Ethical Aspects of Percutaneous Endoscopic Gastrostomy Insertion*

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Key words: ethics, percutaneous endoscopic gastrostomy

IMAJ 2003;5:212–213

Gauderer et al. [1], in 1980, were the first to describe percutaneous endoscopic gastrostomy. Since then this procedure has become a popular technique for long-term enteral nutrition. Ethical and medical issues concerning indications for PEG recently arose in the medical community [2].

Patients and doctors have high expectations from PEG: it should improve quality of life, shorten hospitalization, prevent aspiration, improve nutritional and functional status, overcome infection with a better immune response, and increase survival. The main indications for PEG insertion mentioned in the literature are: dysphagia due to reversible disease, incurable disease with survival potential, terminally debilitated patients, loss of ability to eat, primary neurologic disorder, severe upper gastrointestinal motility disorders, childhood growth failure, and gastric decompression [3]. However, the procedure of PEG insertion is not without complication [4]. The main side effects are hemorrhage, gastrocolic fistula, migration of the catheter, necrotizing fasciitis, peritonitis after perforation, respiratory complications, delayed serious wound infection, and aspiration pneumonia [4]. These complications should be borne in mind when considering PEG insertion.

Poor prognostic indicators for survival after PEG have been reported in many studies, such as age older than 75, male gender, underlying severe disease, diabetes mellitus, lower body mass index, advanced malignancy, urinary tract infection, previous aspiration, serum albumin of less than 3 g/dl, and hospitalization in a general medical center [5].

For ethical considerations regarding PEG insertion three main questions must be addressed: what is its purpose, for whom, and when in the natural history of the patient's illness should it be used?

- **For what purpose should PEG be inserted?**

In a prospective, randomized, controlled trial, Norton et al. [6] demonstrated a significantly lower mortality in patients fed by PEG than in patients fed via a nasogastric tube after acute stroke. Allison and colleagues [7], based on three cases of improvement in functional and nutritional status, recommend PEG insertion within 4–6 months after acute stroke. Improvement and even regaining the ability to swallow were described in 25% of acute stroke patients [8]. PEG has an important role in the palliation of symptoms and improvement of life quality and also affects survival in motor neuron disease such as amyotrophic lateral sclerosis [8]. Israel et al. [9] used either nasogastric tube or PEG in 20 children with Crohn's disease and growth failure; 16 of them received PEG without major complications, and all achieved normal growth rates. PEG may be inserted in patients with head and neck cancer for improving quality of life, with no influence on survival [10]. PEG should not be inserted in other cases of cancer when the prognosis is grave, since mortality in these patients is very high and there is no improvement in survival or quality of life [11]. Sixty-eight patients in a series of 191 patients with PEG had cancer; their 30 day mortality was 21%, 33% died after 60 days, and 60% after 6 months [4]. PEG is indicated for gastric decompression in gastrointestinal obstruction due to cancer, especially cancer of the female reproductive system [12,13]. PEG does not prevent aspiration or aspiration pneumonia [14–16]. Moreover, a history of aspiration is a grave prognostic factor after PEG insertion [17]. Aspiration and urinary tract infection were found to be additive poor prognostic factors with a high mortality rate in the first week and a total mortality rate of up to 48%.

- **For whom?**

The most frequent indication is refusal to eat in the demented patient. Of all the indications, this has never been justified! There are no direct data to support PEG insertion in dementia, nor is there evidence for nutritional and functional improvement in demented patients [8,14,18]. A comprehensive program of hand-feeding remains the proper treatment. Except for one prospective cohort study in 76 patients who showed nutritional improvement [19], no investigation has demonstrated any advantage of PEG in demented patients. Weight, body mass index, and muscle mass did not increase significantly [20–22] and functional status did not improve [8,14,20].

In the famous case of Tony Bland, the court (United Kingdom House of Lords) ruled that since Bland was in a persistent vegetative state and was not expected to recover, the PEG treatment was of no benefit to him and the medical team had no obligation to continue the treatment [23]. Furthermore, since he no longer had any interest in living, having no higher cognitive function, it was not in his interest to have his life prolonged. A senile patient has no

* Presented at the Annual Meeting of the Israel Gastroenterology Association, Dead Sea, December 2002.

PEG = percutaneous endoscopic gastrostomy

autonomy. He is incapable of making decisions and has lost his self-determination. Thus, his situation is similar to a persistent vegetative state. In another case the court decided that sustaining therapy could be withdrawn if it was in the best interest of any incompetent patient [24]. Pain and suffering from continued living outweigh the benefits of prolonging life with artificial nutrition of this elderly, severely demented woman, who was fed via PEG. Rabeneck et al. [2] were the first to categorically oppose PEG in patients with anorexia, cachexia, or in a vegetative state. They stated that physicians should offer and recommend PEG only for patients who have dysphagia without any other deficit in quality of life. Sanders et al. [25,26] demonstrated a high mortality rate among demented patients after PEG insertion, as compared to any other indication. They unequivocally rejected PEG insertion in this particular patient group.

- **When in the natural history of the patient's illness should PEG be used?**

As the 30 day mortality after PEG insertion is very high for patients hospitalized in a general medical center, a cooling-off period of 30–60 days should be planned from PEG request until actual insertion, to prevent early mortality [22,27,28]. We demonstrated 30 day mortality of 60%, and a significant reduction in mortality in patients who underwent PEG after a waiting period of 30 days [28].

