Annual EMS Stroke Conference

Christina Morgan, PT, Jessica Abele, PT,
Carolyn Wilson, OTR/L, Jeff Doleman, SLP

October 29, 2015

Objectives

- Describe roles of Physical Therapy, Occupational Therapy, and Speech Therapy for rehabilitation of patients with stroke
- Discuss current research and recommendations for early mobilization, occupational therapy intervention, and assessment of dysphagia and communicative deficits
- Discuss discharge planning options and timeline of stroke recovery

Case Study: CVA Patient Throughout Recovery

50 y.o. female brought in by husband after developing slurred speech and weakness in her right arm:

- CT scan was negative for hemorrhage, given tPA
- Critical stenosis of L distal cervical vertebral artery and decreased perfusion of L distal MCA and PCA on CT angio
- PT evaluation next day in ICU: Flaccid Right UE/LE= 0/5 MMT, decreased attention to right side, Max A to transfer to sitting at edge of bed, orthostatic BP

The Role of Physical Therapy in Stroke Rehabilitation

Addressing patient mobility goals to improve independence and quality of life

Acute Care PT for Patients with CVA

- Varies depending on the status and ability of the patient
- Closely monitor vitals, fatigue, decrease in quality of movement
- Test for strength, coordination, motor planning, balance, endurance, safety, equipment
- Discharge recommendations, based on:
  - Prior level of function, current functional ability, tolerance to activity, prognosis
  - Also take in consideration support system, home setup, and available assistance
- Education for the patient, family, staff

Physical Therapy is a small part of the day!

We need your help!

- Physical therapy session 20-60 minutes (usually ~30 minutes)
  - Most patients cannot tolerate longer in one session
- Typical person is active (not lying in bed) 12-14 hours per day
  - Stroke units have patients active 46% of this time (~4-6 hours)
- Nursing can help with:
  - BP control
  - Range of motion
  - Positioning
  - Safe mobility (dangling, standing, walking, cardiac chair as appropriate)

After Acute Care - Discharge Options

- Acute Rehabilitation Center
  - 2-4 weeks of intensive (3 hours per day) PT, OT and Speech
  - Goal: Optimize functional outcomes to be able to return home
- SNF: 5-6 days per week, 1-3 hours of therapy (Can track for acute rehab)
- Home Health: able to discharge to home, but considered homebound
- Outpatient therapy

Topic Review: Early Mobilization after Stroke

- Review of Literature and International Recommendations By Bernhardt, English, Johnson, et al. 2015
- Several main studies currently: AVERT, VERITAS, SEVEL
    - Therapist and/or nursing providing mobility within 24-72 hours after stroke
    - Significant improvement 3 months post stroke
- AVERT Phase III Study

Topic Review (cont)

- Review concludes that early mobility leads to:
  - Faster return to unassisted walking
  - Reduced costs of care
  - No significant change in complications, side effects and mortality
- Preclinical studies show: Critical period of enhanced neuroplasticity early after stroke with hyperexcitability, axonal sprouting, dendritic formation, increased synaptogenesis

Bernhardt J, English C, Johnson L, Cumming TB. Early mobilization after stroke: early adoption but limited evidence. Stroke 2015; 46: 1141–46.

International Recommendations

- No clear guidelines on:
  - What defines early mobilization: ROM, sitting, standing/walking, cardiac chair
  - When to begin: once stable, within 24 hours, within 72 hours, etc
- Justification: to prevent complications (infection, DVT, falls) vs optimize outcomes

Bernhardt J, English C, Johnson L, Cumming TB. Early mobilization after stroke: early adoption but limited evidence. Stroke 2015; 46: 1141–46.

AVERT PHASE III

- Single blind RCT of 2083 patients in acute stroke units with data collected from 2006-2014
- Early Mobilization Group defined by <24 hours vs usual care
  - Actual small difference between groups for time to mobility: approximately 5 hours
- Conclusion: an early, lower dose out-of-bed activity regimen is preferable to very early, frequent, higher dose intervention
- Saw significant change in standard of practice across time of study:
  - The median time to first mobilization in the usual care group decreased by 28 min per year
- No significant difference in death, and no significant differences with tPA (24% of patients)

Bernhardt J, Collier J, Dewey H, Donnan G. Efficacy and safety of very early mobilisation within 24 h of stroke onset (AVERT): a randomised controlled trial. Lancet 2015; Volume 386, Issue 9988: 46-55.

