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Evidence-based Measures for Preventing Aspiration Pneumonia in Patients with Dysphagia

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Abstract

Introduction: Dysphagia is related to swallowing and it is mostly associated with increase age, cerebral vascular disease, and dementia. Dysphagia increases the risk of aspiration pneumonia and readmission among elderly ill patients.

Methodology: The review of the literature was conducted through databases: Cochrane and PubMed.

Results: good oral hygiene care to their patients to prevent aspiration pneumonia .Senior citizens are prone to poor oral hygiene care because of dental disease and lack of oral hygiene care .Poor dentition increase bacterial oral infection chances, and secretion, lung aspiration, and aspiration pneumonia . There is a great risk of developing dehydration and malnutrition with increase fluid viscosity. Similarly, postural compensation should only recommend after careful swallowing assessment. Therefore, the results of thickeners in reducing the incidence of aspiration pneumonia are mixed. The imbalance in nutrition and aspiration is the most common indication for tube feeding in dysphagia patients. Expiratory muscle strength training is a swallowing rehabilitation technique for the restoration of swallowing functions. In summarization, interventions that showed that strongest evidence in preventing aspiration pneumonia were good oral hygiene. Good oral healthcare should be encouraged and reinforced in elderly patients. In limitations, potential confounders affecting the risk of aspiration pneumonia were unaddressed in all studies. Consequently, more robust research studies are required on the severity of dysphagia and to address potential confounders.

Keywords: Dysphagia • Aspiration pneumonia • Feeding • Oral hygiene • Postural compensation • Expiratory muscles strength

Introduction

Dysphagia is related to swallowing and is mostly associated with increase age, cerebral vascular disease, and dementia the prevalence of dysphagia is estimated 70% among cerebrovascular patients. Dysphagia increases the risk of aspiration pneumonia and readmission among elderly ill patients. According to the Huang, Liu and Shi (2020) nearly 15% of hospitals readmission occurred with aspiration pneumonia globally. The prevalence of dysphagia increased the burden of chronic respiratory diseases readmission such as COPD. Most nurses and other health care providers encounter dysphagia and aspiration pneumonia in primary, secondary and tertiary care settings. Therefore, the purpose of this narrative review is to appraise the latest evidence on measures to prevent aspiration pneumonia in patients with dysphagia and make recommendations for future nurses [1-12].

Methodology

The review of the literature was conducted through databases: Cochrane and PubMed. The Keywords was used aspiration pneumonia and dysphagia. The Google Scholar data based was also used because of limited open assess research articles. The Boolean operators were used for searching literature are (pneumonia and aspiration) (dysphagia and aspiration) (aspiration pneumonia in elderly patients) or (nurses and aspiration pneumonia). The title and search article were reviewed during the database search. Multiple search strategies were used to obtain a comprehensive review of relevant articles. A Pub-Med search was made with the following keywords “aspiration pneumonia” with limits to meta-analysis, systemic reviews, and randomized control trials (RCT).

Inclusion and exclusion criteria

The articles which were published in English, human study and adults aged 50 and above were selected for the review. In first search, 50000 articles were yielded. The 264 articles results were individually reviewed. Finally, only seven articles were selected for the final review from PubMed. A Cochrane review search on “dysphagia” yielded 30000 results, and “aspiration pneumonia” yields ten article results. Only two relevant articles were used. A hand search further yielded one article. A total of seven articles were selected for the final review. In contrast, research articles published other than English were excluded from the review. The articles related to intensive care unit setting, anaesthesia, surgical patients and structural causes of the dysphagia or laryngeal tumours were excluded in the current review. The articles older than seven years were also excluded in the recent review. Meta-analysis of non-RCT trials, original articles that are non RCT studies with less than ten subjects were also excluded in this review. The outcome variables were included the incident of aspiration pneumonia, improvement in swallowing and cough reflex.

Results and Discussion

Aspiration pneumonia could be prevented and the interventions will be discussed and summarized under the following categories:

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1) Oral hygiene

2) Diet modifications and postural compensation

3) Types and feeling regimen for artificial enteral feeding

4) Explanatory muscles strength training

5) complementary-medicines.

Studies on oral hygiene

During One systematic review and two RCTs studies were found on good oral hygiene care from the selected articles. The authors concluded that nurses should provide good oral hygiene care to their patients to prevent aspiration pneumonia. Health care institutions should develop guidelines to reduce the incidence of aspiration pneumonia. The elderly are prone to poor oral hygiene care because of dental disease and lack of oral hygiene care. Poor dentition increase bacterial oral infection chances, and secretion, lung aspiration and aspiration pneumonia. A systematic review was concluded that good oral healthcare including tooth brushing after every meal, cleaning of dentures once a day and professional oral healthcare once a week improved the swallowing reflex and decreased the cough reflex onset, and aspiration pneumonia .A single intervention of professional oral healthcare may reduce the risk of aspiration pneumonia among elderly patients .Although nursing professionals may not be practicing in actual practices, good oral hygiene is a non-invasive, cost-effective and easily implemented strategy to prevent the patient from aspiration pneumonia .

