Australian and New Zealand Society for Geriatric Medicine

Position Statement 12

Dysphagia and Aspiration in Older People

Revised 2017

Key Points

1. Dysphagia and aspiration are common and important problems affecting older people. They are also closely related, as patients with dysphagia are at increased risk of aspiration.

2. Dysphagia and aspiration are associated with high mortality and morbidity. Dehydration, malnutrition and aspiration pneumonia are common and important consequences.

3. Older people at risk for aspiration include those with stroke, Parkinson's disease, dementia, reduced level of consciousness, and any severely ill or disabled persons.

4. Apart from food, aspirate may contain saliva and gastric contents. Clinical symptoms and signs of aspiration may include coughing or choking on food, dyspnoea, oxygen desaturation, fever, pulmonary crepitations and consolidation.

5. Silent aspiration is common in older people. Deterioration in oxygen saturation or fever may be the only clues.

6. A high index of clinical suspicion and bedside assessment are initial steps. However, bedside assessments alone may not be sufficient and investigations such as Modified Barium Swallow (MBS) or

Fibreoptic Endoscopic Evaluation of Swallowing (FEES) may be required for accurate assessment.

7. Multidisciplinary teamwork is critical in managing affected patients. Early referral to key team members including the speech pathologist and dietitian should be considered. Additionally, dentist and oral hygienist referral may be appropriate.

8. Preventative treatment options for aspiration are limited. The options are nil by mouth, dietary modifications, oral care, positioning, swallowing rehabilitation and education. Evidence for successful drug intervention to prevent aspiration pneumonia is not compelling.

9. Tube feeding may be useful in temporarily providing nutritional support to patients with a non-progressive cause of aspiration such as stroke. However, its place for the majority of progressive causes is questionable.

10. Tube feeding (nasogastric or percutaneous) cannot prevent aspiration and neither method is entirely safe when used in patients at risk of aspiration.

11. Management of patients with recurrent aspiration pneumonia secondary to advanced neurodegenerative diseases such as dementia and Parkinson's disease, who

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have failed usual management strategies (modified diet, oral care, positioning, rehabilitation and education), remains a complex clinical and ethical issue with a suboptimal evidence base to guide practice.

12. The patient and carers should be involved in the decision-making to the greatest extent possible.

This position statement represents the views of the Australian and New Zealand Society for Geriatric Medicine. This paper was revised by Professor Daniel Kam Yin Chan, Dr Bin Ong and was approved by the Council of the ANZSGM on 26th June 2018. This paper was previously revised by Professor Daniel Kam Yin Chan, Dr Ciaran Upton, Dr Bin Ong and was approved by the Federal Council of the ANZSGM on 15 March 2010. The original preparation of this paper was coordinated by Professor Daniel KY Chan, Dr Stephen Phoon and Dr Elaine Yeoh

BACKGROUND PAPER

Introduction

The swallowing process can be divided into an oropharyngeal phase and an oesophageal phase. The oropharyngeal phase includes biting and chewing in the oral cavity, and the transport of food into the pharynx. In simplified terms, this process is accompanied by elevation and anterior movement of the larynx to meet with the epiglottis for protection of the airway. It is followed by the passage of the bolus through the upper oesophageal sphincter into the oesophagus (oesophageal phase). During the oesophageal phase, the lower oesophageal sphincter relaxes and food is pushed into the stomach by peristalsis and gravity.

Dysphagia refers to difficulty in swallowing. Its estimated prevalence in the community is between 7 and 22% and its incidence is as much as 40 to 50% among older people in long term care facilities[1,2]. Not only can dysphagia cause dehydration and malnutrition, it can also result in aspiration pneumonia, which can in turn cause increased morbidity and mortality. At the extreme end of the spectrum, dysphagia can also result in choking, airway obstruction and death. Furthermore, dysphagia can lead to depression and deterioration in the quality of life [3].