South San Francisco Kaiser Practice

Current standard practice is:

- Physical Therapy within 24 hours of orders received, if vitals and clinical status are stable
- Hold Physical Therapy until 24 hours after tPA, unless otherwise noted by physician
- Physical Therapy once per day, 5-7 days per week. Additional mobility provided by nursing (Walking, standing, dangling, cardiac chair)

こんにちは

Вітаю

سلام

नमस्ते

The Speech Therapist

AKA “The Swallow Person”
in many medical settings

The SLP is known primarily for one role,
yet has a more extensive scope of practice

Voice, Speech, and Language

E = 1V + 1S + 1L

Voice, Speech, and Language

Aphasia, Dysarthria, Dysphonia, Apraxia

What's the Difference? They all sound the same!

Voice, Speech, and Language

Voice-

Deficit=

Speech-

Deficits=

Language-

Deficit=

Communication Assessment - Case Study

During acute stay, an SLP evaluation in ICU revealed:

- Adequate auditory comprehension
- Limited verbal initiation and output
- Occasional semantic paraphasias
- Mild dysarthria

Combined features indicated Broca-type aphasia, and treatment commenced to establish consistent Y/N verbal responses and confrontational naming accuracy.

Voice, Speech, and Language

Communication Strategies
for Patients with Aphasia, Dysarthria, & Dysphonia

Face patient when speaking & listening - Speak slowly - Limit your vocabulary & sentence length - Use a communication board - Ask Y/N or multiple choice questions - Draw pictures - Ask patient to slow down & speak loudly - Use gestures

Dysphagia Assessment

3 Approaches to the Assessment of Dysphagia:

- **Swallow Screen**
- **Clinical Swallow Evaluation**
- **Instrumental Evaluation of Dysphagia (MBS & FEES)**

Modified Barium Swallow Study

Fiberoptic Endoscopic Evaluation of Swallowing

Dysphagia Assessment - Case Study

Timeline from NPO to baseline diet:

1. Pt failed RN swallow screen secondary to slurred speech, and placed on NPO status
2. SLP completed CSE within 24 hours of SS and recommended pureed solid and thin liquid diet
3. SLP returned for follow-up treatment during acute stay, and pt advanced to mechanical soft solids
4. She advanced to regular solids after d/c

Dysphagia & Stroke Certification

News Flashback to 2010!

Joint Commission Retires Dysphagia Screening Requirement for Stroke Patients

WHY?

Dysphagia & Stroke Certification

National Quality Forum found no standard of care consensus, and no clinical trials identified an optimal swallow screening tool.

Daniels, Stephanie K., et al. *Valid Items for Screening Dysphagia Risk in Patients with Stroke.* **Stroke** 2012; 43: 892-897

Schepp, Sara K., et al. *Swallowing Screens After Acute Stroke.* **Stroke** 2012; 43:869-871

Dysphagia & Stroke Certification

So, we can stop doing swallow screens, right?

Dysphagia is a frequent complication of stroke.
Dysphagia places patients at higher risk for
_____,
which can make them more susceptible to
_____.