Diet modifications and postural compensation

The Total two RCTs on dietary modifications and postural compensation were selected for review. The authors concluded that the use and prescription regime of thickeners should be individualized to the patients. Nurses should also be aware that there are cost issues and risks involved when using fluid thickeners). There is a great risk of developing dehydration and malnutrition with increase fluid viscosity. The increased amounts of starch in thickened drinks make them unpalatable and induce early satiety, resulting in decreased oral intake [13].Similarly, postural compensation should only recommend after careful swallowing assessment Fluid thickness agents should be encouraged for dysphagia patients Thick food decreased the speed of food episodes and improves the control of swallowing This reduced the penetration and aspiration of food materials. However, micro-aspiration of oral secretions occurs throughout the day [10]. Therefore, the results of thickeners in reducing the incidence of aspiration pneumonia are mixed (Egan, Thickened fluids reduced the risk of aspiration pneumonia in patients with oral-pharyngeal dysphagia diagnosis. The chin down position is helpful in reducing discomfort in dysphagia patients. However, adopting a chin-down posture during swallowing avoid aspiration for half the patients on video-fluoroscopy examination.

Feeding regime for artificial enteral feeding

The Total two articles RCTs and one artificial enteral feeding were selected for review. The authors concluded that the incidence of aspiration pneumonia should not be a factor in deciding between nasogastric tube and percutaneous endoscopic gastrostomy [6].The imbalance in nutrition and aspiration are the most common indications for tube feeding in dysphagia patients [6]. It should be clarified to patients that nasogastric feeding has an insignificant role in reducing aspiration pneumonia (2019). The reason for its recommendation should be geared more toward nutrition sustenance rather than the prevention of aspiration pneumonia (2019). Therefore, it is recommended that nurses should discuss the advantages and disadvantages of tube feeding with patients with dysphagia and their families. The choice of the various routes of tube feeding should be discussed carefully with patients and families (2019). Continue feeding could be is appropriate intervention in high gastric residue because it reduced the incidence of aspiration pneumonia in PEG-feeding patients [2].Bolus feeding should be recommended in most patients who are taking nasogastric feeding [2].The problems of higher gastric residuals could be addressed by increasing the frequency and reducing the volume of each feed [14-16].

Expiratory muscles strength training (EMST)

An RCT study author concluded that EMST has an insignificant role until further evidence has been evaluated aspiration pneumonia as one of the patient outcomes. Expiratory muscle strength training is a swallowing rehabilitation technique for the restoration of swallowing functions [4]. Expiratory muscle strength training using a calibrated device improved the swallowing mechanism during video-fluoroscopy in patients with Parkinson's disease [4]. However, the incidence of aspiration pneumonia was not studied. Therefore, further studies should be included patients with other causes of dysphagia [3].

Complementary alternative medicine

Out The authors concluded that acupuncture is inappropriate for the treatment of dysphagia until more large-scale and methodologically sound trials incorporate acupuncture for dysphagia stroke patients [7]. A Cochrane review on acupuncture included only one randomized controlled trial and was inclusive of whether acupuncture had a positive effect in reducing aspiration pneumonia when added to standard Western medical treatment for acute stroke patients with dysphagia [17-20].

Conclusion

This narrative review article has appraised and summarized the latest evidence on measures to reduce aspiration pneumonia in patients with dysphagia. Several clinical trials studies evaluate the effectiveness of various preventive strategies but many involve small numbers of patients and lack the methodology quality of well-conducted RCTs. Interventions showed that the strongest evidence in preventing aspiration pneumonia was good oral hygiene Good mouth hygiene is a simple and cost-effective intervention to prevent aspiration pneumonia Good oral healthcare should be encouraged and reinforced in elderly patients The use of feeding in PEG patients was also effective in reducing the incidence of aspiration pneumonia There was insignificant evidence for the use of diet modifications, postural compensation, tube-feeding, expiratory muscles strength training and acupuncture to reduce aspiration pneumonia.

