

## **DEVELOPING A COMPREHENSIVE DYSPHAGIA PROGRAM FOR PATIENTS WITH COGNITIVE IMPAIRMENT**

Carrie Mills, Ph.D., CCC-SLP  
Ellen Hamby, Ph.D., CCC-SLP



1

## **Disclosures**

- **Carrie Mills and Ellen Hamby are employed by the University of Tennessee Health Science Center.**
- **They have no other relevant financial disclosures.**

2

## **Introduction**

- **The incidence of dysphagia among the cognitively impaired population has been estimated to be high:**
  - **80% or more among adults with developmental disabilities**
  - **45% of patients with dementia who are institutionalized**

3

## **Introduction**

- **Not only is the incidence of dysphagia high in this population, it often gets progressively worse rather than resolving.**

4

### **Introduction**

- **Creating a program to manage patients with dysphagia and cognitive impairment creates a unique set of challenges, especially when your role in their care is more indirect.**

5

### **Introduction**

- **In developing a dysphagia program in an institutional setting (nursing home/assisted living facility group home, etc.), your emphasis is upon three major groups:**
  - **Clients**
  - **Caregivers**
  - **Facility Staff**

6

### **Purpose**

- **Our purpose today is to discuss special considerations in assessing and treating individuals with dysphagia and cognitive impairment and in educating those individuals and their caregivers.**

7

### **Learner Objectives**

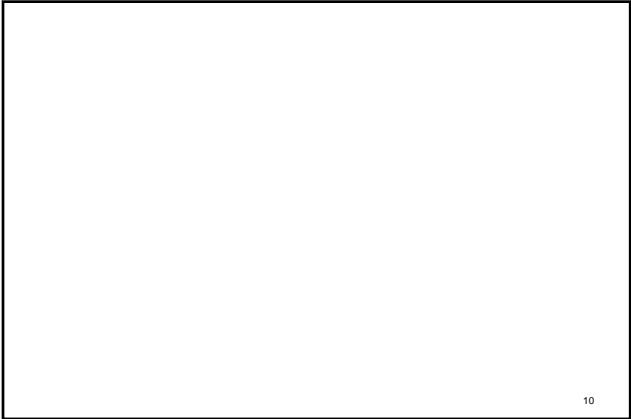
- **Identify the components of a comprehensive dysphagia assessment for patients who have cognitive impairment.**
- **Identify the components of a comprehensive dysphagia treatment program for patients who have cognitive impairment.**
- **Identify factors that should be considered when educating the patient and his/her caregivers.**

8

**Components of a Comprehensive  
Dysphagia Program**

- **Assessment**
- **Treatment**
- **Education**

9



10

**ASSESSMENT**

**Goals of Assessment**

- **Determine the presence, nature, and cause of the swallowing impairment**
- **Examine the current level of function**
- **Develop strategies for dysphagia management**

12

### **Patient-Specific Dysphagia Characteristics**

- Dementia (in general)
- Alzheimer's Disease
- Stroke/Vascular Dementia
- Frontotemporal Lobar Degeneration
- Lewy Body Dementia/PDD
- Down Syndrome
- Cerebral Palsy

13

### **Dementia**

- Problems with the concept of mealtime
  - Confusion. Forget if/when they ate
  - Missed meals
- Nursing home residents with advanced dementia: 86% with "eating problems"
  - Nursing staff report there is a daily problem with feeding these patients

14

### **Alzheimer's Disease**

- Makes up 50% of all forms of dementia
- Progression of disease leads to dysphagia characterized by a sensory impairment due to dysfunction in the temporal-parietal areas
- Patient characteristics: memory loss, behavioral changes, apathy, irritability, delusions

15

### **Alzheimer's Disease: Dysphagia Characteristics**

- Early stages:
  - Delayed pharyngeal onset
  - Reduced lingual movement

16

### Alzheimer's Disease

- **Feeding Behavior:** Relies more heavily on cues and/or feeding assistance in self-feeding
- **May benefit from finger foods to promote feeding independence as disease progresses (as swallowing and motor skills will allow)**

17

### Alzheimer's Disease

- **Focus on changing the environmental cues, such as the use of contrasting colors**
  - Food vs. plate
  - Plate vs. tablecloth
  - Cup, utensils, napkin
- **Watch for presence of distractions**
  - Other residents
  - Environment

18

### Alzheimer's Disease: Dysphagia Characteristics

- **Middle/moderate Alzheimer's Disease:**
  - Decreased oral prep (lingual coordination and bolus control)
  - Decreased HLE, pharyngeal constriction, decreased UES opening: **ASPIRATION**
  - Will forget they have eaten, demand more food but will lose weight (40% with reported weight loss)
  - Weight loss- predictor of mortality
  - Weight gain- can protect against decline associated with disease

