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The Clinical Case Against Tube Feeding in Palliative Care of the Elderly

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The terminal stages of many neurological illnesses occurring in the elderly produce feeding and swallowing problems. These difficulties lead to ethical, religious, philosophical, and medico-legal conflicts when decisions about starting or stopping tube feedings are considered. We present the case against all forms of tube feeding in a particular subset of elderly palliative patients. These are individuals who are in the end-stage of a progressive neurological disease who are noncommunicative, and spend all

or most of their time in a recumbent position. We discuss the physiological phenomena existing in these patients that make the probability of aspiration pneumonia as great or possibly greater than with careful spoon feeding. If tube feeding results in the outcome that it is thought to prevent (ie, aspiration pneumonia) then decisions regarding nutritional support in these patients become clinically clearer. J Am Geriatr Soc 35:1100-1104, 1987

Feeding and swallowing problems are common in the chronically ill elderly. In a study of nursing home patients, Siebens et al¹ found that those who were dependent on others for assistance in feeding showed evidence of abnormal swallowing. Sixty-one percent had oral stage dysfunction and 37% had pharyngeal stage dysfunction. The end stage of many neurological diseases in the elderly almost invariably presents with feeding and swallowing problems. These cause difficulties for caregivers and families as well as for patients. The resultant conflicts have been addressed from the ethical, religious, philosophical, and medico-legal standpoint.²⁻⁷ They have not been considered from the purely clinical point of view.

At first glance, the nutritional problems of the terminally ill elderly with dysphagia appear to be handled most readily by tube feedings of various types.

Recently, the literature has reflected increasing concern about the ethics of decisions to start or to withhold tube feedings in the elderly, palliative patient.⁸⁻¹⁰ If a procedure is known to be unsafe or ineffective, its use is never ethical. We present here our position against tube feedings in a specific subset of elderly, terminally ill patients.

These are patients in whom all of the following criteria coexist. They are individuals who are elderly and are in the terminal stage of a progressive, neurological disease (Table 1). Because of speech and/or language difficulties they are noncommunicative. They spend most or all of the time in a recumbent position. Most importantly, they have been suspected clinically or observed by radiological examination to be aspirating liquids and pureed foods.

Dysphagia associated with a progressive neurological disease is also a progressive phenomenon. In order of difficulty, there is aspiration of liquids, followed by laryngeal penetration of purees, then semisolids, and, finally, choking on solid food.^{11,12}

In progressive neurogenic swallowing disorders, liquids may always be aspirated silently.^{13,14} A swallowing dysfunction is well advanced by the time a patient is unable to tolerate a pureed diet. Aspiration of liquid or semiliquid is one of the most important

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TABLE 1. ELDERLY PATIENTS AT RISK FOR TUBE FEEDING HAZARDS

Those in terminal stage of:
ALS
Alzheimer's disease
Huntington's chorea
Multi-infarct states
Multiple sclerosis
Other dementias
Parkinson's disease
Those who are noncommunicative
Those who are recumbent most of time
Those who have aspirated liquids and pureed foods

factors involved in the decision to begin tube feedings in the patients we have identified.

In the type of patient described above, nutritional support by nasogastric or gastrostomy feedings poses significant hazards, mainly aspiration pneumonia. In 1969, in a study of 100 patients in whom bronchopneumonia was found at autopsy, Mrazek¹⁵ found that 65% showed evidence of aspiration. Sixty-nine percent of the patients had evidence of dysphagia prior to death. Although individual patients were not identified, we can infer from the data cited that most of the dysphagic patients had aspiration pneumonia at time of death. This group included 23 who had been tube fed. These results led Mrazek to characterize "the fallacy of decubitus bronchopneumonia."

In 1975, King et al¹⁶ reported on 31 patients, mostly senile or stroke victims on whom gastrostomies were performed. Of the group, ten died of aspiration pneumonia. Of those, the average age was 70 years and the majority were suffering some form of progressive neurologic disease. In order to account for these results we must examine the physiological events that militate against nasogastric or gastrostomy feedings in certain patients.

PROBLEMS ASSOCIATED WITH TUBE FEEDINGS

Reflux Reflux is a major problem with nasogastric or gastrostomy tubes.^{12,17-19} It is particularly hazardous in patients with absent or diminished cough reflexes. In general, the elderly tend to have diminished sensation, and silent aspiration alluded to above is testament to the poor cough reflex in patients with deglutition disorders.^{13,20} Because gravity assists the return of reflux to the pharynx, a supine patient with an absent or diminished cough reflex is at increased risk of aspiration.