Aspiration refers to the inhalation of oropharyngeal or gastric contents into the larynx and lower respiratory tract[4]. The severity of the sequelae of aspiration is dependent on the volume, frequency and nature of aspirated material as well as the patient immune response[4]. Aspiration pneumonitis is a chemical reaction in the lung parenchyma caused by inhalation of sterile gastric contents. Aspiration pneumonia is an infectious process caused by inhalation of oropharyngeal secretions that are colonised by bacteria. There is however some overlap between the two entities. For instance, even though acidic gastric contents usually inhibit bacterial growth, bacterial infection can occur at a later stage.

Although there are other aspiration syndromes including airway obstruction and exogenous lipoid pneumonia, this paper will focus on aspiration pneumonia, as it is the main problem encountered in older patients with dysphagia, with lesser coverage of the overlapping aspiration pneumonitis. It will also focus on oropharyngeal rather than oesophageal dysphagia, as this is the main type of dysphagia that geriatricians are required to manage.

The lack of sensitive and accurate markers of aspiration syndromes means that incidence and prevalence data are limited. However, some studies have reported that 5 to 15% of cases of community-acquired pneumonia are aspiration pneumonia[5-7]. Furthermore, it is estimated that aspiration pneumonia affects some 300,000 to 600,000 Americans each year[8-10]. It is also the most common cause of death in patients with dysphagia due to neurological disorders. The incidence of aspiration pneumonitis, whilst known to occur in about 10% of hospitalised drug overdose patients[11,12] and in about 1 in 3,000 patients post anaesthesia[13,14], has not been systematically recorded in geriatric patients.

Pathophysiology of dysphagia and aspiration

It is important to differentiate oropharyngeal dysphagia from oesophageal dysphagia as they are managed differently, but an exhaustive list of causes of dysphagia will not be discussed in this paper as they are readily referenced in standard texts.

The most common basis for oropharyngeal dysphagia in older people is neurological disease: 75% of cases of oropharyngeal dysphagia have a neurologic cause, such as stroke, dementia, and Parkinson's disease[15]. Dysphagia resulting from stroke is temporary in 90% of cases, whereas in patients with advanced dementia or Parkinson's disease, it is progressive[16]. Common causes for oesophageal dysphagia include obstructive lesions such as oesophageal cancer and Zenker's diverticulum, infective causes such as candidiasis, inflammatory causes such as reflux oesophagitis, as well as motility disorders and miscellaneous factors such as medication.

Oropharyngeal dysphagia becomes more common with increased age, as most of the causative disorders have a strongly age-related prevalence. In a prospective study of 134 consecutive elderly patients admitted with pneumonia, 55% were found to have signs of oropharyngeal dysphagia[17]. It may be characterised by difficulty in initiation of swallowing and the impaired transfer of food from the oral cavity to the oesophagus. Symptomatic complaints include food sticking in the throat, coughing or choking, as well as nasal or oral regurgitation.

Although about half of all healthy adults can be shown to aspirate some oropharyngeal secretions during sleep[18,19], the amount is usually small and coughing, active ciliary transport and intact immune responses usually clear the aspirate effectively with no pathological sequelae. However deficiencies of mechanical or immune response, or a large aspirate, increase the likelihood of developing aspiration pneumonia.

Assessment

A careful background history is essential in the diagnostic evaluation. A history of neurological problems such as stroke, dementia or Parkinson's disease will highlight those at risk, and any history of recurrent pneumonia raises aspiration as a differential diagnosis.

Key clinical symptoms and signs, including coughing or choking on food, dyspnoea, pulmonary crepitations, and pulmonary consolidation, should be sought. However, even in their absence, a high index of clinical suspicion regarding aspiration is important. Non-specific features such as a sudden deterioration in oxygen saturation (sensitivity, 73% to 87%; specificity, 39% to 87%)[20] or fever may be the only clues. So called "silent aspiration" (aspiration without key clinical symptoms and signs) is especially common in older people and is found in more than 50% of patients who aspirate[21].

