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Editorial

Dysphagia in Frail Older Persons: Making the Most of Current Knowledge

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Dysphagia and related problems with oral intake must certainly be numbered among the important geriatric syndromes.[1] They, like other geriatric syndromes, become increasingly common as people age, are especially prevalent in aging-related conditions such as stroke and Alzheimer's disease, and are usually multifactorial.[2] In developing evidence-based approaches to such common aging problems, the scientific community goes through a sequence of investigative steps. We begin by identifying and defining the problem. Next, we use the tools of epidemiology to identify the problem's prevalence, correlates, and prognosis overall and in subpopulations. At the same time, we apply laboratory investigative tools to gain a better understanding of the physiological and pathological processes involved, and we use this information to develop and evaluate clinical tools to assess the risk factors and facilitate accurate diagnosis across care settings. Finally, we develop and field test interventions to ameliorate and/or accommodate the deficits associated with the syndrome.

In recent decades, research and practice around swallowing have undergone considerable evolution. Physiological studies have begun to elucidate the variety of mechanisms that can underlie dysphagia, testing options have become more sophisticated, and several allied health professions [most notably speech-language pathology (SLP)] have developed both research and clinical expertise in the area. At the same time, practicing clinicians in SLP, nursing, occupational therapy, and medicine have moved forward with implementation of assessment and treatment approaches that have a limited but growing evidence base and require further study.[3–9]

Unfortunately, these clinicians continue to struggle with decisions around how to assess and manage patients whose oral intake becomes increasingly difficult and/or is associated with worrisome signs such as pocketing food and medications, coughing and choking, or episodes of overt aspiration.[10,11] Whether and to what extent this clinical uncertainty represents true gaps in scientific evidence or limited bench-to-bedside translation is unclear, as individuals with advanced expertise in assessment and management of dysphagia are not available in many hospital and long-term care settings.[12] What is clear is that the field at this point has a robust and growing scientific literature, that clinicians require better access to what is known, and that much research still needs to be done.[13]

This issue of *JAMDA* includes 3 papers that shed additional light on this important geriatric problem. Michel et al, in a study of outpatients with dementia, demonstrated that oropharyngeal dysphagia is highly prevalent in that population, is more associated with physical than cognitive impairment, and is easily detected by a bedside swallowing assessment but not by history-taking.[14] Miarons et al, in an elegant study using videofluoroscopy to evaluate swallowing function in 114 hospitalized patients with dementia, a third of whom were on antipsychotics, found that dementia severity was strongly associated with swallowing dysmotility but that, perhaps surprisingly, antipsychotic use was not.[15] The third paper in this issue found that the triad of dysphagia, weight loss, and low body mass index contributed both individually and collectively to 6-month mortality in a cohort of more than 10,000 nursing home residents.[16] In this editorial, we summarize the evidence and provide general recommendations regarding a few of the more common dilemmas around dysphagia that are faced by clinicians in everyday practice.

Common Swallowing Challenges in Acute and Post-Acute Care

Case Vignette: Mr C, age 84 years and previously independent in his activities of daily living (ADL), was hospitalized 3 days ago for pneumonia, complicated by symptoms of acute delirium. He is now afebrile, oriented, but weak. He has had nothing by mouth since admission. On rounds, the nurse asks if he should have a swallowing evaluation before they try to feed him.

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The prevalence of dysphagia in frail older hospitalized patients is about 50%, if any degree of dysphagia severity is taken into account.[17,18] It is particularly high in older hospitalized patients with pneumonia, reflecting dysphagia as the underlying cause in many older patients. A videofluoroscopic study in frail older persons with pneumonia revealed severe dysphagia in 52.8%, including 16.7% who had silent aspiration. In the multivariate analysis of this study, dysphagia increased the risk of pneumonia 12-fold[17]; another study found that severe dysphagia doubled the risk of 1-year mortality.[19]

The most practical way to discover dysphagia in cohorts with high prevalence rates is routine screening using a simple water swallow test or a multiconsistency test, such as the volume-viscosity swallow test.[20] One of the challenges in dysphagia screening is sensitivity in discovering silent aspirations, for example, aspirations without a protective throat clear or cough reflex, by changes in the patient's voice quality. That is one of the reasons why a screening test should be performed in a standardized manner and, if concern for dysphagia exists, referral for a clinical bedside evaluation by a SLP would be indicated. However, while screening tools have been evaluated in patients post-stroke, it has to be noted that currently there are no screening or clinical bedside evaluation tests specifically designed and validated for older adults and geriatric patients.[21,22] In addition, what cannot be done with these clinical evaluations is to reliably detect dysphagia severity and the mechanistic pattern of dysphagia. This can only be detected by visualization of what is happening in the pharynx while swallowing. Both methods of visualization, videofluoroscopy swallowing study (VFSS) and flexible endoscopic evaluation of swallowing (FEES), have the capacity to detect silent aspirations, the pattern and the severity of dysphagia, changes of the pharyngeal anatomy, and the potential of therapeutic maneuvers in improving swallow safety. That is why these methods should be utilized in the second step of the diagnostic process.[23]

