

6.4 Enteral Nutrition (Other): Gastrostomy vs. Nasogastric Feeding

There were no new randomized controlled trials since the 2015 update and hence there are no changes to the following summary of evidence.

Question: Compared to nasogastric feeding, does feeding via a gastrostomy result in improved clinical outcomes in critically ill patients?

Summary of Evidence: There was one level 2 study that compared early enteral feeding via a percutaneous gastrostomy (within 24 hrs of intubation) to nasogastric feeds started within 48 hrs of intubation.

Mortality: There was no significant difference in ICU or hospital mortality between the groups.

Infections: There was a significant reduction in the incidence of ventilator associated pneumonia in the group receiving percutaneous enteral feeding when compared to nasogastric feeds ($p=0.036$) (RR=0.26, 95% CI 0.06,1.09).

LOS, Ventilator days: There were no differences in ICU length of stay or duration of mechanical ventilation between the groups.

Other: One patient in the gastrostomy feeding group developed pneumoperitoneum which resolved without any consequences.

Conclusions:

- 1) Early enteral feeding after intubation via percutaneous gastrostomy has no effect on mortality in critically ill patients.
- 2) Early enteral feeding after intubation via percutaneous gastrostomy is associated with a decrease in ventilator-associated pneumonia in critically ill patients.

Level 1 study: if all of the following are fulfilled: concealed randomization, blinded outcome adjudication and an intention to treat analysis.

Level 2 study: If any one of the above characteristics are unfulfilled

Table 1. Randomized studies comparing Gastrostomy vs. Nasogastric feeding

Study	Population	Methods (score)	Intervention	Mortality # (%)		Infections # (%)		Other	
				Experimental	Control	Experimental	Control	Experimental	Control
1) Kostadima 2005	Mechanically ventilated for stroke or head injury patients with GCS < 6 N = 41	C.Random: no ITT: yes Blinding: no (8)	Percutaneous gastrostomy feeds (PEG) within 24 hrs of intubation vs. nasogastric feeds 48 hrs after intubation. Both groups received continuous feeds at 60-80 ml/hr	ICU 4/20 (20)	ICU 6/21 (29)	Pneumonia 2/20 (10)	Pneumonia 8/21 (38)	ICU LOS 38.5 ± 14.2	38.5 ± 13.4 Ventilation 37.3 ± 13.7

GCS: Glasgow coma score
LOS: length of stay

ICU: intensive care unit

C. Random: concealed randomization

ITT: intent to treat

Table 2. Excluded Articles

#	Reason excluded	Citation
1	Can't get clinical outcomes data	McClave SA, Lukan JK, Stefater JA, Lowen CC, Looney SW, Matheson PJ, Gleeson K, Spain DA. Poor validity of residual volumes as a marker for risk of aspiration in critically ill patients. Crit Care Med. 2005 Feb;33(2):324-30.
2	Excluded as comparing two methods of PEG placement	Horiuchi A, Nakayama Y, Tanaka N, Fujii H, Kajiyama M. Prospective randomized trial comparing the direct method using a 24 Fr bumper-button-type device with the pull method for percutaneous endoscopic gastrostomy. Endoscopy. 2008 Sep;40(9):722-6. Epub 2008 Sep 4. PubMed PMID: 18773341.
3	Head and neck cancer patients	Corry J, Poon W, McPhee N, Milner AD, Cruickshank D, Porceddu SV, Rischin D, Peters LJ. Randomized study of percutaneous endoscopic gastrostomy versus nasogastric tubes for enteral feeding in head and neck cancer patients treated with (chemo)radiation. J Med Imaging Radiat Oncol. 2008 Oct;52(5):503-10. PubMed PMID: 19032398.
4	Not an RCT	Patel RP, Canada TW, Nates JL. Bleeding Associated With Feeding Tube Placement in Critically Ill Oncology Patients With Thrombocytopenia. Nutr Clin Pract. 2016 Feb;31(1):111-5.
5	"Self controlled trial" where patients are not randomized	Zhou F, Gao YL, Liu ZJ, Hu YQ. Therapeutic efficacy of nutritional support by percutaneous endoscopic gastrostomy in critically ill patients: A self-control clinical trial. Pak J Med Sci. 2017 Jan-Feb;33(1):75-80.