Thus, we recommend inserting PEG for the following indications:

- Head and neck cancer
- Acute stroke
- Neurogenic and muscle dystrophy syndrome
- Growth failure in children
- Gastric decompression

We do not offer PEG for the following indications:

- Dementia with poor cognitive ability or persistent vegetative state
- Aspiration (aspiration pneumonia)
- Cancer with a short life expectancy
- For improving nutritional or functional status in demented patients
- For improving nutritional or functional status in cases of cachexia or anorexia

References

1. Gauderer MW, Ponsky JL, Izant RJ. Gastrostomy without laparoscopy: a percutaneous endoscopic technique. *J Pediatr Surg* 1980;15:872–5.
2. Rabeneck L, McCullough LB, Wray NP. Ethically justified, clinically comprehensive guidelines for percutaneous endoscopic gastrostomy tube placement. *Lancet* 1997;349:496–8.
3. Wolfsen HC, Kozarek RA, Ball TJ, Patterson MD, Botoman VA, Ryan JA. Long-term survival in patients undergoing percutaneous endoscopic gastrostomy and jejunostomy. *Am J Gastroenterol* 1990;85:1120–2.
4. Mamel JJ. Percutaneous endoscopic gastrostomy. *Am J Gastroenterol* 1989;84:703–10.
5. Taylor CA, Larson DE, Ballard DJ, et al. Predictors of outcome after percutaneous endoscopic gastrostomy: a community based study. *Mayo Clin Proc* 1992;67:1042–9.
6. Norton B, Homer-Ward M, Donnelly MT, Long RG, Holmes GKT. A randomized prospective comparison of percutaneous endoscopic gastrostomy and nasogastric tube feeding after acute dysphagic stroke. *Br Med J* 1996;312:13–16.
7. Allison MC, Morris AJ, Park RHR, Mills PR. Percutaneous endoscopic gastrostomy tube feeding may improve outcome of late rehabilitation following stroke. *J R Soc Med* 1992;85:147–9.
8. Skelly RH. Are we using percutaneous endoscopic gastrostomy appropriately in the elderly? *Curr Opin Clin Nutr Care* 2002;5:35–42.
9. Israel DM, Hassall E. Prolonged use of gastrostomy for enteral hyperalimentation in children with Crohn's disease. *Am J Gastroenterol* 1995;90:1084–8.
10. Sartori S. Cost analysis of long term feeding by PEG in cancer patients in an Italian district. *Support Care Cancer* 1996;4:21–6.
11. Schurnick CA, Tuynman H, Scholten P, et al. Percutaneous endoscopic gastrostomy: complications and suggestions to avoid them. *Eur J Gastroenterol Hepatol* 2001;13:819–23.
12. Marks WH, Perkal MF, Schwartz PE. Percutaneous endoscopic gastrostomy for gastric decompression in metastatic gynecologic malignancies. *Surg Gynecol Obstet* 1993;177:673–6.
13. Campagnutta E, Cannizzaro R. Percutaneous endoscopic gastrostomy (PEG) in palliative treatment of non-operable intestinal obstruction due to gynecologic cancer: a review. *Eur J Gynaecol Oncol* 2000;21:397–402.
14. Finucane TE, Bynum JPW. Use of tube feeding to prevent aspiration pneumonia. *Lancet* 1996;348:1421–4.
15. Finucane TE, Christmas C, Travis K. Tube feeding in patients with advanced dementia. A review of the evidence. *JAMA* 1999;282:1365–70.
16. Patel PH, Thomas E. Risk factors for pneumonia after percutaneous endoscopic gastrostomy. *J Clin Gastroenterol* 1990;12:389–92.
17. Light VL, Slezak FA, Porter JA, Gerson LW, McCord G. Predictive factors for early mortality after percutaneous endoscopic gastrostomy. *Gastrointest Endosc* 1995;42:330–5.
18. Gillick MR. Rethinking the role of tube feeding in patients with advanced dementia. *N Engl J Med* 2000;342:206–10.
19. Panos MZ, Reilly H, Moran A, Reilly T, Wears R, Chesner IM. Percutaneous endoscopic gastrostomy in a general hospital: prospective evaluation of indications, outcome, and randomized comparison of two tube designs. *Gut* 1994;35:1551–6.
20. Kaw M, Seaks G. Long-term follow-up of consequences of percutaneous endoscopic gastrostomy (PEG) tubes in nursing home patients. *Dig Dis Sci* 1994;39:738–40.
21. Amman W, Mischineger HJ, Berger A. Percutaneous endoscopic gastrostomy (PEG): 8 years of clinical experience in 232 patients. *Surg Endosc* 1997;11:741–4.
22. Light VL, Slezak FA, Porter JA. Predictive factors for early mortality after percutaneous endoscopic gastrostomy. *Gastrointest Endosc* 1995;42:330–5. (retrospective 416 patients)
23. NHS Trust v. Bland 1993.
24. Conory v New Jersey Supreme Court (Hodges & Tolle 1994).
25. Sanders DS, Carter MJ, D'Silva J, James G, Bolton RP, Bardhan KD. Survival analysis in percutaneous endoscopic gastrostomy feeding: a worse outcome in patients with dementia. *Am J Gastroenterol* 2000; 95:1472–5.
26. Sanders DS, Carter MJ, D'Silva J, et al. Percutaneous endoscopic gastrostomy: a prospective audit of the impact of guidelines in two district general hospitals in the United Kingdom. *Am J Gastroenterol* 2002;97:2239–45.
27. Abuksis G, Mor M, Segal N, et al. Percutaneous endoscopic gastrostomy: high mortality rates in hospitalized patients. *Am J Gastroenterol* 2000; 95:128–32.
28. Abuksis G, Mor M, Plaut S, Fraser G, Niv Y. Delayed insertion of percutaneous endoscopic gastrostomy: a new approach. Presented at the first European Meeting of Ethics in Gastroenterology, Kos, June 2002.

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