Diminished Esophageal Peristalsis The risk of reflux with tube feedings is increased in elderly, palliative patients because, although they are difficult to feed by mouth, most continue to attempt to swallow

their own saliva. When a swallow is initiated, the lower esophageal sphincter relaxes.²¹ In the normal adult, the lowest pressure at the hiatus remains slightly above intragastric pressure, thus preventing reflux of stomach contents. In the elderly, however, the pressure generated by esophageal peristalsis is diminished.²³ Any relaxation of the lower esophageal sphincter increases the probability of food entering the esophagus. In the normal, young adult, during sleep with a full stomach, reflux may occur as many as 20 times in 12 hours.²¹ Therefore, we may infer that this happens at least as often in the ill elderly.

Incompetent Esophageal Sphincters The upper esophageal sphincter is a high-pressure zone, but these pressures, when measured in healthy elderly, tend to be lower than in young adults.²¹ Electromyographic studies have shown that the elastic forces contributing to closure of the cricopharyngeus diminish during sleep or anaesthesia.^{24,25} Huxley et al²⁹ found that 70% of patients with depressed consciousness aspirated pharyngeal secretions. Tubes passing through upper and lower esophageal sphincters contribute to at least partial incompetence at these sites.²⁵

Slow Gastric Emptying The ill elderly have been shown frequently to have ileus or gastric dilatation, or both, making reflux and aspiration more likely.¹⁷ If gastric emptying is not normal, the contents of tube feeding will collect in the stomach. The patients under discussion here are noncommunicative; therefore, they cannot report over-filling of the stomach.

Problems with Delivery of Nutrition Tube feeding does not always satisfy the hydration, metabolic, or caloric needs of patients. Particularly in the elderly (with altered renal handling of sodium) intracellular dehydration can occur with metabolic consequences such as hypernatremia, hyperchloremia, and uremia.^{32,36} These can only be recognized by careful physical examination and determination of routine electrolytes. The assumption that tube feeding meets the full nutritional needs of the elderly is not well founded. Elderly patients in long-term care institu-

TABLE 2. HAZARDOUS FACTORS IN TUBE FEEDING OF PALLIATIVE ELDERLY

Recumbency and noncommunication
Reduced oral/hypopharyngeal sensation
Dysphagia with known aspiration
Reduced competence of upper and lower esophageal sphincters
Reduced esophageal peristalsis
Delayed gastric emptying
Reflux exacerbated by supine position
All of above lead to aspiration of stomach contents.

tions are infrequently seen by physicians; thus the careful monitoring required is unlikely to be provided.²²

The patients we have identified have reduced caloric needs. We suggest that they be spoon-fed frequent small meals of high-calorie, high-protein food supplement puddings. This may interfere with nursing routines, but not necessarily with the total time spent feeding patients.

We recognize that shortages of nursing staff make some aspects of patient care difficult, but problems of staffing do not affect the principle under discussion and cannot ever be sufficient reason to follow an unsafe procedure. We also recognize that tube feeding in the patients we have identified has not yet been proven to be unsafe, but the available evidence appears to point in that direction. Therefore, we must separate difficulties within the system (inadequate staffing) from the principle of safe patient care.

DIFFICULTIES WITH SUGGESTED SOLUTIONS

Small Lumen Feeding Tubes It has been suggested that the use of the newer, small-bore feeding tubes would prevent many of the problems of nasogastric tube feedings, such as mucosal irritation and general discomfort. Unfortunately, there is no evidence that they prevent reflux, and it is also difficult to check stomach contents by aspiration because these tubes tend to collapse under negative pressure.²⁶ There is growing evidence that they represent even greater hazards. When used in patients with reduced tracheobronchial sensation (as is frequently the case with the elderly) there is a very high risk of nasotracheal intubation.^{27,28} Verification of placement by radiography is mandatory in all such cases. This is not always feasible for elderly, palliative patients. Access to radiology may not be available for many nursing homes, and the frequency with which these tubes are removed by confused, elderly patients makes the protocol for replacement extremely difficult to follow.

Jejunostomy Jejunostomy has a lower incidence of reflux, but because it represents a greater surgical risk than gastrostomy, it is not readily performed on elderly, debilitated patients. Even the needle catheter technique poses a threat because of the anaesthesia required.³³ Problems of diarrhea and associated dehydration are increased. Jejunostomy is usually recommended only for patients with intact renal, hepatic, biliary, and pancreatic functions.³⁴ These are less likely to exist in the set of patients under discussion.