19

### Alzheimer's Disease: Dysphagia Characteristics

- **Severe Alzheimer's Disease:**
  - Latency of swallowing reflex is longer compared to mild/moderate stages, exacerbated by neuroleptics
  - Oral transit delay compared to individuals with vascular dementia
- **Therapy techniques:**
  - Oral stage sensory stimulation (change textures, taste, temperature)

20

### **Stroke/Vascular Dementia: Dysphagia Characteristics**

- Therapeutic suggestions (as based on cognitive status)
  - Oromotor strengthening exercises for control
  - Pharyngeal exercises including Mendelsohn, Shaker, CTAR, EMST

21

### **Stroke/Vascular Dementia: Dysphagia Characteristics**

- Deficits in bolus formation, mastication of semi-solid foods, HLE
- Epiglottic inversion
- Silent aspiration secondary to impairment in corticobulbar tract

22

### **Frontotemporal Lobar Degeneration: Dysphagia Characteristics**

- Characterized by alterations in food preferences (greater desire for sweet foods), changes in eating habits that correlate with degree of atrophy in orbitofrontal cortex and adjacent insula:
  - Gray matter loss in posterior location: hyperphagia
  - Gray matter loss in anterior location: sweet tooth

23

### **LBD and PDD Dementia: Dysphagia Characteristics**

- Third most common form of dementia, making up approximately 15-20% of cases.
- Characterized by marked fluctuations in cognition, visual hallucinations, extrapyramidal symptoms (drug induced movement disorders-acute and tardive symptoms), and sensitivity to neuroleptics (antipsychotics).
- Higher incidence of dysphagia/anorexia than AD patients

24

**Down Syndrome: Dysphagia  
Characteristics**

- Hypotonia of the lips, tongue, and pharynx
- Delayed development of oromotor function
- Poor lateral chewing movements due to hypoplastic maxilla and protruding mandible

25

**Down Syndrome: Dysphagia  
Characteristics**

- Occlusal disturbances
- Upper airway obstruction
- Sleep apnea
- Oral stage problems such as biting on utensils, tongue thrust, change in taste, delayed or uncoordinated movements, emotional or behavioral problems

26

**Cerebral Palsy: Dysphagia  
Characteristics**

- Abnormal muscle tone
- Persistence of primitive reflexes that interfere with eating and swallowing
- Drooling/poor saliva management
- Abnormal chewing and biting
- Silent aspiration, especially in non-ambulatory patients

27

**Cerebral Palsy: Dysphagia  
Characteristics**

- Delayed swallow reflex
- Tongue thrust
- Poor head control
- Reduced strength
- Infrequent swallows
- Weak/absent protective reflexes
- Difficulties with peristalsis

28

### Components of Assessment

A thorough assessment includes:

- Identification/Screening
- Case History/Caregiver Interview
- Instrumental Assessment

29

### Identification/Screening

- In developing a dysphagia program for the cognitively impaired, the first step is to identify those with swallowing impairments.
- Best done through a bedside swallow screening (not always at bedside!).

30

### Identification/Screening

- Include the caregiver in the screening process.
- Involve relevant team members: dietitian, PT, OT, Nursing.
- Observe the patient in his everyday setting.

31

### Identification/Screening

- Give oral trials of various foods and liquids.
- Try adaptive utensils.
- Attempt compensatory strategies.

32



### Identification/Screening

If the patient is fed by staff, observe during mealtime to assess:

- Rate of feeding
- Patient's response to different foods and liquids (textures, temperatures, flavors)
- Patient's behaviors during mealtime

33

### Identification/Screening

- The accuracy of your bedside screening can be improved by including assessment of: dysphonia, dysarthria, abnormal volitional cough, abnormal gag reflex, cough after swallow, and voice change after swallow (Daniels, et al, 1997)

34

### Caregiver Interview

- A critical component of your assessment is the caregiver interview.
- These individuals are invaluable in providing information that you may have missed during your screening process.

