

The Efficacy of Swallowing Screens for Detecting Dysphagia and Risk of Aspiration in Acute Stroke Patients



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Introduction

Stroke affects nearly 795,000 people annually in the United States and attributes to approximately 130,000 deaths. One of the most common sequela of a stroke is dysphagia, which occurs in roughly 50-80% of cases. Of those affected by dysphagia, studies show that between 22 and 25% aspirate. Aspiration in stroke patients may result in an increased length of stay, increased mortality, and decreased functional outcomes. It is important to explore early detection of risk factors for aspiration to improve overall outcomes in acute stroke patients

Purpose

The purpose of this literature review is to explore the efficacy of swallowing screens for detecting dysphagia and risk of aspiration in acute stroke patients.

Research Question

What is the efficacy of swallowing screens for detection of dysphasia in acute stroke patients?

Methods

A review of literature was conducted utilizing the databases of CINAHL, PubMed, and Cochrane. Keywords included stroke, dysphagia evaluation, swallow screen, and aspiration. The primary inclusion criteria were: acute stroke patients, acute care setting, English, published from 2009 to present, peer reviewed, and randomized control trials or systematic reviews.

Comparison of Swallowing Screening Protocols Meeting Basic Criteria

Protocol (N)	Administration	Reliability	Validity†
Barnes Jewish Hospital Stroke Dysphagia Screen N - 300 & 225	By Nurses, 2 min to Administer, 10 min to Train	K = 0.94	Study 1: Dysphagia by MASA score 178, N300 Sensitivity 91% (95% CI, 82–95), specificity 74% (95% CI, 64–80), PPV 54%, NPV 95% Study 2: Dysphagia on video-fluoroscopy, N225 Sensitivity 94% (95% CI, 88–98), specificity 66% (95% CI, 57–75), PPV 71%, NPV 93%
Toronto Bedside Swallowing Screening N - 311	By Nurses, 10 min to Administer, 4 hr to Train	ICC = 0.92	Dysphagia on videofluoroscopy (acute patients) Sensitivity 96% (95% CI, 73–99) Specificity 64% (95% CI, 35–85), PPV 77% (95% CI, 53–90), NPV 93% (95% CI, 58–99)



Note: Inter-rater reliability; K indicates kappa; ICC, intra-class correlation coefficient. CI, confidence interval; PPV, positive predictive value; NPV, negative predictive value. Adapted from "Swallowing screens after acute stroke: A Systematic Review," by S.K. Schepp, D.L. Tirschwell, R. M. Miller, & W.J. Longstreth, 2012, Journal of Cerebral Circulation, 43(3). Copyright 2012 by Journal of Cerebral Circulation.



Results

Four research articles were reviewed for analysis. Increased incidence of aspiration was associated with no dysphagia screening or dysphagia tools not supported by research. The Barnes-Jewish Hospital Stroke Dysphagia Screen (BJHSDS) and the Toronto Bedside Swallowing Screening Test (TORBSST) were identified respectively to be 94% and 92% accurate in recognizing dysphasia in comparison to fluoroscopy. Swallowing screens with neuromuscular electronic stimulation was better at detecting dysphasia than either method alone. However, stroke associated pneumonia (SAP) was associated with increased risk factors of age, higher NIHSS scores, and NG placement despite the use of swallowing screens.

Conclusion

In conclusion, the literature supports early identification of dysphagia for prevention of aspiration and decreased incidence of SAP. The findings support the use of dysphagia screens in conjunction with screening for dysphagia high risk factors to minimize the incidence of aspiration and promote positive outcomes among acute stroke patients.

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