

Percutaneous Endoscopic Gastrostomy Does Not Prolong Survival in Patients With Dementia

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Background: Artificial feeding by a percutaneous endoscopic gastrostomy (PEG) tube in patients with dementia has increased since the introduction of the endoscopic method of tube placement. Few studies have documented survival benefit from this intervention. This report reviews our experience with PEG tube placement for feeding patients with dementia.

Methods: All consultations for PEG tube placement were evaluated by a certified nutrition support nurse (L.M.M.) in consultation with a member of the gastroenterology physician staff (T.O.L.) for 24 months. Evaluation included the attainment of a brief medical history, a physical examination, and a review of comorbid conditions, laboratory variables for nutrition status, and bleeding risk. Interviews with patients or surrogates were conducted, including an explanation of the risks and benefits of PEG tube placement. A Kaplan-Meier survival curve was used

to compare the median survival between patients with dementia who received a PEG tube and patients with dementia in whom PEG tube placement was refused.

Results: We received 41 consultations for PEG tube placement in patients with dementia. Percutaneous endoscopic gastrostomy was performed in 23 patients; 18 patients met the medical criteria for PEG tube placement, but surrogates refused placement. The median survival for the 23 patients who underwent PEG was 59 days; the median survival for the 18 patients who did not undergo PEG was 60 days.

Conclusion: There seems to be no survival benefit in patients with dementia who receive artificial feeding by a PEG tube.

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PERCUTANEOUS endoscopic gastrostomy (PEG) is used widely for gastrointestinal tract access to provide artificial feeding. A retrospective cohort study¹ of 81 105 Medicare beneficiaries revealed an in-hospital mortality of 15.3% for all those who underwent gastrostomy. A similar Department of Veterans Affairs study² reported an in-hospital mortality of 23.5% in 7369 patients with PEG tubes. Percutaneous endoscopic gastrostomy tube placement frequently is requested to address problems of advanced dementia. These patients present with difficulty eating or swallowing, decreased consciousness, and weight loss.³ Despite lack of evidence to support the use of artificial nutrition by tube in patients with severe dementia,⁴ it is assumed that the alternative—no artificial feeding—is worse. Three studies have attempted to compare outcome in similar patients with and without gastric artificial feeding. One of these reports⁵ found a modest prolongation of life in nursing home patients with swallowing disorders who received a feeding tube compared with similar patients not

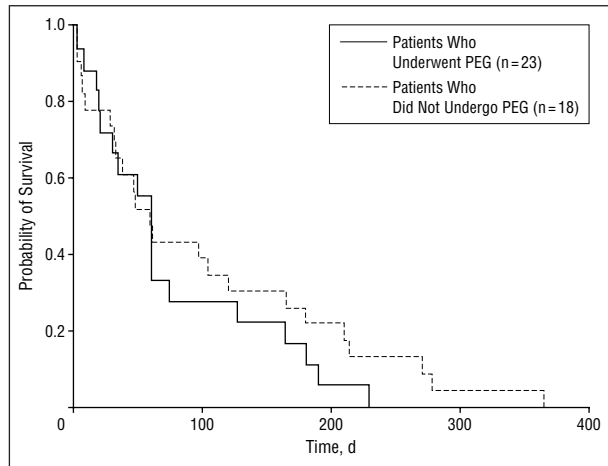
receiving a feeding tube. Conversely, a similar study⁶ found a worse outcome in nursing home patients who received a feeding tube compared with those who did not. A third study⁷ found no difference in survival. Because the patients in the previously mentioned studies were considered similar only because of similar findings on a Health Care Financing Administration–required minimum data set form, it is not clear whether any study was truly comparing equivalent patients.

To determine whether gastric feeding provided by a PEG tube prolongs life in patients with dementia, we retrospectively reviewed a 2-year experience in comparable patients with dementia who either underwent or did not undergo PEG.

