Long-Term Sequelae of Stroke
(What primary care physicians need to know)

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Long-Term Sequelae of Stroke

- **Acute in-hospital phase**
  - Diagnosis.
  - Treatment.
    - TPA
    - Endovascular intervention
    - Medical comorbidities
  - Does the patient need rehabilitation?
    - No functional deficits----→ Home
    - Functional deficits--→ SAR?  MRU?
Long-Term Sequelae of Stroke

- MRU to home.
- Then what?
- Primary Medical Physician.
Long-Term Sequelae of Stroke

That may be encountered by the PMD

- Stroke recurrence
- Concurrent CV disease
- Seizures
- Risk of aspiration
- Neurogenic Bladder
- Spasticity/Hypertonicity
- Plantar Flexion
- Foot inversion
- Hemiplegic Shoulder
- Wrist and hand flexion
- Fractures
- Depression
- Family difficulties
- Decreased sexual activity
- Functional disability
Long-Term Sequelae of Stroke

**Stroke Recurrence**
- Occurrence of a stroke is a significant risk factor for the development of future strokes.
- Five times more likely to have another stroke than matched controls.
- Secondary prevention (AHA/ASA Guidelines):
  - Low-dose aspirin/anticoagulation
  - Cholesterol
  - HTN
  - DM
  - Smoking
  - Obesity
  - Physical Activity
Long-Term Sequelae of Stroke

Cardinal Stroke Risk Factors:
- High blood pressure
- Abdominal obesity
- Tobacco smoking
- Diabetes
- Heart disease (including atrial fibrillation/irregular heart beat)
Long-Term Sequelae of Stroke

- **Concurrent CV Disease**
  - Stroke associated with high incidence of concurrent CV disease.
  - Most common cause of death after stroke or TIA is MI, cardiac arrhythmia, or CHF.
  - Potential risk of hemorrhage in patients on anticoagulation for cardiac disorders such as atrial fibrillation.
Long-Term Sequelae of Stroke

- **Seizures**
  - Stroke is most common cause of seizures in the elderly population.
  - Seizures occur in 11% of stroke survivors by five years.
  - But only a subset of this group will develop epilepsy (recurrent seizures.)
  - Long-term outcome of patients with seizures is worse than that of those without seizures.
  - Cortical distribution of ischemic infarcts. (MCA branches.)
  - Intracerebral hemorrhage associated with the highest risk of post-stroke seizures.
  - Atrial fibrillation with embolic stroke.
  - Stroke Council of the AHA recommends seizure prophylaxis in the acute phase for ICH and SAH.
Dysphagia

- Carries a sevenfold increased risk of aspiration pneumonia.
- Is an independent predictor of mortality.
- Aspiration (along with malnutrition) is one of the most important consequences of dysphagia.
- Most patients will recover.
Long-Term Sequelae of Stroke

- **Risk of Aspiration**
  - Modified Barium Swallow Study (MBSS).
  - Compensatory Techniques.
  - Nutritional alternatives (ie: PEG).
Long-Term Sequelae of Stroke

- Bladder Control
  - Frustrating. Embarrassing.

- Incontinence
  - Muscle weakness.
  - Sensory deficits. Vision.
  - Dressing/Undressing.
  - Poor mobility.
  - Medications.
Long-Term Sequelae of Stroke

**Bladder Control**
- **Evaluation**
- **Management**
- **Bladder control problems=/=Incontinence.**
Long-Term Sequelae of Stroke

**Constipation**
- Nutrition/hydration.
- Pain medications.
- Mobility.
Long-Term Sequelae of Stroke

- **Spasticity**
  - One aspect of upper motor neuron syndrome.

  - Positive signs
    - Increased tendon reflexes
    - Clonus
    - Increased plantar reflex
    - Spasticity
    - Spasms
    - Spastic co-contraction.

  - Negative signs
    - Muscle weakness
    - Decreased dexterity
    - Fatigability
Long-Term Sequelae of Stroke

- **Spasticity**
  - Affects 30% of stroke patients.
  - Onset is variable.
  - Elbow > wrist = ankle.
  - **UE Pattern**
    - Shoulder IR
    - Elbow, wrist, finger flexion
  - **LE Pattern**
    - Hip adduction
    - Knee extension. Equinovarus.
Long-Term Sequelae of Stroke

- **Spasticity**
  - Treatment
    - Physical therapy
    - Serial casting
    - Orthoses
    - TENS
    - Medications
      - Baclofen.
      - Tizanidine.
      - Dantrolene.
      - Botox
      - ITB

COMBINATIONS OF TREATMENTS
Long-Term Sequelae of Stroke

- **Plantar Flexion Contracture**
  - A consequence of untreated spasticity.
  - Decreased base of support.
  - Clearance of foot during swing phase of ambulation.
  - Surgical release.
Wrist and Hand Flexion Contracture

- Interferes with hand function.
- ROM? Orthoses.? Medications?
- Botox to treat contracted joint?
- Surgical release.
Long-Term Sequelae of Stroke

- **Contractures**
  - Surgical/Orthopedic intervention.
  - Will it improve function? Positioning? Comfort? Hygiene?
Long-Term Sequelae of Stroke

- Hemiplegic shoulder
  - Glenohumeral subluxation.
    - During initial flaccid stage.
    - Watch out during transfers.
  - Frozen shoulder.
    - Immobility. Contracture. Use of arm sling.
Post-Stroke Depression

- Occurs in 30% of stroke patients.
- Minority are diagnosed.
- Fewer are treated.
- Affects functional recovery and QOL.
- Biological and psychosocial causes
- Treatment.
  - TCAs, SSRIs, SNRI s.
  - Psychotherapy. Support Groups.
Long-Term Sequelae of Stroke

- Influence of Stroke on Caregivers/Families
  - Children versus spouse.
  - Depression.
  - Sleep.
  - Health.
  - Finances.
  - Stress.
  - Isolation.
  - Grief.
  - Anger/Resentment.
Long-Term Sequelae of Stroke

- Decreased Sexual Activity
  - Mobility
  - Bladder
  - Bowel
  - Depression
  - Spasticity
    - etc, etc, etc.
Long-Term Sequelae of Stroke

- **Functional Disability**
  - Driving.
  - Employment.
  - Hobbies.
Thank you

Questions?