

Critical Review: In individuals with dementia, is hand feeding an effective and feasible alternative to tube feeding?

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This critical review examines the evidence regarding hand feeding as an effective and feasible alternative to tube feeding in individuals with dementia who have feeding difficulties. An extensive review of the literature yielded six articles that were critically reviewed, specifically two non-randomized cohort studies, two systematic reviews of the literature, and two informational reviews of the literature. Overall, the results were inconclusive in supporting hand feeding as a viable alternative. However, there was suggestive evidence that tube feeding does not improve survival or health outcomes in individuals with dementia. Study limitations, recommendations for future direction and clinical implications were discussed.

Introduction

Dementia is a progressive neurological syndrome that can lead to functional and cognitive decline (Sampson, Candy & Jones, 2009). The prevalence rates of dementia, given the aging population, will increase worldwide to 81.1 million people by 2040 (Sampson et al., 2009). Poor food intake and malnutrition is common in individuals with dementia and may occur in the early stages of the disease (Sampson et al., 2009). In the later stages of the disease, 86% of individuals with advanced dementia suffer from feeding difficulties and 39% of individuals die within 6 months (Hanson, Ersek, Gilliam & Carey, 2011). Feeding difficulties consist of failure to recognize food, loss of appetite, dysphagia, and aspiration (Sampson et al., 2009). Due to these negative factors and the high prevalence of feeding problems in the later stages of dementia, tube feeding is a widely used practice (Sampson et al., 2009). However, there are several risks associated with tube feeding, such as increased incidence of pressure ulcers, the accidental removal during agitation or confusion, the need for restraints, immobility, diarrhea, and fecal incontinence (Dibartolo, 2006). In addition, there is little empirical evidence to support the current practice with no indication of improvements in major health outcomes (Garrow et al., 2007; Sampson et al., 2009). Some studies report that enteral feeding may, in fact, increase mortality, morbidity and reduce quality of life (Sampson et al., 2009).

The decision to artificially feed individuals with dementia is highly controversial, raising many fiscal, ethical and moral concerns (Luk, Chan, Hui & Tse, 2017; Mitchell, Buchanan, Littlehale, & Hamel, 2004; Sampson et al., 2009). Alternatively, hand feeding is a more humane approach and can alleviate

hunger, thirst and improve quality of life and socialization in individuals with dementia (DiBartolo, 2006; Garrow et al., 2007). Currently, high quality studies comparing oral and tube feeding are limited, however, there is some evidence to support hand feeding as a viable option worthy of further investigation (Hanson et al., 2011).

Objectives

The primary objective of this paper is to critically evaluate the existing literature on hand feeding as an effective and feasible alternative to tube feeding in individuals with dementia. The secondary objective is to examine an alternative to tube feeding that can help direct compassionate and evidence-informed care to individuals with dementia.

Methods

Search Strategy

Online databases, specifically PubMed, CINAHL, and Google Scholar, were used to search for articles related to the topic of interest. The following terms were searched: [(Alternative) AND (tube feeding) OR (enteral tube feeding) AND (hand feeding) OR (oral feeding) AND (dementia)].

Selection Criteria

Included articles were required to contain a comparison between tube feeding and oral feeding and its impact on individuals with dementia. Articles included were published in English and after the year 2000. All stages of dementia and types of enteral feeding were included.

Data Collection

The literature search generated six articles that met the selection criteria. Papers selected for this review

included two non-randomized cohort studies (level 2b evidence), two systematic reviews of the literature (level 2 evidence), and two informational reviews of the literature (level 5 evidence).

Results

Non-Randomized Cohort Studies

Non-randomized cohort studies are appropriate when factors cannot be randomized as demonstrated in the articles reviewed. Therefore, the data should be interpreted with caution given that these studies are subject to observational biases when the study design does not include a “blind” procedure.

Cintra, de Rezende, de Moraes, & Cunha (2014) examined associations between oral feeding (n=36) and tube feeding (n=31) in outcome measures related to survival rates, aspiration pneumonia, and hospital admissions. In a non-randomized, prospective, cohort study design, outcome measures were collected at 3- and 6-months post-hospitalization. Procedures included telephone interviews with a caregiver by one of the authors and clinical evaluations consisting of a bedside swallowing examination, measurement of calf circumference, and a pressure ulcer staging system. The results indicated higher incidences of aspiration pneumonia, pressure ulcers, and mortality in the tube feeding group with no significant differences found in hospital admissions.

Strengths included an appropriate research design, methods, and well specified participant selection. The data was analyzed with appropriate statistical measures that were evidence-based and comparable to previous research studies. Potential selection bias may have occurred due to a higher proportion of tube fed patients recruited from the hospital setting, indicating a potential for greater illness in the tube fed group. In addition, while bedside swallowing examinations were conducted, a video-based swallow study may have provided a more accurate evaluation of aspiration risk. There was a risk of memory bias during telephone interviews with primary caregivers that could have influenced the results. No reliability was reported.