Screening

The evidence regarding bedside screening for dysphagia is conflicting. A water swallowing test, performed by Geriatricians or emergency department physicians, has been proposed as an effective screening tool for dysphagia[22,23]. However, a literature review[24] of 89 peer-reviewed studies relating to swallowing screening found evidence supporting the use of screening protocols to be lacking, due to the absence of well designed studies and valid outcome measures. Hence, when appropriate, the clinical suspicion of aspiration by the physician should be followed up by bedside swallowing evaluation by a speech pathologist, and supported by further investigations when indicated.

Investigations

Modified Barium Swallow (MBS or videofluoroscopy) is the most commonly used test to evaluate the oropharyngeal phase and the dynamic cause(s) of aspiration. The patient's response to aspiration (such as coughing, throat clearing) or the lack of such a response and the effectiveness of airway protection manoeuvres with various consistencies of barium-coated food, can all be evaluated. Such examinations are more sensitive than

bedside tests to identify aspiration and determine the causes[21,25,26].

Fibreoptic endoscopic evaluation of swallowing (FEES) is valuable in addition to clinical assessment. It involves the passage of an endoscope through the nose to the level of the soft palate in order to directly visualise the pharynx and larynx, and observe the pharyngeal phase of swallowing. It can be performed by physicians or speech therapists at the bedside and is suitable for serial testing[27,28]. FEES can also include sensory testing using air or pressure to trigger a swallowing response. The severity of dysphagia on FEES has been shown to predict outcome and complications after stroke[29].

A review[30] comparing diagnostic techniques concluded that MBS and FEES are equally likely to detect dysphagia and reduce the risk of pneumonia. However, the rating of severity of aspiration may differ between the two methods[31]. Although MBS has traditionally been considered the 'gold standard', it is noted that FEES does not involve exposure to radiation, can be performed more frequently (at bedside and with normal meals), and allows the clinician to watch the swallowing process. Conversely, MBS is more widely available, is non-invasive, and shows all phases of swallowing.

Where the diagnosis of the cause of dysphagia remains unclear following MBS, further specialist support may be required. Depending on the differential diagnosis, referral to a gastroenterologist for oesophageal dysphagia or to an ear, nose and throat specialist for oropharyngeal dysphagia may be required. The range of further investigation methods may include endoscopy, full barium swallow and manometry.

Management of Dysphagia

The management plan for dysphagic patients varies according to history, findings from clinical investigations, cause and prognosis of the patient. Apart from treating the underlying disorder whenever possible, (include medication review), the nutritional and hydration aspect should also be considered. Poor physical condition as the result of malnutrition or dehydration will compromise the rehabilitation process. A vicious cycle may develop and a malnourished person is at risk of further decompensation in swallowing ability.
A multidisciplinary approach is essential in the management of dysphagic older people who may also have aspiration. A clinical swallow assessment as performed by a speech pathologist is advisable in determining the recommendation for and type of dietary modification and therapy.

Modified diets are graded according to the swallowing ability of the patient in relation to the physical properties of the food bolus. For example, many patients with neurologically-based oropharyngeal dysphagia will have great difficulty with thin fluids, but may safely manage thickened fluids.

Swallowing rehabilitation may be beneficial and will usually include education of the patient and carers in safe swallowing methods: including upright posture, chin tuck and careful slow swallowing. It may also include therapeutic manoeuvres to achieve improved swallow e.g. supraglottic swallow.

Even if the patient is able to tolerate thickened fluids, feeding may be slow and insufficient in quantity, necessitating enteral feeding to maintain nutritional status. Dietitians can assist in optimising the nutritional needs of a dysphagic older patient.

In some cases, the risk of aspiration may be outweighed by consideration of 'quality of life' issues in discussion with the patient and/or family, especially in progressive disease. While accepting it is unsafe, allowing the patient to eat and drink, especially if they continue to derive enjoyment from this, may be preferable to a feeding tube, altered food and fluid consistencies and 'nil by mouth' regime. In some cases, the patient may have previously indicated such a decision in an 'Advanced Care Directive'. The issues surrounding enteral feeding are complex and details will be discussed below.

