Prehospital Dysphagia Screening By Paramedics: Effects on Lengths of Hospital Stays and Patient Outcomes in Populations at High Risk

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Abstract

Background: Dysphagia is a common concern in high-risk patient populations and can lead to significant complications and prolonged hospital stays. Early identification and management are crucial for improving patient outcomes.

Methods: This prospective observational study assessed the impact of prehospital dysphagia screening performed by paramedics on 200 patients at risk due to neurological conditions. Participants were divided into a screened group and a control group, with primary outcomes measured as length of hospital stay and incidence of complications like pneumonia.

Results: The screened group experienced significantly shorter hospital stays (mean 7.5 vs. 10.4 days, $p < 0.01$) and lower incidence of pneumonia (10% vs. 25%, $p < 0.05$) compared to the control group. Improvements in Functional Independence Measures were also noted in the screened group.

Conclusions: Implementing dysphagia screening in prehospital care by paramedics significantly reduces hospitalization duration and improves patient outcomes by facilitating early and targeted interventions. These findings support the integration of dysphagia screening into paramedic protocols to enhance the continuity and efficacy of care for at-risk populations.

Keywords: Dysphagia, Prehospital Care, Paramedics, Hospital Stay, Patient Outcomes, Aspiration Pneumonia, Emergency Medical Services.

Introduction

Dysphagia, commonly known as difficulty in swallowing, should be taken seriously as it has an adverse effect on patients 'lives, especially, in elderly and disabled people who have paralysis or other serious injuries. Patients with dysphagia easily develop aspiration pneumonia, dehydration, and malnutrition, which can make their clinical conditions worse and require them to stay in the hospital longer (Martino et al., 2005). This is one of the primary reasons as to why dysphagia should be looked up to in time as well as setting out processes to help identify and manage the problem in the first place.

Practices Currently Utilized to Screen for Dysphagia

It is, however, distressing to note that while the prevalence of dysphagia screening is on the increase, in most cases people who carry out the screening do so in hospital settings, language pathologists or even

clinicians conduct the assessment. Universal screening tools evaluate the safety and suitability of swallowing as well as seeking to establish the chances of the patient developing pulmonary aspiration (Daniels et al., 1998). However, it is a cause for concern that the assessment is done after the patient has been admitted, a situation that may have dire consequences.

Why Dopamine Agonists Should be Screened for at Stage in the Pre-hospital Care Setting

Deciding to screen out the problem at the prehospital stage makes more sense due to these delays that patients face in getting the required assistance, therefore it is advisable to have it checked at early diagnosis stage. This categorization is a beneficial condition because a paramedic is trained to treat anyone in any situation, odds are they will likely be the first to respond. Additional focusing of pre-admission assessments may assist in better clinical management and post-admissions and arrivals may be also successful on target which, as a byproduct, aim to achieve reduced follow-up hospital visits (McCullough et al., 2000).

Research Goals

The purpose of this research is to assess the impact of introducing a prehospital screening of dysphagia by medics, more specifically, its effect on hospital length of stay as well as the overall outcome for patients with high risk of developing dysphagia. It will assess if this early screening is effective in diminishing the rate of complications that stem from dysphagia, including aspiration pneumonia, and whether it would be effective in managing patients within the emergency and acute care settings.

Literature Review

Dysphagia in High-Risk Populations

Patients suffering from neurological disorders, post-stroke, or history of significant trauma are among the most affected patients for dysphagia. This condition further impose considerable health problems like increased threat of aspiration pneumonia, malnutrition, and extended length of stay in hospital. This problem is dire since the rate of dysphagia with stroke patients can be around 50 – 60% (which is around 2 out of the 4 patients on average) making it a major concern in tackling this suffering population group (Smithard et al., 1996).

Role of Early Detection and Management of Dysphagia

By screening for dysphagia as soon as possible, it is variability evident that the quality of life as well as the outcome of life for the targeted population has immensely improved because of how the new detection helps in managing pneumonia and increasing the life expectancy for targeted populations P. (Perry & Love, 2001). Dawning the standard procedure in dysphagia conditions for many convalescing patients gives a lot of pros and cons where the pros include making a diagnosis and targeting specific approaches, however the cons render a wait and watch scenario for many patients where the standards can be set post care.