This study provides highly suggestive evidence that tube feeding for individuals with advanced dementia has negative effects on health outcomes, such as mortality, survival, incidence of pneumonia and hospital admissions, in comparison to oral feeding.

Mitchell et al. (2004) used a non-randomized, retrospective cohort study design to examine the

fiscal costs associated with caring for tube fed (n=11) and hand fed (n=11) older adults with advanced dementia in a long-term care facility. Chart reviews were conducted on a convenience sample of patients who met the inclusion criteria as determined by health care providers. Costs of care between groups was compared for a 6-month period. Results indicated that costs were higher for the non-tube fed group in terms of nursing time spent for hand feeding. However, overall costs were higher for the tube fed group on variables of tube insertion, emergency room visits and hospitalization. Data on Medicaid reimbursement schemes for nursing home in 30 states was also reviewed and demonstrated that higher transfer payments are made for tube-fed residents. The study suggested that there may be a financial incentive for nursing homes to place patients with advanced dementia on feeding tubes.

The study design was appropriate to address the specific question of differences in cost of care for this patient population. Participant selection was clearly outlined and appropriate. In spite of a small sample size, statistical power to detect differences and costs were adequate. The data was analyzed and reported using appropriate statistical methodology. The use of a single setting may have limited the applicability of findings to other countries. Medicaid payment information was not obtained for 18 states which makes these findings inconclusive. In addition, due to difficulties in quantifying certain aspects of care, not all costs could be examined.

Overall, this non-randomized retrospective cohort study provides suggestive evidence that higher health care costs are associated with tube feeding in older adults with advanced dementia.

Systematic Reviews

Systematic reviews provide a complete and exhaustive summary of current evidence. While it is an appropriate research design to investigate the topic of interest, many studies on the comparison of oral and hand feeding are not well-designed making it difficult to draw definitive conclusions.

Garrow et al. (2007) reported a systematic review of 10 articles that investigated the functional outcomes related to tube fed and non-tube fed older adults with dementia. The studies included at least one of the following outcomes: survival, oral-tracheal aspiration, pressure ulcer formation and nutrition in a variety of healthcare settings. Results indicated that rates of aspiration were three times higher in tube fed

individuals, with no significant differences in pressure ulcers between the groups and no significant improvements in survival following the insertion of a feeding tube. Weight gain and nutrition had mixed results, however, one study reported increased weight gain following the insertion of feeding tubes. This paper supported previous findings that indicate no clinical improvements with the use of tube feeding, however, it is a commonly used practice.

Inclusion and exclusion criteria were clearly defined and a sound search strategy was implemented in order to gather appropriate articles to review. The methodology used was appropriate based on the study design. Of the 10 studies included, only one was randomized and many of the studies had low levels of evidence. In addition, age of participants, setting, and stage of dementia diagnosis were not clearly defined. A limited number of studies met criteria for this review, demonstrating the lack of evidence-based research examining clinical outcomes in feeding alternatives for individuals with dementia.

This study provides suggestive evidence that tube feeding may not prolong life, reduce rates of aspiration, pressure ulcers, or improve nutritional outcomes.

Hanson et al. (2011) conducted a systematic review of 25 clinical trials, including 18 randomized controlled studies, investigating improvement in clinical outcome with oral feeding interventions in individuals with dementia. A PICOT framework was used to define participant eligibility. The methodological characteristics of each study were assigned quality and bias ratings. Oral feeding interventions included high calorie supplements, appetite stimulants, assisted feeding and modified diets. Clinical outcomes measured were survival, function, and weight gain. The studies provided moderate strength evidence for high calorie supplements and low strength evidence for oral feeding interventions to promote weight gain. No effect of oral feeding options on function, cognition or mortality were found.

Study selection and participant eligibility was clearly specified and thoroughly described, which enhances replicability, reliability, and validity. In addition, an adequate number of studies were included in the review. Each study was graded on strength and quality of evidence found and risk of bias.

Overall, this systematic review offers highly suggestive evidence that high caloric supplements

help with weight gain but are unlikely to improve clinical outcomes, specifically function and survival. Other oral feeding interventions provide low strength evidence to promote weight gain in individuals with dementia.

Informational Reviews

Informational reviews of the literature offer a thorough discussion of the feeding options for individuals with dementia. Evidence-informed research is included in informational reviews, as well as alternative points of view that may not have a strong research base. As a result, informational reviews only provide suggestive evidence supporting hand feeding and should be interpreted with caution.