Research in recent years has clearly shown that dysphagia is the result of damage to the nervous system's orchestration of the complex action of swallowing, plus other age-associated factors, such as sarcopenia (Table 1).[24] A recent study published in this journal, for example, was able to demonstrate that the prevalence of dysphagia in acute stroke is significantly associated with the volume of the suprahyoid muscles.[25] In addition, it is not yet sufficiently understood why some persons with severe dysphagia do not develop aspiration pneumonia whereas others do. It is very likely that this variability of the clinical consequences of dysphagia depends on factors such as oral bacterial colonization and the threshold of the protective cough reflex and the coughing force, which are areas requiring additional research.

As a consequence, the clinical and prognostic evaluation of dysphagia in hospital should include signs of dysphagia in screening and assessment, as well as cough reflex and cough force.

The nurse in charge of Mr C should be recommended to perform a standardized swallow screening test and try soft food first, if Mr C passes the screening test. However, even in the case of an uneventful screening test, the ward staff should keep in mind that this test gives just a momentary picture of the patient's swallowing ability, which may change over the day, particularly in patients with acute disease. That is one of the reasons why, if available, a full clinical evaluation of swallowing by a SLP should be considered in persons with a high risk of dysphagia. When Mr C starts drinking and eating, it should be kept in mind that every cough while eating or drinking and any unexplained clinical deterioration should be taken as a sign, leading to SLP evaluation and potential instrumental assessment of dysphagia.

Common Swallowing Challenges in the Nursing Home Setting

Case Vignette: Mrs R, an 83-year-old woman with chronic obstructive pulmonary disease (COPD) and vascular dementia, is wheelchair bound and spends most of her time watching television, napping, or smoking on the outside patio. Over the past year, she has gone from eating most of her meal to eating pureed foods, ice cream, and puddings, and drinking supplements. In spite of this, she has lost 20 pounds in the last 6 months. Staff report that she now pockets or spits out her food but report no episodes of coughing or choking while eating. On rounds, the nursing director asks if she should have a swallowing evaluation.

Dysphagia is a frequent issue encountered in the medical management of older adults residing in nursing homes. The third study in this issue by Wirth and colleagues reported 15.4% prevalence of dysphagia based on nursing home staff reporting.[16] Other studies that have used bedside screening tools or clinical assessments of nursing home residents reported higher estimates of 40% to 69% for signs or symptoms of oropharyngeal dysphagia.[26–28] Variations in these estimates are largely due to differences in methods (self-reporting, provider reporting, various clinical tools) used to identify dysphagia and the unavailability of instrumental assessment methods (VFSS, FEES) in many settings. Common medical conditions afflicting nursing home residents, such as dementia, stroke, Parkinson's disease, and respiratory disease, frequently cause dysphagia.[9,29] Approximately 30% of individuals in nursing home settings have dementia, which causes worsening dysphagia with disease progression.[30–32] Additionally, dysphagia is more likely to occur in patients identified as being frail, with approximately 50% of nursing home residents in this category.[33,34] Other factors associated with dysphagia in nursing home residents include advanced age (>75 years), dependent functional status, solid meal type, high nutritional risk, and low body mass index.[27]

The same study in this issue revealed that the presence of dysphagia significantly increases the risk of 6-month mortality in nursing home residents.[16] Along with weight loss greater than 5 kg and body mass index lower than 20, dysphagia was a significant predictor of 6-month mortality.[16] The annual incidence of nursing home–acquired pneumonia, much of which is dysphagia-related, has been estimated at between 48% and 61%[35–39] and those residents who develop nursing home–acquired pneumonia are significantly more likely to be dysphagic.[37] Dysphagia also contributes to poor oral

Table 1
Risk Factors for Dysphagia and Aspiration Pneumonia Commonly Found in Older Persons

	Dysphagia	Aspiration Pneumonia	Pathophysiology
Sarcopenia	+	+	Weakness of swallowing muscles, weakness of cough
Reduction of tissue elasticity	+		Reduction of elastic restoring force
Cervical osteophytes	+		Mechanical alteration of pharynx
Shortness of breath	+	+	Reduced time for swallowing process
Immobility	+	+	Posture can impair swallowing mechanics
Mild cognitive impairment	+		Reduced compensatory capacity of the neural network
Oral hygiene, periodontitis		+	Aspiration of bacterially contaminated saliva
Opioids		+	Suppression of cough reflex
Neuroleptics	+	+	Modification of swallowing motor function
Sedative drugs	+	+	Reduces vigilance during swallowing