METHODS

Since 1997, all consultations for PEG tube placement have been evaluated by a certified nutrition support nurse (L.M.M.) under the supervision of a member of the gastroenterology attending staff (T.O.L.). Evaluation includes the attainment of a brief medical history, a physical examination, and a review of comorbid conditions, nutrition-associated labo-

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Kaplan-Meier survival curve comparing the group that underwent percutaneous endoscopic gastrostomy (PEG) with the group that did not undergo PEG. Based on the log-rank statistic ($P=.37$, $df=1$), the findings were not statistically significant.

ratory variables, and bleeding risk. Interviews with patients and/or their surrogates are conducted, consisting of a review of the risks and benefits of PEG and the risks of conscious sedation. Preprocedure and postprocedure care has been standardized based on the best practices found in a literature review. The procedure (PEG) is performed by gastroenterology fellows under the supervision of a gastroenterology staff physician.

We conducted a 2-year retrospective medical record review of the survival of veteran patients with dementia referred to us for PEG. Survival was charted from the time of PEG to a maximum of 2 years. Our electronic medical records enabled us to observe patients in various settings, even after discharge from the medical center. A Kaplan-Meier survival curve was used to compare the median survival between patients with dementia who underwent PEG and patients with dementia who did not undergo PEG. The local institutional review board approved the review of patient records and outcome.

RESULTS

We received 41 requests for PEG in patients with dementia. All patients met our criteria for PEG: advanced dementia had been documented in the medical record, the patient had documentation of dysphagia, life expectancy was considered to be at least 30 days, there was no contraindication to conscious sedation, and there was no other disease contributing to dysphagia. Percutaneous endoscopic gastrostomy tubes were placed in only 23 of these patients with dementia. The other 18 similar patients with dementia did not undergo PEG because the procedure violated advance directives or the appropriate surrogate refused on the patient's behalf.

The median survival for the 23 patients with dementia who underwent PEG was 59 days (range, 2-365 days). The median survival for the 18 patients with dementia who did not undergo PEG was 60 days (range, 2-229 days). There was no statistically significant difference in survival between the groups ($P=.37$, $df=1$) using the Kaplan-Meier survival curve (**Figure**).

There was one major complication in the group that underwent PEG—an intra-abdominal abscess, resulting in sepsis and death, making our complication rate 4.3%.

Our findings support the hypothesis that there is no survival benefit to the placement of a PEG tube for artificial feeding in patients with advanced dementia. All patients would have been candidates for PEG tube placement, but the procedure was refused in 18 (44%). Thus, in a similar cohort of patients, PEG or no PEG did not enhance survival.

Our complication rate of 4.3% in those who underwent PEG does not differ from those in other literature reports.⁸⁻¹⁰

More reports¹¹⁻¹³ question the utility of PEG tube placement in patients with dementia; the 1-month mortality is as high as 54%. Little benefit from PEG has been established for any variable studied—aspiration pneumonia, nutrition status, pressure sores, functional status, patient comfort, or survival.¹⁴⁻¹⁶

Nevertheless, despite a bleak prognosis for survival in patients with advanced dementia undergoing PEG, the alternative—no feeding—would seem worse. Surrogate decision makers are often presented with a bleak choice—agree to PEG or “let your loved one starve to death.” Ideally, to determine whether PEG-based artificial feeding enhances survival, a prospective, controlled, randomized study would have to be performed. However, such a study would be questioned ethically, and it is highly unlikely that a sufficient number of volunteers would agree to be randomized to PEG or no PEG tube insertion. We are then left with trying to ascertain benefit using indirect means. Three studies³⁻⁷ evaluating information from Health Care Financing Administration—required data in nursing homes have come to disparate conclusions—artificial nutrition by tube enhances, worsens, or does not alter survival in nursing home residents with chewing and swallowing disorders. However, in all of these studies, it is not clear that the nursing home residents studied had dementia or even underwent PEG for tube feeding. Furthermore, it is quite plausible that the groups were not comparable, with sicker patients receiving feeding tubes. If sicker patients receive feeding tubes, then it is not possible to determine whether feeding tube or PEG tube placement enhance survival. Meier et al¹³ determined that the median survival in a cohort of patients examined for palliative care and undergoing PEG tube placement during a short-term hospitalization did not differ from patients in the same cohort who left the hospital without undergoing PEG (median survival, 195 vs 189 days; $P=.90$). However, it is not clear from the data why patients did or did not undergo PEG tube placement.

