
- ▶ Antiplatelet therapy: aspirin, dipyridamole plus aspirin (Aggrenox), clopidogrel (Plavix)
- ▶ "Statins"
- ▶ Antihypertensive medications



---

---

---

---

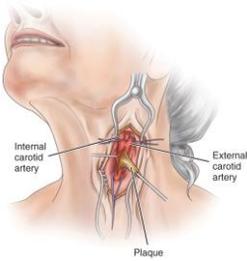
---

---

---

---

## Carotid Endarterectomy



Wolters Kluwer

Copyright © 2018 Wolters Kluwer - All Rights Reserved

---

---

---

---

---

---

---

---

## Transient Ischemic Attack (TIA)

- ❖ Temporary neurologic deficit resulting from a temporary impairment of blood flow
- ❖ "Warning of an impending stroke"
- ❖ Diagnostic workup is required to treat and prevent irreversible deficits

Wolters Kluwer

Copyright © 2018 Wolters Kluwer - All Rights Reserved

---

---

---

---

---

---

---

---

## Treatment/ Management

- ▶ Prevention
- ▶ Diagnosis
  - CT scan, cerebral angiography, LP
- ▶ Supportive care
  - Bed rest with sedation
  - Oxygen
- ▶ Treatment of vasospasm, increased ICP, HTN, potential seizures, and prevention of further bleeding

---

---

---

---

---

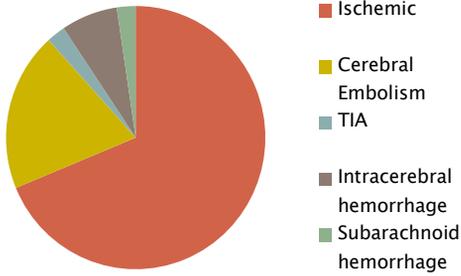
---

---

---



### Types of Strokes



---

---

---

---

---

---

---

### Cerebral Vascular Anatomy

- ▶ 4 main vessels
  - 2 carotid arteries
  - 2 vertebral arteries

---

---

---

---

---

---

---

### Ischemic Strokes

- ▶ 5 types
  - Small penetrating artery thrombotic stroke (lacunar)
  - Large artery thrombotic stroke
  - Cardiogenic embolic (cardioembolic)
  - Cryptogenic
  - Other
- ▶ Penumbra

---

---

---

---

---

---

---

## Signs & Symptoms of Stroke

- ▶ F
- ▶ A
- ▶ S
- ▶ T
  
- ▶ Other

---

---

---

---

---

---

---

---



## S/S of Ischemic Stroke

- ▶ Visual field deficits
- ▶ Motor deficits
- ▶ Sensory deficits
- ▶ Cognitive deficits
- ▶ Emotional deficits

---

---

---

---

---

---

---

---



## Terms

- ❖ Hemiplegia
- ❖ Hemiparesis
- ❖ Dysarthria
- ❖ Aphasia:
  - expressive aphasia
  - receptive aphasia
- ❖ Hemianopsia
- ❖ Agnosia

---

---

---

---

---

---

---

---

### 7 D's of Stroke Care

- Detection
- Dispatch
- Delivery
- Door
- Data
- Decision
- Drug administration
  
- Time of onset
- Medication hx
- Past Medical hx

---

---

---

---

---

---

---

---

### Pre-hospital Stroke Care

- Goal
- Screening
  - Cincinnati prehospital Stroke Scale (CPSS)
  - Los Angeles Prehospital Stroke Screen

---

---

---

---

---

---

---

---

### Door to Detection

- Assessment (stroke team)
- CT
- CT reading
- Door to CT reading
- Door to lab results
- Door to IV TPA

---

---

---

---

---

---

---

---

### Assessment

- ▶ NIH Stroke Scale
  - LOC, questions, commands
  - Best gaze
  - Visual
  - Facial palsy
  - Motor– arm, leg (right and left)
  - Limb ataxia
  - Sensory
  - Best language
  - Dysarthria
  - Extinction and Inattention

---

---

---

---

---

---

---

---

### Assessment

- ▶ Nursing
  - Onset
  - VS with pulse oximetry
  - BP control
  - Neuro checks
  - Weight
  - Peripheral IV
  - Labs
  - Blood glucose
  - EKG
  - CXR
  - No anticoagulant
  - NIH scale by MD
  - Swallow evaluation

