

# Role of the SLP in the Cardio-Pulmonary Patient



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# SLP Services



- Evaluation and treatment of the following:
  - Speech-language deficits
  - Cognition
  - Dysphagia
  - Passy-Muir Valve assessment and management
  - Voice (treatment requires ENT assessment and diagnosis)

# Speech Therapy Orders: What and When



- **Bedside Swallow Evaluation (BSE)**
  - Failure of nursing dysphagia screen
  - Any at-risk patient\*
- **Instrumental Swallow Assessment (FEES or MBSS)**
  - Failure of BSE
  - Concern for silent aspiration
  - Known history of dysphagia

# Speech Therapy Orders: What and When



- **Brief Neuro Cognitive Screener (BNS)**
  - CVA
- **Speech-Language/Cognitive Evaluation**
  - CVA
  - Anoxia
  - Any concern for AMS
- **PMV Evaluation**
  - Patients with trach who are attempting to verbally communicate
  - Consider suction requirements, trach size/type

# FEES vs. MBSS



## FEES

- Minimally invasive
- Uses real food with green dye (can complete during meals)
- Visualize pharyngeal phase before and after the swallow
- Uninterrupted view
- No radiation exposure

## MBSS

- Non-invasive
- Uses barium
- Visualize oral, pharyngeal, and esophageal phases
- Minimal view between swallows
- Exposure to small amounts of radiation

# FEES vs. MBSS



## FEES

- Completed at bedside
- Able to visualize vocal fold movement
- Able to visualize integrity of tissues
- Able to assess secretion management

## MBSS

- Completed in radiology
- Lateral view of vocal folds
- No visualization of tissues
- Unable to assess secretion management

# Repeat Instrumental Assessments



- A repeat assessment should not be ordered less than 48 hours from initial, unless a significant improvement in clinical function has occurred or as recommended by the SLP.
- An additional repeat assessment should not be ordered any sooner than 3-5 days since previous unless a significant improvement in clinical function has occurred or as recommended by the SLP.

# Repeat Instrumental Assessments



- SLP will communicate plan of care with physician/advanced practitioner after each instrumental swallow study
- The closer to the acute phase of illness (recent extubation, surgery), the more rapid the recovery is to be expected

# High-Risk Diagnoses



- Prolonged intubation (>48hrs)
- CABG
- TAVR
- Intra-aortic balloon pump
- AAA

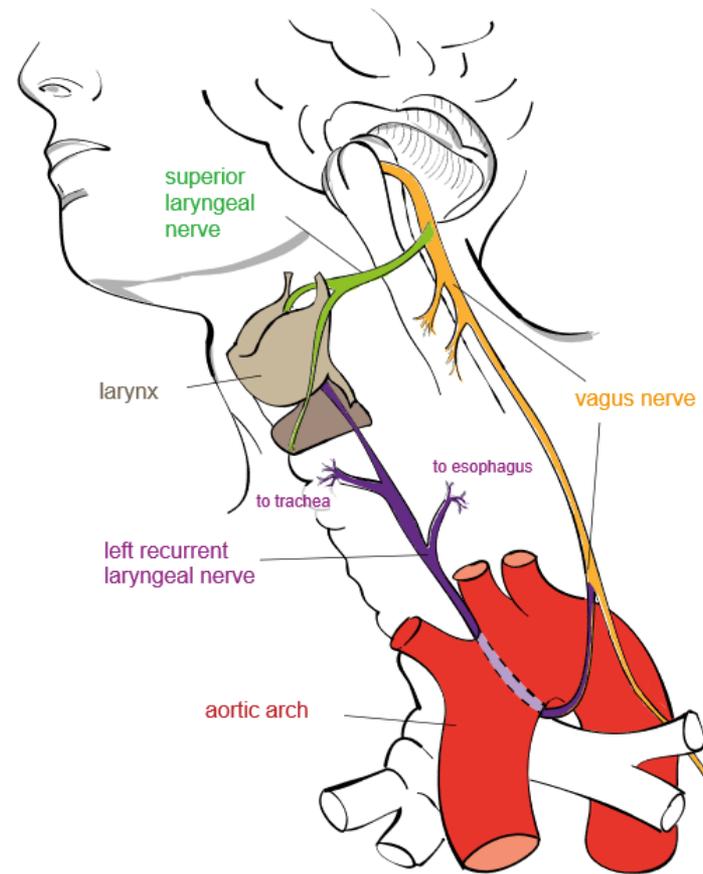
- LVAD
- Transplant
- CEA
- CVA peri/post-op
- Tracheostomized patients

# Etiologies for Swallow Dysfunction



- Weakness and deconditioning
- Intubation trauma to vocal folds
- Neurological injury
- Injury or agitation to Vagus Nerve (CN X)
  - Traumatic
  - Hypothermic

# CN X and the Recurrent Laryngeal Nerve



# Clinical Significance



- **The Vagus Nerve has involvement in:**
  - velopharyngeal closure
  - laryngeal closure (vocal folds, arytenoids, aryepiglottic folds)
  - pharyngeal constriction
  - esophageal motility/UES opening
- **The RLN innervates all the intrinsic muscles of the larynx except the cricothyroid.**

# Damage and Swallow Dysfunction



- Damage/agitation may occur during surgical operations and may be the result of traumatic or hypothermic injury.
- Unilateral damage results in weakness or paralysis on the affected side.
- May result in breathiness, weak/hoarse vocal quality, and places patients at an increased risk of silent aspiration.

# Research Study 1



- “Incidence and impact of dysphagia in patients receiving prolonged endotracheal intubation after cardiac surgery”
  - Retrospective study of 254 patients, completed at Toronto General Hospital, who survived cardiac surgery, and whom endotracheal intubation lasted >48 hours.
  - Dysphagia was diagnosed in 130 (51%) patients.
  - Incremental factors associated with post—extubation dysphagia included duration of intubation, occurrence of peri-operative CVA and/or sepsis.
  - Factors associated with delayed hospital discharge included presence of dysphagia, peri-operative CVA, duration and number of intubation events

# Research Study 2



- **“Silent Aspiration After Coronary Artery Bypass Grafting”**
  - Retrospective analysis of 53 recognized cases of silent aspiration (SA) among 5,777 post-CABG patients at Methodist Hospitals of Memphis
  - Age was identified as the most important risk factor for SA following CABG, with mean age of 70.6 years. Rate of SA among patients older than 64 years was 5.6 times greater than those younger than that age.
  - Additional pre-op risk factors included h/o CVA, IDDM, COPD, h/o MI, and CHF.
  - Intra-operative factors associated with increased risk of SA included use of the intra-aortic balloon pump and elevated pump time.

# Research Study 2 cont.



- Cold fibrillation was used in 7 of the 53 patients with identified SA. Each of these patients underwent ascending aorta or aortic arch cannulation.
- Post-operative complications included neurologic (58.5%) and pulmonary complications, repeat surgical intervention, and infection.
- Conclusion:
  - ✦ Careful preoperative and postoperative clinical evaluation of risk factors for patients having undergone CABG, primarily CVA, may result in early diagnosis of pharyngeal dysfunction, and may aid in the reduction of morbidity/mortality and hospital costs.

# Conclusion



- Speech therapy services are available to evaluate and treat patients with speech-language, cognitive, voice, and swallowing dysfunction.
- Special concern re: dysphagia exists for patients who have undergone cardiac operations.
- Review of clinical risk factors including age, comorbidities, peri-op, and post-op complications may aid in early identification of at-risk patients, and may serve to reduce morbidity, mortality, and hospital costs.

# Citation



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