Early Screening Protocols for Patients in Emergency Situations

In case of allergic reactions, epileptic seizures and any other neurological emergencies to completely management of birth controls including cuts , paramedics serve a necessity to be a first line of contact for any of these pharyngeal or orbital of swallowing related course. Developing early dysphagia screening methods at hospitals would allow for earlier diagnosis of concerning swallowing functions, meaning chronic dysphagia issues can beaved. Study say paramedics would be able to perform these procedures with minimal training and would be able to avoid pre screening lag (Bours et al., 2009).

Effect of Prehospital Screening for Dysphagia on Length of the Hospital Stay and Patient Outcome

The authors suggest that incorporation of dysphagia choking screening into pre-hospital care may assist in timely intervention and management of dysphagia including a reduction in its associated complications and seabed stay as well. Moreover, prehospital screening for swallowing disorders potentially has an impact in overall management of the patients, better utilization of hospital resources and improvement of patients safety (Pollock et al., 2013).

Inadequacies in the Existing Literature

It has been noticed that there is a substantial gap between the literature on the merits of dysphagia screening in the hospital and its practical research on the introduction and carrying out the screening in out of hospital settings. The literature seems mainly to address the possibility of training paramedic service personnel in the identification of swallowing difficulties without further consideration of the outcomes of that intervention in terms of morbidity or length of hospitalization (Speyer, 2013).

Methodology

Study Design

This study was a deficit-based cohort study performed at a tertiary hospital aiming to examine the role of dysphagia screening by paramedics outside the hospital with regards to the duration of hospital stay and its management.

Participants

Aged 18 years and older patients included into the study were patients with blinding collateral purposes such as stroke, severe head trauma, or other neurology related conditions who are high risk for dysphagia. Patients included had a shift to the tertiary hospital by EMS services. The exclusion criteria were patients who had dysphagia prior to the hospitalization, non-verbalized in writing their acceptance to the research, and cases that required neurosurgical intervention.

Screening Protocol

EMTs were informed regarding a dysphagia screening protocol based on the modified adult patients ’routine series of bedside dysphagia screening tests common to hospital practice. This protocol included simple, observable signs of dysphagia such as coughing or choking during swallowing, wet voice, and changes in breathing patterns after swallowing attempts.

Data Collection

The data was collected from the patients ’files as well as live reports from the paramedics. When admitted in the hospital, all patients were further evaluated with all comprehensive assessments of the presence of swallowing disorder with clinical swallow examination and other applicable standard measuring tools including video fluoroscopy swallowing study (VFSS).

Outcome Measures

The primary outcome concern was the duration of the patients ’hospitalization computed as the time spent from the admission to the discharge of the patients, while secondary outcomes were pneumonia occurrence, other swallowing related complications, and recovery of patients computed using the functional independence measure (FIM) scale.

Statistical Analysis

The demographics of the patients and clinical characteristics were summarized using descriptive statistics such as means and standard deviations. Chi square test for categorical variables and independent t-tests for continuous variables were performed as statistical analyses to compare paramedic screened patients versus screened out patients. In light of potential confounding variables such as age, medical condition, and depletion grade which may alter the findings of the study multicovariat regression was employed in the analysis of the study. The postural orthostatic hypotension statistical significance was set at $p<0.05$. All statistically significant data were analyzed using SPSS software (version 26.0; IBM Corp., Armonk, NY, USA).

Ethical Considerations

The ethical review board of the ethics committee. Before any participant was involved in the study all participants or their legal representatives signed informed consent.

Findings

The research comprised 200 EMS patients 'in the study. They bring 100 paramedics through a new implemented protocol that was used to screen the patients for dysphagia. Other 100 patients were in control group with no prehospital screening done. Mean (SD) age of all the subjects was 68 (13) with about 54 percent being male. Most common conditions were stroke 45% followed by traumatic brain injury 30% and other neurological disorders 25%.

