Screening and Clinical Assessment of Oropharyngeal Dysphagia

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Abstract

Dysphagia is common after stroke, and has been associated with serious consequences such as pneumonia, malnutrition, dehydration and even death. There is emerging evidence that early detection with screening may reduce these consequences. As clinicians, it is our responsibility to strive to service our patients with the best evidence and implement screening protocols that are reliable, valid and feasible.

Dysphagia is common after stroke, presenting in approximately 55% of all acute hospitalized stroke patients, and depending on the lesion site and volume, can linger as a chronic problem for years afterward [1]. Dysphagia is present when food or liquids are not transported efficiently or safely through the aerodigestive tract. It manifests along a continuum of severity from mild (foods reside in the pharynx after the swallow) to severe (liquids enter the lungs).

Epidemiology of Dysphagia

Dysphagia is not a disease but rather a consequence of existing diseases such as stroke. It is predicted that there will be approximately 15,000–21,000 new stroke patients per year over age 65 with dysphagia in Canada [2], and 200,000 in the US. Of these patients, as many as 10,000 in Canada and 100,000 in the US likely continue to suffer dysphagia for months following their initial stroke event. Assuming no change in current health care interventions and in the direction
of aging population demographics [3], the overall economic burden of treating the consequences of dysphagia can be expected to increase dramatically over the next few years.

**Consequences of Dysphagia**

Dysphagia has been associated with consequences, such as increased length of stay, malnutrition, dehydration and even death [4]. Reports of pneumonia in stroke patients with dysphagia range between 7 and 33%, with conservative estimates at 18% [1]. Stroke patients with dysphagia have a 3-fold increased risk for aspiration pneumonia, and this risk is markedly increased to 11-fold in stroke patients with confirmed aspiration on videofluoroscopy [1]. Aspiration without a cough (silent aspiration) further increases the incidence of pneumonia to 64% [5]. This is problematic considering that silent aspiration occurs in up to two thirds of stroke patients [6]. If left undetected, dysphagia can lead to serious comorbidities.

**Swallowing Physiology**

To properly diagnose dysphagia, it is important to understand the normal swallowing mechanism. Under normal physiological conditions, humans swallow 1,000–3,000 times daily and significantly less during the night. Swallowing includes not only eating and drinking but also clearing of the esophagus. Normal swallowing involves four sequential phases: oral preparation, oral transport, pharyngeal and esophageal.

**Screening Assessment of Dysphagia**

The main purpose for clinical screening is to identify patients at risk for oropharyngeal dysphagia and initiate early referral for diagnosis and treatment in order to prevent distressing dysphagia symptoms and to minimize risks for pneumonia, malnutrition and dehydration [2]. In order to have clinical utility, the screening tool must have proven reliability and validity. Psychometrically, a screening tool aims to identify those patients at greatest risk for dysphagia; therefore, it must have high sensitivity [7]. The sensitivity of a test is defined as the proportion of patients with the attribute who are correctly identified by the test, also known as the true positive value [8]. In this way, screening serves to rule out those patients who likely do not have dysphagia.

Bours et al. [9] conducted a systematic review of published screening tools in search for one that is properly standardized. Their findings identified no such screening tool. These authors made a plea for further research to establish the
most effective standardized protocol to accurately detect aspiration at the bedside. Several researchers have since answered this plea. In the recent years, there have been several published studies introducing new screening tools. In response to the identified gap in the literature relating to availability of accurate screening tools and an effort to standardize care for stroke patients across all settings, the Toronto Bedside Swallowing Screening Test (TOR-BSST©) was developed [7]. The TOR-BSST© is a brief screening tool that predicts the presence of dysphagia in stroke survivors. Its items were generated using the best available evidence derived from an extensive systematic review [2]. The TOR-BSST© is unique in that it has proven high reliability and validity with stroke patients in both acute and rehabilitation settings. This tool is now being validated with etiologies other than stroke in studies currently underway. Other screening tools that are available in the literature for review include those for patients with Parkinson’s disease [10] and mixed etiologies [11–14].

Although a completely satisfactory screening tool has not been available until more recently, there is already evidence for the benefit of screening from multisite survey research [15]. A lower rate of pneumonia was identified in sites with a formal dysphagia screening program, regardless of screening method utilized, compared to sites with no such screening program. Although these reports of screening benefit to health were a result of screening tools that were not properly standardized, it is logical to assume that the benefits would be even greater with the use of a dysphagia screening tool that has been systematically developed and tested for stability and accuracy. The added practical and economic value of a screening test that accurately rules out dysphagia is obvious.

As clinicians, we strive to service our patients according to the best available evidence. Hence, we need to appraise the new screening tools that are now available to ensure their proper scientific development and psychometric standards. In light of these new tools, it is no longer sufficient to just implement a dysphagia program with any tool, as did Hinchey and colleagues [14], but instead it is our responsibly to ensure that we select the tool that has been developed according to published standards and with a large patient population across the continuum of care and with proven psychometric properties.

References