Acknowledgment

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Data Availability

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

References

1. Banik AA. “Outcomes of Swallowing rehabilitation in patients with dysphagia: A retrospective study.” *BJOHNS 28*(2020): 151-156.
2. Blumenstein, Irina, Yogesh M Shastri, and Jurgen Stein. “Gastroenteric tube feeding: Techniques, problems and solutions.” *World J Gastroenterol 20*(2014): 8505-8524.
3. Brooks, Marinda, Emma McLaughlin, and Nora Shields. “Expiratory muscle strength training improves swallowing and respiratory outcomes in people with dysphagia: A systematic review.” *Int J Speech Lang Pathol 21*(2019): 89-100.
4. Byeon, Haewon. “Effect of simultaneous application of postural techniques and expiratory muscle strength training on the enhancement of the swallowing function of patients with dysphagia caused by Parkinson's disease.” *J Phys Ther Sci 28*(2016): 1840-1843.
5. Calandra-Buonaura, Giovanna, Enrico Alfonsi, Luca Vignatelli, and Eduardo E Benarroch et al. “Dysphagia in multiple system atrophy consensus statement on diagnosis, prognosis and treatment.” *Parkinsonism Relat Disord* 86(2021): 124-132.

6. Chang, Wei-Kuo, Hsin-Hung Huang, Hsuan-Hwai Lin, and Chen-Liang Tsai. "Percutaneous endoscopic gastrostomy versus nasogastric tube feeding: oropharyngeal dysphagia increases risk for pneumonia requiring hospital admission." *Nutrients 11*(2019): 2969.
7. Citkovitz, Claudia. "Acupuncture during stroke rehabilitation: Development of a manual for researching a complex intervention." (2015).
8. Diéguez-Pérez, Isabel, and Raquel Leiros-Rodríguez. "Effectiveness of different application parameters of neuromuscular electrical stimulation for the treatment of dysphagia after a stroke: A systematic review." *J Clin Med* 9(2020): 2618.
9. Duncan, Sallyanne, Daniel F McAuley, Margaret Walshe, and Jennifer McGaughey, et al. "Interventions for oropharyngeal dysphagia in acute and critical care: A systematic review and meta-analysis." *Intensive Care Med 46*(2020): 1326-1338.
10. Egan, Aisling, Carolyn Andrews, and Anja Lowit. "Dysphagia and mealtime difficulties in dementia: Speech and language therapists' practices and perspectives." *Int J Lang Commun Disord 55*(2020): 777-792.
11. Groher ME, and TN McKaig. "Dysphagia and dietary levels in skilled nursing facilities." *J Am Geriatr Soc 43*(1995): 528-532.
12. Huang, Chunrong, Yahui Liu and Guochao Shi. "A systematic review with meta-analysis of gastroesophageal reflux disease and exacerbations of chronic obstructive pulmonary disease." *BMC pulmonary medicine 20*(2020): 1-9.
13. Lin, Ting-Fen, and Samantha Zhang. "Chronic obstructive pulmonary disease and dysphagia: A synergistic review." *Geriatrics 5*(2020): 45.
14. Mancopes, Renata, Melanie Peladeau-Pigeon, Emily Barrett, and Andrea Guran, et al. "Quantitative videofluoroscopic analysis of swallowing physiology and function in individuals with chronic obstructive pulmonary disease." *J Speech Lang Hear R 63*(2020): 3643-3658.
15. Masaki, Shigenori, and Takashi Kawamoto. "Comparison of long-term outcomes between enteral nutrition *via* gastrostomy and total parenteral nutrition in older persons with dysphagia: A propensity-matched cohort study." *Plos one 14*(2019): e0217120.
16. Rahnemai-Azar, Ata A, Amir A Rahnemaiazar, Rozhin Naghshizadian, and Amparo Kurtz, et al. "Percutaneous endoscopic gastrostomy: Indications, technique, complications and management." *World J Gastroenterol 20*(2014): 7739-7751.
17. Smith, Tracy A, Mary M. Roberts, Jin-Gun Cho, and Ester Klimkeit, et al. "Protocol for a single-blind, randomized, parallel-group study of a nonpharmacological integrated care intervention to reduce the impact of breathlessness in patients with chronic obstructive pulmonary disease." *Palliative Medicine Reports 1*(2020): 296-306.
18. Tay, Wei Yi, Lian Leng Low, Shu Yun Tan, and Farhad Fakhrudin Vasanwala. "Evidence-based measures for preventing aspiration pneumonia in patients with dysphagia." *Proc Singapore Healthc 23*(2014):158-165.
19. Yoshida, Mikako, Yuka Miura, Shingo Okada, and Masako Yamada, et al. "Effectiveness of swallowing care on safe oral intake using ultrasound-based observation of residues in the epiglottis valley: A pragmatic, quasi-experimental study." *Healthcare* 8(2020): 50.
20. Zhang, Rui, Hong Yan Lu, Zhen Zhen Wu, and Lu Lu, et al. "Study on factors influencing dysphagia in elderly patients with chronic obstructive pulmonary disease based on structural equation modeling." *Indian J Pharm Sci* 83(2020): 26-35.

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