---

---

---

---

---

---

---

---

### Thrombolytic Therapy

- ▶ Recombinant t-PA
- ▶ Criteria/ Indications
  - Age
  - Within 3 hours and can extend to 4.5 hrs
  - CT with no hemorrhage
- ▶ Contraindications
- ▶ Administration/ Dosage
- ▶ Nursing Interventions

---

---

---

---

---

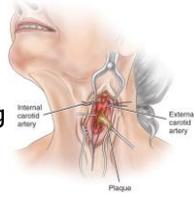
---

---

---

## Care for Non t-PA Stroke

- ▶ O2
- ▶ Intubation
- ▶ HOB 25–30°
- ▶ ICP
- ▶ Hemodynamic monitoring
  - BP control
- ▶ Neuro checks



### Carotid Endarterectomy (CEA) Complication

---

---

---

---

---

---

---

---

---

---

## Nursing Process: The Patient Recovering From an Ischemic Stroke—Assessment

- ❖ Acute phase:
  - Ongoing, frequent monitoring of all systems, including vital signs and neurologic assessment
  - LOC
  - motor symptoms
  - speech
  - pupil changes
  - I & O
  - blood pressure maintenance
  - Bleeding
  - oxygen saturation

Wolters Kluwer Copyright © 2018 Wolters Kluwer - All Rights Reserved

---

---

---

---

---

---

---

---

---

---

## Nursing Care Post Acute Phase

- ❖ After the acute phase:
  - Mental status
  - Sensation/perception
  - Motor control
  - Swallowing ability
  - Nutritional and hydration status
  - Skin integrity
  - Activity tolerance
  - Bowel and bladder function

Wolters Kluwer Copyright © 2018 Wolters Kluwer - All Rights Reserved

---

---

---

---

---

---

---

---

---

---

## Nursing Process: The Patient Recovering From an Ischemic Stroke—Planning

- ❖ Major goals may include
  - Improved mobility
  - Avoidance of shoulder pain
  - Achievement of self-care
  - Relief of sensory and perceptual deprivation
  - Prevention of aspiration
  - Continence of bowel and bladder
  - Improved thought processes
  - Achieving a form of communication
  - Maintaining skin integrity
  - Restored family functioning
  - Improved sexual function
  - Absence of complications

Wolters Kluwer

Copyright © 2018 Wolters Kluwer - All Rights Reserved

---

---

---

---

---

---

---

---

---

---

## Aneurysm Precautions

- ▶ Absolute bed rest, non-stimulating environment
- ▶ Elevate HOB 30 degrees to promote venous drainage or flat to increase cerebral perfusion
- ▶ Avoid all activity that may increase ICP or BP; Valsalva maneuver, acute flexion or rotation of neck or head
- ▶ Seizure precautions
- ▶ Stool softener/ mild laxatives
- ▶ Exhale through mouth when voiding or defecating to decrease strain
- ▶ Nurse provides all personal care and hygiene
- ▶ Nonstimulating, nonstressful environment; dim lighting, no reading, no TV, no radio
- ▶ Visitors are restricted

---

---

---

---

---

---

---

---

---

---

## Hemorrhagic Stroke

- ▶ Bleeding
- ▶ Etiology
  - HTN
  - Ruptured aneurysm
  - Arterial venous malformation (AVMs)
  - Meds- anticoagulants
- ▶ ICP
- ▶ S/S
  - Similar to ischemic
  - Severe headache
  - Early and sudden changes in LOC
  - Vomiting

---

---

---

---

---

---

---

---

---

---

### Treatment/ Management

- ▶ Neuro assessment
- ▶ Respiratory & Oxygenation
- ▶ ICP
- ▶ Admit to ICU
- ▶ Complications
  - Vasospasm
  - Seizures
  - Hydrocephalus
  - Rebleeding
  - Hyponatremia
- ▶ Fluid balance, labs

---

---

---

---

---

---

---

---

### Nursing Process: The Patient With a Hemorrhagic Stroke—Assessment

- ❖ Complete and ongoing neurologic assessment; use neurologic flow chart
- ❖ Altered LOC
- ❖ Sluggish pupillary reaction
- ❖ Motor and sensory dysfunction
- ❖ Cranial nerve deficits
- ❖ Speech difficulties and visual disturbance
- ❖ Headache and nuchal rigidity
- ❖ Other neurologic deficits

---

---

---

---

---

---

---

---

### Post Stroke Care

- ▶ Physical Therapy
- ▶ Occupational Therapy
- ▶ Speech Therapist
- ▶ Nutritionist/ Dietitian
- ▶ Rehabilitation
- ▶ Assistive devices