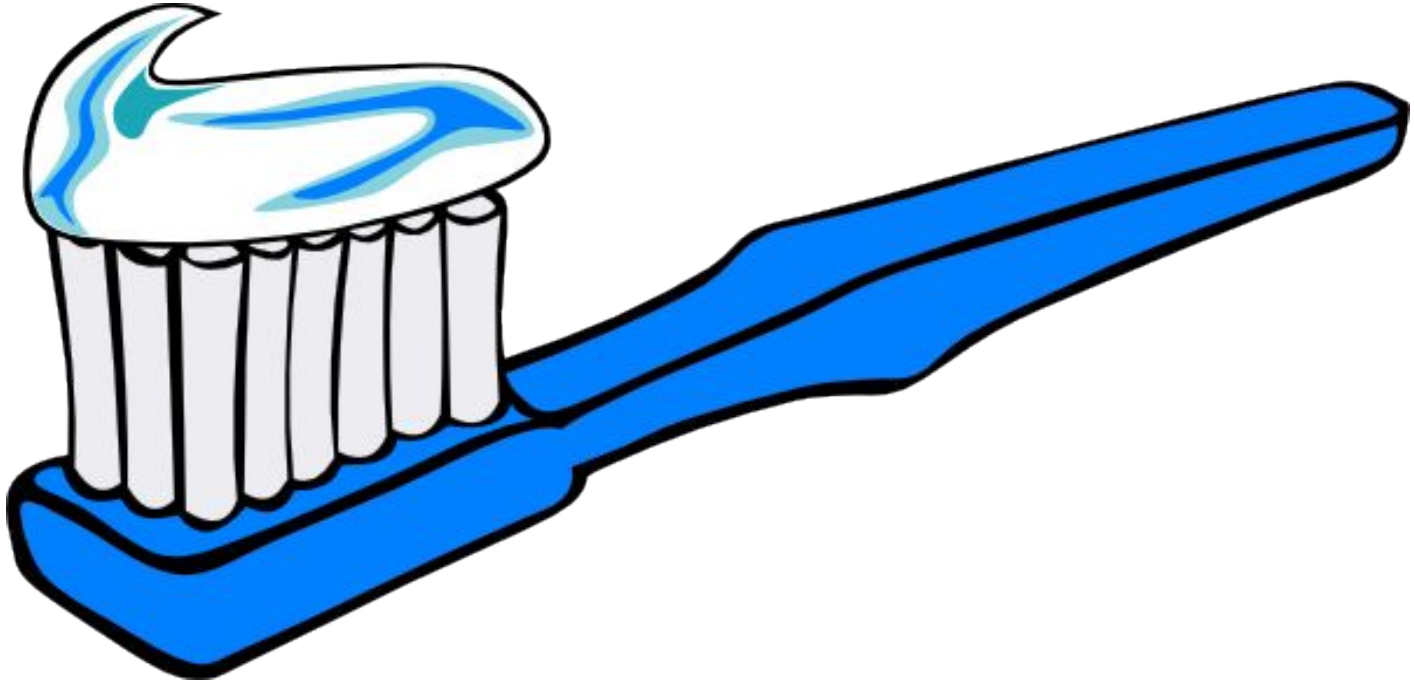
Dysphagia & Stroke Certification

Researchers are testing numerous Swallow Screen variations that forego all PO trials, including the traditional 3-ounce water swallow test.

Schrock, Jon W., et al. *A Novel Emergency Department Dysphagia Screen for Patients Presenting with Acute Stroke.* **Academic Emergency Medicine** June 2011. Vol. 18, Issue 6:584-589.

Crary, Michael A., et al. *Spontaneous Swallow Frequency Has Potential to Identify Dysphagia in Acute Stroke.* **Stroke** 2013; 44 (12):3452-3457

Okubo, P., et al. *Using the National Institute of Health Stroke Scale to Predict Dysphagia in Acute Ischemic Stroke.* **Cerebrovascular Diseases** 2012; 33:501-507



Stroke Rehabilitation

The Role of Occupational Therapy

Paving the Way for Increased Independence

What does an Occupational Therapist do?

An occupational therapist is a rehabilitation professional who evaluates and treats a variety of diagnoses with the aim to improve or restore one's ability to perform self care and participate in meaningful Activities of Daily Living

Focus of Occupational Therapy

- *To help individuals achieve health, well being, and participation in life through engagement in occupations (i.e., activities)*

Impact of Stroke on Human Occupation

After a stroke, patients may experience changes in their:

- Physical
- Cognitive
- Visual
- Emotional Abilities

Which impede them from independently performing their daily activities related to self care, homemaking, work, school, parenting, or leisure

Occupational Therapy
Areas of Evaluation in Stroke Rehabilitation

- Prior Level of Function - “Occupation”
- Support System
- Upper Extremity Evaluation (strength, sensation, tone, ROM, coordination)
- Self Care Abilities (dressing, grooming, self-feeding, toilet, bathing)
- Cognitive Skills (incl attention, memory, problems solving, praxis, safety awareness)
- Visual Processing Skills (spatial relations, visual fields, diplopia, visual acuity)
- Sitting and Standing Balance
- Ability to Transfer or Stand to perform ADLs
- Swallowing (performed by Speech or OT depending on the facility)