A small risk of pneumonia from aspiration of saliva or gastric contents remains, no matter

how patients are fed. Professional oral care has been shown to reduce oropharyngeal bacteria and pneumonia in older patients[32,33,34]. Where appropriate, oral hygienist and/or dentist referral should be considered.

Aspiration Pneumonia and Pneumonitis

Despite careful assessment and precautions, aspiration pneumonia can still develop in dysphagic patients. The management plan will need to encompass these possibilities.

Where the overall aims of care favour active intervention, antibiotic treatment is indicated in patients with aspiration pneumonia. The choice of antibiotics is dependent on the setting in which the aspiration occurs as well as the patient's medical condition. In addition to coverage for gram-positive organisms, antibiotic cover against gram-negative organisms is usually required. Penicillin alone which was often quoted in the past as the standard antibiotic for aspiration pneumonia, may be inadequate[34]. Antibiotic agents covering anaerobic bacteria are not routinely warranted but may be indicated in patients with severe periodontal disease, foul sputum, evidence of necrotizing pneumonia or lung abscess on the chest x-ray[35,36].

Corticosteroids have been used in the management of aspiration pneumonitis but evidence is lacking that the incidence of complications or outcomes is any different, despite faster improvement in radiographic appearance[37,38].

Pharmacological prevention of aspiration pneumonia
Evidence for successful drug intervention to prevent aspiration pneumonia is not compelling. For instance, a recent study did not show prophylactic antibiotic cover reduces post-stroke pneumonia in dysphagic patients[39]. ACE inhibitors have shown some promising result in Asian patients with dysphagia but studies are observational in nature and results are less convincing in non-Asian populations. A recent RCT of ACE inhibitors amongst nursing home patients also failed to yield positive result[40]. Therefore ACE inhibitor use

for prevention of aspiration cannot be generally recommended[41].

Nutrition and Tube feeding in post-stroke patients with dysphagia

Dysphagia is common post-stroke, detected in approximately half of patients at presentation[42]. It may be short or long term, in part depending on the site and severity of the stroke, but 87% of survivors have returned to their pre-stroke diet at 6 months[37]. Although dysphagia will be temporary for many patients with stroke, careful evidence-based management of feeding during this period is critical in order to minimise complications of dysphagia.

The Feed or Ordinary Diet (FOOD), 3-part randomised controlled trial[43,44], aimed to evaluate commonly used feeding policies in hospitalised stroke patients. Trial 1 found no significant benefit for routine nutritional supplementation in otherwise well nourished stroke patients. Trial 2 found a non-significant trend of a small reduction in mortality for early tube feeding commenced within a week after stroke. Even if early feeding might improve survival marginally, the quality of life of those survivors might be severely impaired with a higher proportion of institutionalisation. Finally, Trial 3 found percutaneous endoscopic gastrostomy (PEG), in comparison with nasogastric feeding, was associated with a statistically significant increased risk of death or poor outcome after 6 months. Therefore the data did not support early initiation of PEG feeding in post-stroke dysphagic patients.

Tube Feeding and Aspiration Pneumonia

Dysphagia after stroke is the most common reason for PEG tube insertion in the United States[45]. Two studies[46,47] comparing PEG tube and nasogastric tube feeding found that although PEG tube feeding was significantly more effective in delivering nutrition, the incidence of aspiration pneumonia was similar to the nasogastric tube method. Likewise, the incidence of aspiration pneumonia with post pyloric tubes (tubes placed in small bowel) has been shown to be similar to that of intragastric tubes[48-51].

Feeding tubes offer no protection against

aspiration due to dysphagia. There is evidence of aspiration of gastric contents using scintigraphic studies in patients fed using PEG tubes[51,52]. Long term follow up studies have shown that aspiration pneumonia is the most common cause of death in patients fed by PEG. Other problems include the need for endoscopic insertion under sedation or anaesthetic, wound site infection and the potential, although less than for nasogastric (NG) tubes, for being dislodged or pulled out, especially in demented patients.

