

**Critical Review:
Tube Feeding in Advanced Dementia**

Cheng, R.

M.Cl.Sc (SLP) Candidate

University of Western Ontario: School of Communication Sciences and Disorders

The use of enteral feeding in individuals with advanced dementia has been a subject of much debate. In North America, it is estimated that one-third of nursing home residents with advanced cognitive impairment are tube fed. Despite the documentation of the burden of care associated with feeding tubes in this population, the number of feeding tubes placed in older individuals continues to increase, and many health care professionals, including speech-language pathologists, view enteral feeding as the standard of care for treating dysphagia in advanced dementia. Given the predicted increase in the

to examine the factors associated with tube feeding in patients with dementia. This evidence-based review examined original literature documenting the impact of tube feeding on pulmonary function and survival. Results of this review indicate that tube feeding is associated with aspiration pneumonia and fails to prolong survival in individuals with advanced dementia. In light of the evidence documenting a lack of benefit, future research is needed to identify other factors that may mediate the decision to use tube feeding in individuals with advanced dementia.

Introduction

According to the Canadian Study of Health and Aging Working Group (1994), 450,000 Canadians over 65 were diagnosed with dementia in 2008. A common consequence of this disease

of aspiration on VFSS and the subsequent placement of feeding tube were associated with specific clinical outcomes, such as pneumonia and pneumonia as the suspected cause of death. They found that placement of feeding tubes in patients who aspirated on VFSS were associated with increase in pneumonia and pneumonia-related death.

of their finding showed that recurrent lung aspiration was the strongest risk factor for tube placement, and more importantly, there was no difference between survival in residents with an

Subject Selection

The study recruited all residents who underwent VFSS in a nursing home over a three-year period. Ten subjects had dementia, but the authors did not provide a specific definition of dementia or indicate the severity of dementia in these individuals. Since all subjects were derived from a range of medical conditions (e.g., stroke, cardiovascular, pulmonary, etc.), the sample appeared to represent the diverse nursing home population.

Methodology

aspiration was passage of contrast material through the true vocal folds during VFSS. This measure might not be sensitive enough to capture all incidences of aspiration, such as aspiration of oral secretions or gastric reflux. In addition, aspiration severity was only rated by a single radiologist and intra-rater reliability was not reported. These factors affect the validity of aspiration severity as the independent variable.

Due to the retrospective nature of the study, it was impossible to determine if pneumonia was caused by aspiration and/or tube placement even though the existing results revealed an association. The authors postulated that the association might be due to the fact that all severe aspirators received tube feeding, whereas only few of the mild aspirators received enteral feeding. A prospective study would help identify the cause-and-effect relationship.

Statistical Analysis

Power analysis was performed and revealed that the scale of this study was too small to detect statistically differences that might in fact be clinically significant.

data (Moore and McCabe, 2003).

Despite the small sample size, this retrospective cohort study provided valuable information with respect to the efficacy of using feeding tube in a nursing home facility, in which many individuals with advanced dementia reside.

Mitchell et al. (1997) conducted a large scale, prospective study to determine the risk factors and impact on survival of feeding tubes in nursing home residents with advanced cognitive impairment. Results

the risk factors that were identified could be accounted for in the survival analysis.

This large scale, cohort study was carefully conducted to provide moderately strong evidence that survival of individuals with advanced cognitive impairment who received feeding tubes was not different from those without feeding tubes.

Meier et al. (2001) examined 99 patients with advanced dementia in a hospital setting to assess their survival during a period of feeding tube placement. Results suggested that the median survival of patients who received tube feeding (195 days) was not different from those who did not receive tube feeding (189 days).

Subject Selection

Patients with advanced cognitive impairment in a tertiary care hospital in New York City comprised the study population. Advanced dementia was defined by the Functional Assessment Staging Tool (FAST). Individuals with acute mental declines were excluded so that only subjects with stable neurological deficits were retained.

The authors indicated that the recruitment process might have been skewed, as the New York state law establishes high evidentiary standard for decisions to forego ar

Survival was measured from the time of PEG placement to a maximum of two years. As mentioned previously, definition of survival is important to allow for comparison across different studies.

The PEG procedures applied were not clearly documented. The reader might wonder if these procedures were standardized across patients. Although was employed, it was still unclear what medical procedure was performed. Variations do exist for placement of PEG tubes (Deitel et al., 1988).

According to the study, intra-abdominal abscess occurred in 4.3% of the subjects who received PEG. The authors claimed that the rate was comparable with other reports, but failed to re-analyze the data by excluding this factor, and thus may have led to an inaccurate estimation of survival in this group. It is possible that the researchers treated the complication as a common condition which is normally reflected in the real patient population.

Statistical Analysis

The Kaplan-Meier survival curve and the log rank test were used to compare the median survival between individuals with and without PEG placement. These tests were considered appropriate for survival analyses. However, power analysis was not conducted to determine the adequate sample size to minimize type II errors.

The paper described a retrospective cohort study which showed that median survival for PEG-fed patients (59 days) was not significantly different from those without PEG (60 days). Due to a number of methodological weaknesses, from subject recruitment to procedures, the evidence provided by this report is equivocal.

Conclusion

Based on the studies reviewed, providedtu

favour feeding tube placement (Finucane et al., 2007). Without financial compensations, nursing homes are unlikely to devote more resources to hand-feed their patients (Li, 2002). In fact, residence in a nursing home is associated with an increased risk of feeding tube placement (Meier et al., 2001). Reimbursement schemes should therefore be modified to help discourage the use of enteral nutrition in treating dysphagia in individuals with advanced dementia.

To truly investigate whether tube feeding is an efficacious treatment for dysphagia in individuals with advanced dementia, conducting a prospective randomized control trial would be ideal. However, there are practical limitations in finding closely matched subjects as the control group (Vitale et al., 2006), obtaining informed consent from subjects with severe cognitive impairment (Baskin et al., 1998), ethical considerations in not providing intervention, as well as recruitment difficulties in finding an adequate sample size for complete randomization. Researchers will need to overcome these obstacles if they want to provide compelling evidence regarding the cause-and-effect relationship between tube feeding and aspiration and survival.

Future research can be focused in several areas. For example, researchers can examine the association of aspiration pneumonia and survival with different types of enteral support (e.g., nasogastric tube, PEG, etc.). Investigations can also be directed toward determining which groups of individual (e.g., mild vs. severe dementia) benefit most from artificial nutrition.

References

Baskin, S.A., Morris, J., Ahronheim, J.C., Meier, D.E., and Morrison, R.S. (1998). Barriers to obtaining consent in dementia research: implications for surrogate decision-making. *J Am Geriatr Soc*, 46, 287-290.

Canadian Study of Health and Aging Working Group. (1994). Canadian study of health and aging: study methods and prevalence of dementia. *CMAJ*, 150,

Mitchell, S.L., Teno, J.M., Roy, J., Kabumoto, G., and Mor, V. (2003). Clinical and organizational factors associated with feeding tube use among nursing home residents with advanced cognitive impairment. *JAMA*, 290, 73-80.

Monteleoni, C., and Clark, E. (2004). Using rapid-cycle quality improvement methodology to reduce feeding tubes in patients with advanced dementia: before and after study. *BMJ*, 329, 491-494.

Moore, D.S., and McCabe, G.P. (2003). *Introduction to*