---

---

---

---

---

---

---

---

## Interventions #1

---

- ❖ Focus on the whole person
- ❖ Provide interventions to prevent complications and promote rehabilitation
- ❖ Provide support and encouragement
- ❖ Listen to the patient

 Wolters Kluwer

Copyright © 2018 Wolters Kluwer - All Rights Reserved

---

---

---

---

---

---

---

---

---

---

## Interventions #2

---

- ❖ Enhancing self-care
  - Set realistic goals with the patient
  - Encourage personal hygiene
  - Ensure that patient does not neglect the affected side
  - Use of assistive devices and modification of clothing
- ❖ Support and encouragement
- ❖ Strategies to enhance communication
- ❖ Encourage patient to turn head, look to side with visual field loss

 Wolters Kluwer

Copyright © 2018 Wolters Kluwer - All Rights Reserved

---

---

---

---

---

---

---

---

---

---

## Interventions #3

---

- ❖ Nutrition
  - Consult with speech therapy or nutritional services
  - Have patient sit upright, preferably out of bed, to eat
  - Chin tuck or swallowing method
  - Use of thickened liquids or pureed diet
- ❖ Bowel and bladder control
  - Assessment of voiding and scheduled voiding
  - Measures to prevent constipation: fiber, fluid, toileting schedule
  - Bowel and bladder retraining

 Wolters Kluwer

Copyright © 2018 Wolters Kluwer - All Rights Reserved

---

---

---

---

---

---

---

---

---

---

### Improving Mobility and Preventing Joint Deformities

- ❖ Turn and position in correct alignment every 2 hours
- ❖ Use of splints
- ❖ Passive or active ROM four or five times day
- ❖ Positioning of hands and fingers
- ❖ Prevention of flexion contractures
- ❖ Prevention of shoulder abduction
- ❖ Do not lift by flaccid shoulder
- ❖ Measures to prevent and treat shoulder problems

Wolters Kluwer

Copyright © 2018 Wolters Kluwer - All Rights Reserved

---

---

---

---

---

---

---

---

### Improving Mobility and Preventing Joint Deformities

- ❖ Encourage patient to exercise unaffected side
- ❖ Establish regular exercise routine
- ❖ Quadriceps setting and gluteal exercises
- ❖ Assist patient out of bed as soon as possible; assess and help patient achieve balance; move slowly
- ❖ Ambulation training

Wolters Kluwer

Copyright © 2018 Wolters Kluwer - All Rights Reserved

---

---

---

---

---

---

---

---

Wolters Kluwer Health | Lippincott Williams & Wilkins

### Positioning to Prevent Shoulder Abduction



Copyright © 2014 Wolters Kluwer Health | Lippincott Williams & Wilkins

---

---

---

---

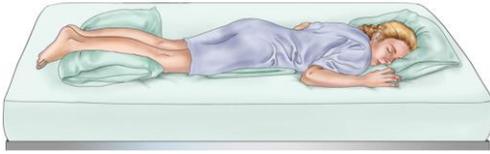
---

---

---

---

### Prone Positioning to Help Prevent Hip Flexion



Copyright © 2014 Wolters Kluwer Health | Lippincott Williams & Wilkins

---

---

---

---

---

---

---

---

### Interventions (cont'd)

- Nutrition
  - Consult with speech therapy or nutritional services
  - Have patient sit upright, preferably out of bed, to eat
  - Chin tuck or swallowing method
  - Use of thickened liquids or pureed diet
- Bowel and bladder control
  - Assessment of voiding and scheduled voiding
  - Measures to prevent constipation: fiber, fluid, toileting schedule
  - Bowel and bladder retraining

Copyright © 2014 Wolters Kluwer Health | Lippincott Williams & Wilkins

---

---

---

---

---

---

---

---

### Home Care and Education for the Patient Recovering from a Stroke

- ❖ Prevention of subsequent strokes, health promotion, and follow-up care; refer to Chart 67-6
- ❖ Prevention of and signs and symptoms of complications
- ❖ Medication education
- ❖ Safety measures
- ❖ Adaptive strategies and use of assistive devices for ADLs
- ❖ Nutrition: diet, swallowing techniques, tube feeding administration
- ❖ Elimination: bowel and bladder programs, catheter use
- ❖ Exercise and activities, recreation and diversion
- ❖ Socialization, support groups, and community resources

---

---

---

---

---

---

---

---