Occupational Therapists are skilled in evaluating all factors in a person’s life, which leads to a comprehensive link between occupation and health (*Metzler, Hartmann & Lowenthal, 2012*)

Case Study: OT Evaluation

- Max A / Dependent Self Care Skills
- Flaccid and Non-Functional R UE
- Difficulty Following Commands / Apraxia
- Decreased Right Visual Field Awareness

Occupational Therapy Goals of Care

Depending on the extent of the stroke, the needs and goals of the client, and the phase of stroke recovery, occupational therapy goals and services may include:

Acute Care including ICU:

- Explain role of occupational therapy and general rehab plan of care
- Address positioning and safety of the hemiplegic upper extremity - preventing edema and subluxation
- Caregiver training and education - how to help safely and appropriately

Goals of Care in ICU (cont)

- Address deficits such as weakness, sensory loss, and cognitive or visual impairments that limit engagement in ADLs
- Retraining in basic Self Care, incl teaching one handed techniques if needed
- Transfer training out of bed in order to use toilet/commode or to participate in seated self care such as self feeding
- Instruct in upper extremity function and strengthening of the weakened limb

Early OT and PT is safe, effective, and improves overall functional independence. Patients showed lower risk for developing functional impairments (*Schweickert et al, 2009*)

OT Goals of Care in Acute Care and Acute Rehabilitation Center

- Continue to address deficits such as weakness, sensory loss, and cognitive or visual impairments that limit engagement in self care and ADLs
- Help progress participation in **Instrumental Activities of Daily Living** such as:
  - Cooking
  - Chores
  - Shopping
  - Child Care or Caregiver
  - Social and Leisure activities
  - Driving
  - Work

Occupational Therapy can add value by encouraging attention to the broader issues of how persons survive {and thrive?} when they leave the hospital setting (*Roberts & Robinson, 2014*)

Acute Rehab to Home Health and Outpatient OT Services

- Develop Home Program and modify as the patient progresses
- Continue to increase independence in self care skills
- Continue to increase strength and function of the upper extremity
- Training in change of hand dominance
- Adapting tasks including the appropriate use of adaptive equipment to maximize the ability to perform activities of daily living safely

Acute Rehab to Home Health and Outpatient OT Services

- Continue to progress functional cognition related to ADLs
- Continue to improve visual skills or learn visual compensation techniques
- Safety education
- Training in strategies to deal with emotions, anxiety, fatigue and depressive symptoms
- Caregiver education and training

Acute Rehab to Home Health and Outpatient OT Services

- Working with the client on child-care-related tasks and adaptations for safe **parenting** responsibilities
- Recommending adaptations to resume former **leisure** activities or develop new ones as feasible.
- Training in **community** reintegration, training in the use of assistive technology, to maximize engagement in IADLs
- Performing work-related task analysis and recommending modifications to the **work** place

Occupational Therapy Goals of Care

- Developing **coping strategies** to support psychosocial health and well-being (including teaching relaxation techniques)
- Teaching and promoting **healthy lifestyle** habits and routines to minimize risk of secondary stroke
- Developing strategies to overcome barriers to **sexual intimacy**
- Providing pre-driving and **driving** evaluations, equipment recommendations for safe return to driving, or education on alternate means of transportation

Conclusion

Stroke can cause serious long-term disability, and many patients with Stroke face barriers to engaging in productive activity. Occupational therapy practitioners use their expertise in activity analysis and adaptive methods to facilitate the client's performance of needed or meaningful occupations within realistic contexts to promote independence.

Case Study: Road to Recovery Recap

- Acute care stay ~ 9 days at SSF Kaiser
- Kaiser Acute Rehabilitation Center ~15 days
  - At discharge: transferring SBA, amb 100’ with Quad Cane and R AFO
  - Performing self care with Mod A; R UE 3-/5 strength
  - Tolerating baseline diet texture
- Home Health Therapy ~2 weeks
- Currently attending Outpatient Therapies, working on:
  - Balance, gait, and strength
  - Higher level semantic categorization and constraint-induced language tasks
  - Self care skills, R UE function and motor planning skills

Questions?

Thank you!