35

36

### Caregiver Interview

- Caregivers may include CNA's, facility managers, facility staff, family, and/or friends.
- A word of caution...the level of understanding with regard to dysphagia and feeding varies greatly among caregivers.
- Example

37

### Caregiver Interview

- The goal of the caregiver interview is to gain more understanding of the patient's dysphagia in their everyday (natural) setting, including:
- When the behavior occurs (time of day)
  - How often the behavior occurs (frequency)
  - Under what conditions the behavior occurs (specific food types, positioning)

38

### Time of Day

- When does the swallowing impairment occur?
- Is the disorder tied to caregiver behavior? For example:
  - Patient is tired in the morning and is "encouraged" to eat by caregiver, or
  - Patient may be fed at a rate that is not conducive to his optimum feeding behavior, or
  - A specific caregiver does not provide appropriate cues or techniques that other caregivers provide at different times of day.

39

### Frequency of Occurrence

- Are there signs/symptoms of swallowing impairment every time the patient eats or drinks? Or, are the s/s infrequent?
- A one-time occurrence of severe choking behavior can be scary and may trigger a referral, when it really is just a one-time occurrence.

40

### Conditions

- Are there specific foods that trigger swallowing difficulty?
- It is essential to be aware of the foods that are allowed at the patient's facility as a part of his diet plan. For example:
  - Are high risk foods such as cornbread allowed?
  - How is mechanical soft defined?
  - Do pureed foods differ in viscosity?

41

### Conditions

- Are there specific positions that trigger the swallowing difficulty? For example:
  - Does the patient eat better at the table or in his wheelchair?
  - Does adaptive equipment affect eating behaviors?

42

### Instrumental Assessment

- Bedside screens do not identify the nature of the swallowing impairment, and silent aspiration may be missed.
- If indicated from the screening process, an instrumental assessment may be warranted.

43

44

### Instrumental Assessment

- **Caregivers are often in a position to indicate which type of assessment would be best tolerated by the patient...FEES or MBS.**

45

### Instrumental Assessment

In an instrumental assessment, the facility's diet plans and the patient's specific diet preferences must be communicated to the assessing SLP so that he/she can:

- Test specific consistencies and food preferences (that you send with the patient)
- Make appropriate dietary recommendations (based on the facility)
- Use any patient-specific utensils (cups, spoons, straws, etc).

46

### Instrumental Assessment: Liquids

- Present thin, nectar-thickened, and honey-thickened as per usual in this type of assessment.
- In addition, assess:
  - Optimum "sip" size and presentation
  - Safety in isolation vs. with meal (as a liquid wash)
  - Safety may differ when used as a liquid wash based on size of sip and amount of residue

47

### Instrumental Assessment: Solids

- **Pureed (thinner and thicker viscosity): applesauce and pudding**
- **Mechanical soft (mixed and binding agent): peach cocktail and graham cracker with pudding vs. applesauce**
- **Regular: graham cracker- bite size matters!**

48

### Instrumental Assessment: Other Considerations

- Compensatory strategies: Which can the patient do and which will be most effective?
- Liquid wash vs. dry swallow:
  - The amount and location of residue. The strategy must work for all consistencies.
  - The difficulty in performing a dry swallow. Liquid wash may be more effective for patients who consistently tongue pump before the swallow.
  - Other factors such as fluid restriction, fatigue, caloric intake

49

### Instrumental Assessment: Other Considerations

- Timing of the oral and pharyngeal phases
  - Does the specific consistency require more time and effort than a less complex consistency? Consider in regards to fatigue, expending of more calories than is consumed
- Piecemeal deglutition: Yes, it is a normal part of swallowing function, but how does it change how we feed patients?
  - Time for additional swallows, bite size

50

## TREATMENT

51

### Treatment

- Following the outcome of the assessment, an individualized management plan should be developed.
- This plan should be clear and caregiver-friendly.

52

### Treatment

- The major goal of intervention is to insure safe and adequate nutrition and hydration.

53

### Treatment

- Treatment targets three main areas:
  - Diet Modification
  - Compensatory Strategies
  - Exercise
- The weight assigned to any of these areas differs based on the patient, the caregiver, and the facility.

54

### Diet Modifications

- Diet modifications are the easiest changes to make, but they may influence the quality of life more than other changes. For example:
  - Caregivers may prefer to have a more restrictive diet with fewer compensatory strategies.
  - Facilities may push for a less restrictive diet due to cost associated with thickeners and preparation.
  - Family members may care more than the client.

55

### Diet Modifications

- In this population, the goal is to help the patient continue an oral diet for as long as possible.
- You must not only establish the safest and least restrictive diet, but to also train staff/caregivers to know when it is time to re-consult (more about this under education).
- Generally speaking, when a diet has been established to be safe, your role is to verify (briefly), then turn patient care over to the caregivers.