Other problems cited with jejunostomy are abdominal distension and aspiration.³¹ A prospective study comparing gastrostomy with jejunal feedings showed

a longer time to reach full caloric intake with the latter as well as a high rate of initial complications.³⁵

Antireflux Regimen Raising the head of the bed to prevent reflux is usually ineffective because these patients tend to slide down repeatedly or assume a fetal position. This difficulty is the same for nasogastric or gastrostomy tubes, which are known to have a high incidence of reflux. Making sure that the nasogastric tube passes through the pylorus will reduce the risk of reflux, but the end of the tube is easily pushed back into the stomach by coughing or vomiting.³²

SUMMARY AND CONCLUSIONS

When considering tube feedings for elderly, palliative patients, the end result of the intervention must determine the decision to implement it. If the object of the treatment is to provide nutrition safely, the probability is that in the use of tube feedings in the type of patient we have described here, the risk of aspiration pneumonia may be as great as in careful spoon feeding. In fact, the risk may be even greater. When such a patient is spoon-fed in an appropriate (ie, a 60° upright) position, the food and liquid must, of necessity, be given in small amounts. The upright position with the neck flexed as much as possible, provides some protection against aspiration because this position brings the opening of the trachea under the base of the tongue.^{11,12}

Our experience with tube feedings is limited because we have developed a departmental approach to palliative care for the dying older person.^{29,30} This approach emphasizes exemplary symptom control while accepting the inevitability of death from terminal disease. With the full support of patients and their families, the use of tube feedings has been minimized. In the past 3 years, we have had only three patients, considered palliative, who were tube-fed: two by gastrostomy and one by nasogastric tube. All came to autopsy and all had aspiration bronchopneumonia at death.

Pneumonia is a leading cause of death in the elderly.³⁶ In order to scientifically examine the question of the incidence of aspiration pneumonia in the tube-fed elderly, one would normally instigate a prospective study. However, because of our conviction about the hazards of tube feeding in the palliative elderly, we have chosen not to follow this method. Although we avoid tube feedings in terminally ill patients as much as possible, we do have a number who are tube-fed because of progressive dysphagia and are not yet in the final stages of illness. We continue to observe these individuals and intend to obtain autopsies.

There are two possible sources of valuable information on this question. One is the approach we have selected: of closely observing tube-fed patients who

fit the criteria we have outlined and of obtaining autopsies. For one center to follow such patients would require a considerable amount of time. What is required is the gathering of these data from as many sources as possible. The second method is that, in those centers where tube feeding of palliative patients is normal practice, autopsies be obtained routinely.

We have outlined the physiological and pathological events in the terminally ill elderly that seriously complicate the use of tube feedings. We contend that these interventions are just as likely to cause the problems that they are thought to prevent. If this is indeed the case, it would seem to obviate the need for extensive philosophical-ethical discussion.