However owing to the problems associated with nasogastric or naso-duodenal tubes – including discomfort, gagging, oesophagitis, misplacement, displacement or clogging of the tubes and poor "cosmesis" - PEG tube is the preferred choice for long-term nutritional support. Patients who are likely to recover their ability to swallow within a few weeks are not candidates for PEG and whether patients with a shorter life expectancy should be considered for PEG is debatable as there is evidence to show many PEG patients die within 3 months after insertion[53].

Tube feeding in patients with advanced dementia

This is a difficult and complex area involving ethical and medico-legal issues. A review by Finucane et al[54] examined whether tube feeding for patients with advanced dementia can prevent aspiration pneumonia, prolong survival, reduce the risk of pressure sores or infections, improve function, or provide palliation. They found no randomised trials that compared tube feeding with oral feeding and found no data to suggest tube feeding improves any of the clinically important outcomes listed. Further, tube feeding may be associated with significant morbidity and mortality and the authors concluded that the widespread practice of tube feeding should be carefully reconsidered.

A study comparing outcomes of nursing home residents with advanced dementia being fed with a gastrostomy tube and those who continued to be hand fed found similar survival rates[55].

The belief that feeding tubes promote comfort with feeding in patients dying with advanced dementia is difficult, if not impossible, to verify. However, experience from patients dying with cancer or stroke has cast doubt on perceived suffering from transient hunger or thirst[56].In a paper by Low, Chan and Chye, the question of what would patients want for themselves was investigated with a proposed scenario of advanced dementia and recurrent aspiration pneumonia[57]. The results revealed that most patients do not want tube feeding either in the form of nasogastric (69%) or PEG (71%), but they do want aspiration pneumonia to be treated (73%) and also want admission into hospital if aspiration has developed (62%).

When approaching such ethical problems in clinical practice, Jonsen et al[58] put forward four areas for consideration. These are (not in order of ethical priority): 1) medical indications, 2) patient preferences, 3) quality of life, and 4) contextual features. Each cannot be taken in isolation but has to be seen in the context of the other three. Perhaps patient preferences are often not considered as highly by medical practitioners as reflected commonly in the non-adherence to advanced directives by doctors[59]. The BWV decision in the Victorian Supreme Court (Justice Stuart Morris in May, 2003) provides a legal precedent for PEG feeding to be regarded as a medical treatment that can be refused in accordance with the wishes of the patient and the medical circumstances of the case, rather than as a method for the ordinary provision of hydration and nutrition. Similarly, the ruling that it is lawful for Brightwater Nursing Home to stop feeding its quadriplegic patient via PEG tube, as requested by the patient, provides further legal precedent in this area (Western Australia Chief Justice Wayne Martin, August 2009). Cessation of active treatment can also be considered, e.g. in the case of recurrent pneumonia secondary to progressive neuro-degenerative disease such as dementia. This should be discussed as an option with patients and carers when appropriate, and ideally in advance care planning, rather than at the time of a crisis.

Conclusion

Dysphagia and aspiration are common and important problems in older people, and are

closely related. Aspiration pneumonia and aspiration pneumonitis are different entities with overlapping features. Bedside assessment for aspiration is unreliable and silent aspiration is common in older people. Therefore, consideration should be given to assessment by a speech pathologist and investigation such as Modified Barium Swallow may be helpful. Oropharyngeal dysphagia is the most common form of dysphagia in older people and neurological causes (such as stroke, Parkinson's disease and dementia) are the most common disorders causing dysphagia and aspiration. Suboptimal oral hygiene also contributes to the risk of aspiration pneumonia.

Available treatment options are less than ideal in many cases of aspiration, but following diagnostic evaluation patients may benefit from a range of specific interventions including: nil by mouth, dietary modification, oral care, positioning, swallowing rehabilitation, education, and treatment with antibiotics when indicated. Tube feeding (nasogastricnasogastric or percutaneous gastrostomy), remains a useful means of temporarily providing nutritional support to patients with a non-progressive cause such as stroke, but has not been shown to prevent aspiration, and its place in progressive causes of aspiration such as dementia is questionable.

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