56

### **Compensatory Strategies**

- **Patient strategies**
- **Adaptive equipment**

57

### **Patient Strategies**

- Chin tuck, head turn/tilt, super/supraglottic swallow, effortful swallow, Mendelsohn
- Don't assume that the patient cannot complete these strategies due to their cognitive deficit
- Can often be trained with spaced retrieval- there's an APP for that!
- Can be encouraged through the use of models, pictures, placement of spoon/straw

58

### **Patient Strategies**

- **Liquid wash and dry swallow**
- **To prompt a dry swallow, use a dipped spoon**

59

60

### Adaptive Equipment

- Spoons
- Plates
- Cups
- Table boxes
- Plate grippers
- Hand weights

61

### Adaptive Equipment



62

### Adaptive Equipment



63

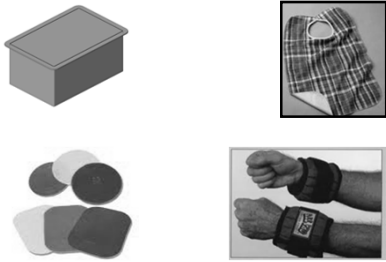
### Adaptive Equipment



64



### Adaptive Equipment



65

### Adaptive Equipment

- Pros: can help patients be more independent in feeding, which can improve swallow function
- Cons: Expensive, easily lost, issue with cleaning

66

### Exercise

- Very rarely if ever used with this population due to:
  - Cognitive ability
  - Staff time
  - Lack of improvement

67

### EDUCATION

68

## Education

- Education is one of the most critical aspects of a successful dysphagia program.
- The patient, the caregiver, and the facility all must be educated for the program to run effectively.
- It is necessary to have an on-going in-service program for staff and caregivers.

69

## Education Topics

- Dysphagia definition: general and patient specific
- Signs and symptoms of dysphagia
- Causes of dysphagia
- Aspiration pneumonia: causes and prevention
- Modifying diets: solids and liquids
- Feeding tubes: what they are and ARE NOT
- Feeding strategies
- Modifying mealtimes
- Adaptive equipment

70

## Dysphagia Definition

- Discuss the process/phases of swallowing in laymen's terms and explain the nature of the patient's impairment
  - Pre-oral phase
  - Oral
  - Pharyngeal
  - Esophageal

71

## General Signs and Symptoms of Dysphagia

- Coughing
- Drooling
- Food refusal
- Hoarseness/"gurgly voice"
- Poor weight gain/excessive weight loss
- Vomiting
- Pocketing food

72

## Causes of Dysphagia

In addition to diagnoses that impact sensory and/or motor function (e.g., neurodegenerative diseases) causes may include:

- Dental issues
- Medications
- GERD
- Positioning
- Intake method
- Food intolerance

73

## Aspiration and Aspiration Pneumonia

- Definitions:
  - Aspiration
  - Silent aspiration
  - Aspiration pneumonia
- Conditions that need to be present for aspiration pneumonia to develop
- Ways to prevent aspiration pneumonia

74

## Aspiration and Aspiration Pneumonia

- Factors that contribute: Smoking, dependence for feeding and oral care, more than one medical diagnosis, number of decayed teeth, presence of tube feeding, number of medications (Langmore, et al, 1998).
- Dysphagia alone does not predict aspiration pneumonia, but it does make it more likely to occur.

75

## Predictors of Aspiration Pneumonia in Cognitive Impairment

Hibberd and Taylor, 2009

- Concentrated bacteria due to dry mouth, mouth or dental disease, non-independent in oral care, multiple medications, feeding tubes
- Unintentional weight loss, urinary tract infections, older than 85 years, greater than 2 medical conditions

76

### **Predictors of Aspiration Pneumonia in Cognitive Impairment**

- Pulmonary clearance impairment as a result of being confined to the bed, reduced activity levels, COPD, congestive heart failure, suctioning, and tracheostomy
- Additional factors such as lack of independence in oral feeding, dysphagia, consumption of a texture-modified diet, reduced awareness, non-medically controlled reflux disease

77

78

### **Cognition and Aspiration**

Leder, Suiter, and Lisitano Warner (2009)

- Assessed orientation and ability to follow 1-part commands in patients with dementia and neurological injury
- Odds of liquid aspiration were 31% greater in individuals not oriented
- Patients who were not able to safely consume oral intake were 69% of those who were unable to follow 1-part commands
- Conclusion: cognition may be good screener for patients who are at-risk for aspiration

79

### **Diet Modification: Solids**

- Define each consistency based on the characteristics.
- Discuss materials necessary to alter consistencies: kitchen shears, blender/food processor.
- Discuss ways to preserve food flavor while altering consistencies.