The evidence against PEG tube placement for artificial feeding in patients with dementia is substantial. Hospice literature suggests that avoiding artificial nutrition and allowing the patient to consume food and fluids ad lib may enhance comfort. We need to separate the need for the nurturing aspect of food from the provision of artificial nutrition.¹⁷ The provision of artificial nutrition may lead to an increase in urine and fecal incontinence and increased pulmonary secretions. Incontinence has been associated with an increased risk of pressure ulcers. The

patient with dementia may need physical or chemical restraint to avoid self-extubation. The act of patient restraint also has been identified as a risk factor for pressure ulcers. Furthermore, physical restraint may be seen as a violation of the patient's right to dignity.

The limitations of our study include the small sample size, the lack of a prospective randomized approach, an all-male sample, and the inability to generalize the results to all patients with dementia. In addition, we do not have clinical information for the 2 groups of patients documenting similarity. However, the patients were similar in that all had advanced dementia, we were requested to place PEG tubes to facilitate hospital discharge, and we would have placed the PEG tube in all patients for whom we were consulted if we had surrogate permission. The difference between the groups was in the refusal of PEG tube placement by the patients (based on advance directives) or their surrogates (based on a careful and thorough explanation of potential risks and benefits).

In summary, in patients with advanced dementia and dysphagia, placement of a PEG tube neither enhances survival nor prevents death by starvation. This does not mean that patients with dementia should not have the right to receive artificial feeding via PEG tube placement. However, this intervention should be undertaken only after full discussion and understanding of the risk and lack of the following benefits: comfort, treatment and prevention of pressure sores, prevention of aspiration, and enhancement of survival.

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REFERENCES

1. Grant MD, Rudberg MA, Brody JA. Gastrostomy placement and mortality among hospitalized Medicare beneficiaries. *JAMA*. 1998;279:1973-1976.
2. Rabeneck L, Wray NP, Petersen NJ. Long-term outcomes of patients receiving percutaneous endoscopic gastrostomy tubes. *J Gen Intern Med*. 1996;11:287-293.
3. Sheiman SL, Pomerantz JD. Tube feeding in dementia: a controversial practice. *J Nutr Health Aging*. 1998;2:184-189.
4. Finucane TE, Christmas C, Travis K. Tube feeding in patients with advanced dementia: a review of the evidence. *JAMA*. 1999;282:1365-1370.
5. Rudberg MA, Egleston BL, Grant MD, Brody JA. Effectiveness of feeding tubes in nursing home residents with swallowing disorders. *JPEN J Parenter Enteral Nutr*. 2000;24:97-102.
6. Mitchell SL, Kiely DK, Lipsitz LA. Does artificial enteral nutrition prolong the survival of institutionalized elders with chewing and swallowing problems? *J Gerontol A Biol Sci Med Sci*. 1998;53:M207-M213.
7. Mitchell SL, Kiely DK, Lipsitz LA. The risk factors and impact on survival of feeding tube placement in nursing home residents with severe cognitive impairment. *Arch Intern Med*. 1997;157:327-332.
8. Nicholson FB, Korman MG, Richardson MA. Percutaneous endoscopic gastrostomy: a review of indications, complications and outcomes. *J Gastroenterol Hepatol*. 2000;15:21-25.
9. Madan AK, Batra AK. Percutaneous endoscopic gastrostomy in the elderly: complications (review). *J Nutr Elder*. 1996;15:39-49.
10. Peck A, Cohen CE, Mulvihill MN. Long-term enteral feeding of aged demented nursing home patients. *J Am Geriatr Soc*. 1990;38:1195-1198.
11. Abuksis G, Mor M, Segal N, et al. Percutaneous endoscopic gastrostomy: high mortality rates in hospitalized patients. *Am J Gastroenterol*. 2000;95:128-132.
12. Sanders DS, Carter MJ, D'Silva J, James G, Bolton RB, Bardhan KD. Survival analysis in percutaneous endoscopic gastrostomy feeding: a worse outcome in patients with dementia. *Am J Gastroenterol*. 2000;95:1472-1475.
13. Meier DE, Ahronheim JC, Morris J, Baskin-Lyons S, Morrison RS. High short-term mortality in hospitalized patients with advanced dementia: lack of benefit of tube feeding. *Arch Intern Med*. 2001;161:594-599.
14. Winter SM. Terminal nutrition: framing the debate for the withdrawal of nutritional support in terminally ill patients. *Am J Med*. 2000;109:723-726.
15. Brody H. Evidence-based medicine, nutritional support, and terminal suffering. *Am J Med*. 2000;109:740-741.
16. Kim YI. To feed or not to feed: tube feeding in patients with advanced dementia. *Nutr Rev*. 2001;59:86-88.
17. Slomka J. What do apple pie and motherhood have to do with feeding tubes and caring for patients? *Arch Intern Med*. 1995;155:1258-1263.