DiBartolo (2006) conducted an informational review of the literature on hand feeding as a reasonable alternative to percutaneous endoscopic gastrostomy (PEG) tube feeding in individuals with dementia. The complex ethical, legal, fiscal and moral issues and the lack of evidence that PEG feeding prolongs life were argued. The advantages of hand feeding, strategies and programs for increasing oral intake, the ethical issues and lack of evidence-based studies on assisted oral feeding were discussed. The negative impact of PEG feeding on health outcomes, specifically, reduced functional status, quality of life, nutritional status, increased incidence of pressure sores and aspiration pneumonia, and accidental removal of the feeding tube, were also discussed.

Numerous evidence-based articles were reviewed. The author presented compelling arguments for hand feeding as supported in the clinical literature. Strengths consisted of the inclusion of evidence-based strategies and programs for optimizing oral intake. The author is a reputable source with other relevant publications. Although the disadvantages of hand feeding were considered, the author demonstrated a biased opinion favouring hand feeding over tube feeding.

This informational review offers suggestive evidence in favour of hand feeding as a viable alternative to tube feeding.

Luk et al. (2017) discussed, in an informational review, a local perspective on the prevalence and rationale for the use of tube feeding or hand feeding for individuals with advanced dementia in Hong Kong. A rationale for not using tube feeding, several hand feeding techniques, training of healthcare professionals, and ethical issues were outlined. The

authors emphasized the importance of advanced care planning and advanced directives to improve decision making regarding optimal feeding care as dementia progresses. Based on the Hospital Authority guidelines on treatment for the terminally ill, Luk et al. (2017) proposed a standard of care for patients with advanced stage dementia with feeding problems.

Strengths of the study included credibility of the authors and an unbiased summary of relevant literature. An adequate number of evidence-based papers were reviewed and a practical solution was proposed based on government guidelines. Future directions to advance research were not addressed and is a limitation of the article.

Overall, this informational review offers suggestive evidence surrounding the decision-making process in feeding options (oral versus enteral) in individuals with advanced dementia.

Discussion

Feeding difficulties and poor nutrition is a serious health concern in people with dementia (Sampson et al., 2009). Tube feeding is a commonly used practice, however, there is no evidence to suggest that it improves health outcomes or increases survival rates in this patient population, such as aspiration pneumonia, pressure ulcers, weight gain and nutrition (Sampson et al., 2009). The purpose of this paper was to critically review articles comparing the effectiveness of hand feeding as a viable alternative to tube feeding in individuals with dementia. The results of the six articles investigated in this critical review provided inconclusive evidence that hand feeding is an effective and feasible alternative to tube feeding.

The informational reviews provided detailed summaries of findings suggesting that hand feeding is a viable alternative to tube feeding without a strong research base and should be interpreted with caution. Cintra et al. (2014) was the only non-randomized study that provided a direct comparison between health outcomes in tube feeding and hand feeding in people with dementia. It was concluded that tube feeding has negative health outcomes compared to oral feeding. Systematic reviews that were included in this paper were methodologically sound in design, however, the reviews included small sample sizes and the quality of the studies reviewed was poor. The systematic review conducted by Hanson et al. (2011) offered highly suggestive evidence in favour of hand feeding to improve weight gain. However, similar to

previous findings, there was no evidence that clinical outcomes are improved with either method of feeding. No randomized controlled studies were found on the topic of feeding options for dementia and no blinding procedures were utilized, which reduced the strength of supporting evidence that hand feeding is a viable alternative to tube feeding.

It is recommended that future research should include randomized controlled designs that directly compare tube feeding to hand feeding to increase the reliability of the results, however, this type of research would be challenging with this patient population due to ethical and moral considerations. The practice of bedside swallowing is used in multiple studies to examine aspiration pneumonia related to tube feeding and oral feeding, however the use of video-based fluoroscopic studies may improve the external validity of study results. Future research should include larger sample sizes and qualitative studies that assess caregiver feedback, pain, discomfort and quality of life in patients. This will provide clinicians with more substantial evidence to assist them in decision making regarding the best feeding option for people with dementia.

Clinical Implications

Tube feeding is a commonly used practice for older adults with dementia who have feeding difficulties. However, there is little scientific evidence that tube feeding prolongs life or improves health outcomes, such as aspiration pneumonia, pressure ulcers, weight gain and nutrition in people with dementia. Research is inconclusive that hand feeding is a viable alternative due to the lack of controlled clinical trials in this field of study. Healthcare professionals, including speech-language pathologists, should be aware of all available options for feeding difficulties, educate patients and caregivers and discuss the pros and cons of tube and alternative feeding approaches. Clinicians should advocate for compassionate-based care respecting the choices of patients and caregivers.

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