Assessment of Dysphagia in Persons with Dementia

Short Description: This session will provide an overview of the diagnostic process for dementia and its various subtypes. We will discuss the consequences of dysphagia in dementia and the factors that lead to its development. We will review evaluation of dysphagia in persons with dementia.

Learner Outcomes:
1. Participants will be able to discuss the process for diagnosing dementia and the differences between its various subtypes.
2. Participants will be able to understand the consequences of dysphagia in dementia and its underlying causes.
3. Participants will be able to describe evaluation processes for identifying dysphagia in dementia.

I. What is dementia?
   a. Change in cognition and behavior as compared to prior level of functioning.
   b. Not inevitable with advancing age
   c. Can be slow or more rapid

II. Consequences of Dementia

III. Defining Dementia-Associated Changes
   a. Memory functions
   b. Cognitive functions
   c. Limbic system

IV. Official Diagnosis of Dementia
   a. Significant cognitive impairment in at least one of the following cognitive domains:
      learning & memory, language, executive function, complex attention, perceptual-motor function, social cognition
   b. Cognitive deficits must: 1) interfere with independence in everyday activities and 2) represent a significant decline from a previous level of functioning

V. Process for Dementia Diagnosis
   a. Careful history taking
   b. Physical exam
   c. Memory testing: can be simple (Mini-Cog; Mini-Mental Status Exam; Montreal Cognitive Assessment; St. Louis University Mental Status exam) or complex (neuropsychological testing)
   d. Mild Cognitive Impairment: preclinical stage of Alzheimer’s disease; emphasis on memory loss within the context of otherwise normal cognitive functioning
e. Neuropsychological testing
   i. Addresses distinction between normal and cognitive functioning in the aged, MCI, and early dementia
   ii. Addresses the risk of progression to dementia in persons with MCI diagnoses
   iii. Allows for differential diagnosis of dementia and other syndromes of cognitive impairment
   iv. Targeted domains: visual memory, verbal memory, delayed verbal recall, executive function, word recall, tests of paired learning
f. Screening for depression
g. Labs: thyroid hormone, B12 levels
h. Imaging: Structural MRI, Functional MRI, Positron Emission Tomography (PET) or Single Photon Emission CT (SPECT)
i. Biomarkers

VI. Dementia Subtypes
   a. Alzheimer’s Disease (AD)
      i. Most common form of dementia (60-80%)
      ii. Not common under 60 years of age - risk increases with age
      iii. Memory impairment most common initial symptom
      iv. Executive dysfunction and visuospatial impairment present early
      v. Language and behavioral symptoms may be present early but worsen with progression
      vi. Neuropathology in AD
         1. Cortical Pathology: volume loss (atrophy), amyloid plaques
         2. Limbic structures: bilateral hippocampus
         3. Reduced cerebral blood flow
   b. Vascular Dementia
      i. Heterogenous - underlying cause is cerebrovascular disease
      ii. Associated with damage to the brain from strokes
      iii. Cortical syndrome: cognitive deficits specific to areas affected
      iv. Subcortical syndrome: deeper areas of brain - decreased blood flow
   c. Frontotemporal Dementia (FTD):
      i. Nearly as common as younger-onset AD in those between 45 and 64 years
      ii. Loss of function in frontal and temporal lobes
      iii. Memory loss occurs but less prominent symptom
      iv. Two subtypes: Behavior variant FTD and Primary progressive aphasia (PPA)
   d. Dementia with Lewy Bodies (DLB):
      i. 4-30% of all dementia cases; begins at age 50
      ii. “Lewy bodies”: abnormal deposits of a protein called alpha-synuclein in brain
      iii. Early impairments in attention, executive, and visuospatial function - fluctuating cognition
      iv. Memory affected later in progression
   e. Dementia Associated with Parkinson’s Disease
      i. 31% of Parkinson’s disease (PD) patients; 3.6% of all dementia cases
      ii. Early impairments in executive and visuospatial function (visual hallucinations, paranoid delusions, depression and anxiety)
VII. **Dementia and Comorbid Dysphagia**

a. Prevalence estimates vary: 32-75%

b. Consequences of dysphagia in persons with dementia include bronchopneumonia, malnutrition, feeding tube placement, longer length of stay, and discharge to a facility

c. Dysphagia is a significant predictor of pneumonia-caused death (odds ratio= 2.045)

d. Clinical impairments in the eating process include swallowing issues and self-feeding impairments.
   i. Swallowing: successful transport of food, liquid, or secretions through the mouth and throat and into esophagus
   ii. Self-feeding: recognition of appropriate items to eat, planning of transport to the mouth, how it will be transported, and in what amount

e. Swallowing impairments in persons with AD:
   i. Mild phase: penetration but no or minimal aspiration; ineffective bolus transport (increased transit time); delayed swallow response; longer durations of airway closure; less hyolaryngeal elevation
   ii. Moderate to severe phases: 1 in 4 patients aspirate; ineffective bolus transport (increased transit time, residue); delayed swallow response; decreased upper esophageal opening, swallow apraxia

f. Swallowing impairments in persons with vascular dementia versus AD: more oral phase impairments in AD and more pharyngeal phase impairments in vascular dementia; both with pharyngeal delay and residue (Suh et al., 2009)

g. Self-feeding: persons with dementia more likely to receive cues from eating partner. Need to be fed or cued increases pneumonia and mortality risk (Priefert & Robbins, 1997; Langmore et al., 1998; Sonies, 1992; Bosch et al., 2012)

h. Underlying causes of swallowing impairment:
   i. Strength: sarcopenia significantly associated with dysphagia in persons with dementia
      1. Presbyphagia- how does swallowing change? Timing and Displacement
   ii. Oral sensation: taste, olfaction, lingual tactile acuity, oral tactile thresholds decreased
   iii. Motor planning: group differences include regions commonly active in swallowing that receive input from the insula (involved in swallow planning and initiation) (Humbert et al., 2010; Humbert et al., 2011)
   iv. Cognitive dysfunction: orientation, attention, and ability to follow commands are related to swallow safety and aspiration status
   v. Lubrication: salivary flow rates lower in persons with AD; will influence oral health and bacterial colonization in the oral cavity

VIII. **Dysphagia Evaluation**: Integrative, comprehensive assessment of dysphagia in persons with dementia

a. Goals of assessment
   i. Determine the presence, nature, and cause of the swallowing impairments
   ii. Examine current level of function
   iii. Identify capacity for improved safety
iv. Determine a need to change current diet  
 v. Identify the potential benefit from intervention  
 vi. Develop appropriate strategies for dysphagia management  
 vii. Early diagnosis is key

b. Swallow screening  
c. Clinical bedside swallow examination  
   i. Chart review  
   ii. Cognitive evaluation  
d. Instrumental assessment  
   i. CBSE alone cannot be used to rule out dysphagia risk in persons with dementia  
   ii. Instrumental assessments help to visualize oral and pharyngeal mechanisms of dysphagia  
   iii. Provides information regarding the nature of swallowing physiology and dysfunction  
   iv. Vital information regarding treatment approaches and ways to maximize swallow safety and efficiency  
   v. Videofluoroscopy and FEES are complementary modalities, not substitutes for one another

References


The *Eight-item Informant Interview to Differentiate Aging and Dementia* is a copyrighted instrument of Washington University, St. Louis, Missouri, 2005