that one limitation of prospective, randomized data is a selection bias in which outcomes are preordained. Thus, the results may very well be valid but are not necessarily generalizable for the population studied.

A subsequent analysis of a subgroup of patients in this trial known to have ischemic heart disease demonstrated an inversion of the survival curves, so that the liberally transfused patient had better survival rates (albeit not statistically significant, since the trial was not powered to detect a difference in this subgroup.)⁵ With the current ease and safety with which anemia can be treated, we would suggest that waiting for data only from prospective, randomized studies before establishing or revising clinical care guidelines may not be in the best interests of all patients, particularly those at risk.

As we hope readers are aware, the ARCHIVES publisher made a serious error in changing Goodnough from first to second author in our commentary published in the June 23 issue⁶; the ARCHIVES has published a cor-

rection, and we also note this correction in this exchange of letters.

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1. Consensus Conference. Perioperative red cell transfusion. *JAMA*. 1988;260:2700-2703.
2. Practice guidelines for blood component therapy: a report by the American Society of Anesthesiologists Task Force on Blood Component Therapy. *Anesthesiology*. 1996;84:732-747.
3. Lenfant C. Transfusion practices should be audited for both undertransfusion and overtransfusion [letter]. *Transfusion*. 1992;32:873-874.
4. Carson JL, Duff A, Berlin JA, et al. Perioperative blood transfusion and postoperative mortality. *JAMA*. 1998;279:199-205.
5. Hebert PC, Yetisir E, Martin C, et al. Is a low transfusion threshold safe in critically ill patients with cardiovascular disease? *Crit Care Med*. 2001;29:227-234.
6. Nissenson AR, Goodnough LT, Dubois RW. Anemia: not just an innocent bystander [published correction appears in *Arch Intern Med*. 2003;163:1820]. *Arch Intern Med*. 2003;163:1400-1404.

Correction

Error in Figure. In the Original Investigation by Murphy and Lipman titled "Percutaneous Endoscopic Gastrostomy Does Not Prolong Survival in Patients With Dementia," published in the June 9 issue of the ARCHIVES (2003; 163:1351-1353), an error occurred in the Figure on page 1352. In that figure, the lines in the figure key were reversed. The patients who underwent percutaneous endoscopic gastrostomy (PEG) (n=23) should have been indicated by the dashed line, and the patients who did not undergo PEG (n=18) should have been indicated by the solid line. The journal regrets the error.