Table 1: Characteristic Demographic and Clinical of the participants

Characteristic	Screened Group (n=100)	Control Group (n=100)
Age (years), mean(SD)	67 (12)	69(11)
Male Gender	54%	55%
Condition		
-Stroke	46%	44%
-Traumatic Brain Injury	31%	29%
-Other Neurological	23%	27%

Length of Hospital Stay

The group receiving screening for dysphagia had statistically less length of stay which was 7.5 days after receiving the required treatment as compared to 10.4 days length of stay for the group who had no prehospital screening of dysphagia.

Table 2: Total Stay in Hospital and its Complications

Group	Screened (n=100)	Control (n=100)	P-Index
Mean Dose of Stay (days)	7.5 (SD 2.3)	10.4 (SD 3.1)	0.01
Percentage who suffered pneumonia	10%	25%	0.05
Other complications	15%	30%	0.05

Results for the Screened Group (n=100) and Control Group (n=100)

Dysphagia- Related Complications

Both the Oral angle and the Ottawa Swallowing Screening Test need to be evaluated further as patients who were provided oral screening had lower amounts of dysphagia complications as compared to those who were not.

Patient related outcomes

It's interesting to note that in this matter there were positive changes, suggesting that the patients handheld Functional independence measure had better recovery than those who had no.

Table 3: Patient Outcomes

Measure	GroupOne (Screened)	Group Two (Control)	P-Index
Change in result of functional independence measure	15	10	0.05

Discussion

The results of this study demonstrate how effective the dysphagia screening by the paramedics in the prehospital setting is and how it affects the duration of a hospital stay and the treatment outcome. A dysphagia protocol in the prehospital setup has shown to cut back sailing time in the medical facility by an approximate 3 days and even reduce dysphagia related cases like pneumonia.

Interpretation of Findings

Reduced Length of Hospital Stays: The results achieved in the screened group in terms of staying in the hospital presents a strong case on why dysphagia should be managed as soon as possible. Most, if not all of the complications that could result in the necessity to have longer hospital stays such as aspiration pneumonia were seemingly lower in the screened group.

Decrease in Complications: The interventions that were taken by the staff in the screened group were essential in lowering the chances of pneumonia and other complications from developing. Since dysphagia is noticed even before it develops with the help of prediagnosis, the paramedics can develop strategies to attend to it and escalate it to other staff to help with some of the risks that it could result to especially aspiration risks.

Better Patient Outcomes: Considering the changes in the Functional Independence Measures of the screened group, another conclusion can be drawn that early treatment of dysphagia leads to effective recovery. This is consistent with earlier studies which suggests that the sooner swallowing problems are addressed, the best the health outcomes.

Clinical Implications

These results endorse the addition of the screening for dysphagia as part of the routine education for paramedics. In this way, paramedics can be trained to identify the presence of dysphagia which can improve the continuum of care in the way that treatment starts from the first point of contact. Moreover, these findings should stimulate the imagination of health policy makers in the direction of the more broad and more pronounced dissemination of this practice which potentially can contribute a lot to improving the efficiency of healthcare system and the quality of patient care.

Strengths, Limitations, and Future Research

Strengths: To date, this is one of the few studies that have quantified the impact of prehospital dysphagia screening on in-hospital outcomes thereby providing data that can inform change in clinical practice.

Limitations: The limitations of the study include its observational nature and the degree of variability that might have been present in the sensitivity of screening by paramedics. Also, the research was restricted to a single tertiary hospital, which raises doubts about the applicability of the results.

Future Research: In future studies, one of the goals should be to verify if these findings can be successfully reproduced in trials with several centers. Additionally, future studies should evaluate the cost-efficiency of educating paramedics on dysphagia screening, and its influence on other health measures. Additionally, focusing on the key elements of the screening protocol that best predict the chances of dysphagia and its severity may enhance the level of efficiency and effectiveness of the screening procedure.

Conclusion

To sum up, the findings of this PHTSC based study emphasize the paramount importance of prehospital dysphagia screening of paramedics in the patients with dysphagia as it advocates the shortening of the length of the entire hospital stay of such patients. Integrating such screening approaches could foster understanding on the contribution of EMS in the alleviation of dysphagia and its interventions as well as enhance health profitably.

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