80

### **Diet Modification: Solids**

- Discuss the impact of food temperature (stimulate receptors).
- Instruct on use of binding agents.
- Illustrate/give tips on preparing each consistency.

81

### **Diet Modification: Liquids**

- Define each consistency based on the characteristics.
- Discuss materials necessary to alter: blender/food processor, thickener.
- Discuss naturally thickened liquids.

82

### **Diet Modification: Liquids**

- Discuss different types of thickeners and their pros and cons.
- Discuss more controversial consistencies: ice cream, jello, alcoholic beverages, carbonated beverages.

83

### **Feeding Tubes**

- What are they and what are the different types?
- Who is indicated for which type and when?
- How are they held in place?
- Types of feeding: bolus vs. continuous
- Pleasure feeds

84

## Feeding Tubes

- Do they prevent aspiration pneumonia?
  - Tube feeding is associated with a higher rate of pneumonia than oral feeding
- Why?
  - Reflux
  - Oral bacterial that is aspirated in saliva

85

## Feeding Tubes

Kuo, Rhodes, Mitchell, Mor, Teno (2009)

- Incidence of feeding tube placement in nursing home residents with advanced dementia over 12 months: 56/1000
- 2/3 inserted during acute hospitalization
- Inserted due to aspiration pneumonia, FTT, dysphagia
- Mortality rate in 12 months: 64.1%
- Mean survival rate: 56 days post tube insertion
- Repeat hospital admissions: 20%

86

## Feeding Tubes

Peck, Cohen, Mulvihill (1990)

- Followed patients 6 months following tube placement:
- 58% nursing home residents with dementia developed aspiration pneumonia, but only 16% of those continued to be fed orally developed aspiration pneumonia at 6 months

87

## Feeding Tubes

Sanders et al., (2000)

- Compared patients with dementia who received feeding tube and patients with head and neck Ca, CVA, and other neurological impairments
- 30 day mortality rate: 28% non-dementia group (NDG) vs. 54% dementia group (DG)
- 12 month mortality rate: 63% NDG and 90% DG

88

### Feeding Strategies

- Typically best to feed in a calm environment that is free from distractions.
- Know the patient specific diet, strategies, adaptive equipment.
- Do not rush the patient, and be wary of feeding multiple patients simultaneously

89

### Feeding Strategies

- Feed from the front of patient at eye level.
- Place spoon in center of mouth and apply gentle pressure.
- Allow patient's lips to scrape the food off the spoon.

90

### Feeding Strategies

- Resource for teaching feeding techniques:
  - ASHA program
  - Silver Spoons Program – Miami VAMC

91

### Modifying Mealtimes

- Techniques to maximize nutrition and hydration for patients with dysphagia and cognitive impairment (Easterling and Robbins, 2008):
- Good oral hygiene
  - Consistency in eating environment and seating
  - Six small meals/hydration opportunities versus 3 large

92

### Modifying Mealtimes

- Include spicy/sweet/sour foods/liquids
- Maximize calories at every opportunity
- Encourage self-feeding
- Eliminate staff disruptions during mealtime
- Remove non-food items from table

93

### Modifying Mealtimes

- Increase visual appeal of foods
- Allow touching of foods
- Provide food choices
- Don't make patients wait for meals

94

### Final Considerations

- Be aware of how patient, caregiver, and facility factors may interact with one another and influence decisions.
- For example: Patient can safely take thin liquids if he uses a chin tuck. Without a chin tuck, patient must take nectar thickened liquids.

95

### Final Considerations

- In this case, can the patient consistently perform a chin tuck independently?
- If not, are the caregivers trainable to make sure the chin tuck is completed consistently?
- Or, with the use of cognitive training, can the patient be taught to use a chin tuck independently?
- Answers to questions such as these can influence the program you ultimately create.

96



### Case Study

- Patient at center for individuals with intellectual disabilities
- Male, 17 year old
- Resident at center, but often visited his mother and spent the night
- Recurrent aspiration pneumonia

97

### Case Study

- Several Instrumental studies (MBSS and FEES) conducted with similar results found
- Pureed foods with nectar-thickened liquids
- Group meeting with patient and mother to discuss staff concerns
- Considering feeding tube to try to eliminate aspiration pneumonia

98

### Case Study

- Staff trained and followed diet recommendations and strategies
- Mother promised she was following diet recommendations and strategies
- Decision to continue oral feeding status, wait and watch
- As mother was leading son out of meeting, she was heard to say..."We better hurry. I have your..."
- Two years later: Patient has both tube and trach

99