REFERENCES

1. Siebens H, Trupe E, Siebens A, et al: Correlates and consequences of eating dependency in institutionalized elderly. *J Am Geriatr Soc* 34:192-198, 1986
2. Watts DT, Cassel CK: Extraordinary nutritional support: A case study and ethical analysis. *J Am Geriatr Soc* 32:237-242, 1984
3. Bexell A, Norberg A, Norberg B: Ethical conflicts in long-term care of aged patients, in *Ethics in Science and Medicine*; 7:141-145, 1980
4. Lo B, Dombrand L: Guiding the hand that feeds: Caring for the demented elderly. *N Engl J Med* 311:402-404, 1984
5. Norberg A, Norberg B, Gippert H, et al: Ethical conflicts in long-term care of the aged: Nutrition problems and the patient-care worker relationship. *Br Med J* 281:377-378, 1980
6. Norberg A, Norberg B, Bexell A: Ethical problems in feeding patients with advanced dementia. *Br Med J* 281:847-848, 1980
7. Miles SH: The terminally ill elderly: Dealing with the ethics of feeding. *Geriatrics* 40:112-120, 1985
8. Nevins MA: Analysis of the Supreme Court of New Jersey's decision in the Claire Conroy case. *J Am Geriatr Soc* 34:140-143, 1986
9. Lynn J: Brief and appendix for *amicus curiae*: The American Geriatrics Society. *J Am Geriatr Soc* 32:915, 1984
10. Dresser R: When patients resist feeding: Medical, ethical, and legal considerations. *J Am Geriatr Soc* 33:790, 1985
11. Logemann J: *Evaluation and Treatment of Swallowing Disorders*. San Diego, College-Hill Press, 1983
12. Groher M: *Dysphagia: Diagnosis and Management*. Butterworth Publishers, 1984
13. Linden P, Siebens AA: Dysphagia: Predicting laryngeal penetration. *Arch Phys Med Rehabil* 64:281-284, 1983
14. Robbins JA, Logemann J, Kirshner HS: Swallowing and speech production in Parkinson's disease. *Ann Neurol* 19:285-288, 1986
15. Mrazek SA: Bronchopneumonia in terminally ill patients. *J Am Geriatr Soc* 17:969-973, 1969
16. King TC, Ramos AG, Zimmerman JM: The feeding gastrostomy, friend or foe? *Am J Surg* 109:450-452, 1965
17. Cameron JL, Zuidema GD: Aspiration pneumonia. Magnitude and frequency of the problem. *JAMA* 219:1194, 1972
18. Wasiljew BK, Ujiki GT, Beal JM: Feeding gastrostomy: Complications and mortality. *Am J Surg* 143:194-195, 1982
19. Randall HT: Enteral nutrition: Tube feeding in acute and chronic illness. *J Parent Enter Nutrition* 3:113, 1980
20. Dauverchain J, Mandin A, Vincent P, et al: Les bronchopneumopathies de deglutition chez les sujets ages. *Lyon Mediteranee Med* 13:555-556, 1977
21. Fyke FE, Code CF, Schlegel JF: The gastroesophageal sphincter in healthy human beings. *Gastroenterologia* 86:135-150, 1956
23. Hellemans J, Pelemans W, Vantrappen G: Pharyngoesophageal swallowing disorders and the pharyngoesophageal sphincter. *Med Clin North Am* 65(6):1149-1171, 1981
24. Hellemans J, Vantrappen G: Electromyography of the esophagus, in Vantrappen G, Hellemans J (eds): *Diseases of the Esophagus*. New York, Springer-Verlag, 1974, pp 270-285
25. Asol R, Goyal HK: Manometry and electromyography of the upper esophageal sphincter. *Gastroenterology* 74:514-520, 1978
26. Cataldi-Betcher EL, Seltzer MH, Slocum BA, et al: Complications occurring during enteral nutritional support: A prospective study. *Parenteral Enteral Nutrition* 7:546-552, 1983
27. Schlorlemmer GR, Battagliani JW: An unusual complication of naso-enteral feeding with small diameter feeding tubes. *Ann Surg* 199:104-106, 1983
28. Hand RW, Kempster M, Levy JH, et al: Inadvertent transbronchial insertion of narrow-bore feeding tubes into the pleural space. *JAMA* 251:2396-2397, 1984
29. Huxley EJ, Viroslav J, Gray WR, et al: Pharyngeal aspiration in normal adults and patients with depressed consciousness. *Am J Med* 64:564-568, 1978
30. Shedletsky R, Fisher R, Nadon G: Assessment of palliative care for dying hospitalized elderly. *Can J Aging*, 1:11-15, 1981
31. Fisher R, Nadon G, Shedletsky R: Management of the dying elderly patient. *J Am Geriatr Soc* 31:563-564, 1983
32. Rombeau JL, Barot LR: Enteral nutritional therapy. *Surg Clin North Am* 61:605-620, 1981
33. Delaney HM, Carnevale NJ, Garvey JW: Jejunostomy by a needle catheter technique. *Surgery* 73:786-790, 1983
34. Delaney HM, Carnevale N, Garvey JW, et al: Post-operative nutritional support using needle catheter feeding jejunostomy. *Ann Surg* 186:165-170, 1977
35. Regan JA, Abel RM, Abbott WM, et al: Catheter complications in total parenteral nutrition. A prospective study. *N Engl J Med* 290:757-765, 1974

36. Telfer N, Persoff M. The effect of tube feeding on the hydration of elderly persons. *Gerontology* 20:536-540, 1966
37. Curran WJ: Defining appropriate medical care: Providing nutrients and hydration for the dying. *N Engl J Med*, 313:940-942, 1985
38. The Senate Special Committee on Aging: Failure in public policy: Supporting Paper #3—Doctors and nursing homes: The shunned responsibility. Washington, DC, Government Printing Office, 1975
39. Levin DL, Devesa SS, Godwin JD, et al: Cancer rates and risks, ed 2. US Department of Health, Education and Welfare, Public Health Service Publication 75-691. US Government Printing Office, 1974, p 3