PALLIATIVE CARE NETWORK OF WISCONSIN

FAST FACTS AND CONCEPTS # 318
PROPHYLACTIC FEEDING TUBES IN HEAD AND NECK CANCERS

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Clinical Background Patients with head and neck cancer are at risk for reduced oral intake resulting from swallowing difficulties caused by their cancer treatment or obstructive tumors (1,2). International guidelines recommend feeding tube placement for these patients when such swallowing difficulties lead to malnutrition or hunger (3). This indication for feeding tube placement is distinct from feeding tube placement for anorexia and cachexia from progressive cancer, which has been generally discouraged by most experts and clinical guidelines (4) -- see *Fast Fact* #10. Many clinicians now recommend prophylactic feeding tube placement, or feeding tube placement prior to the onset of cancer treatment or the onset of swallowing difficulties, in the hopes of preventing malnutrition especially among head and neck cancer patients with curative goals of care (5).

Unfortunately, there is a paucity of robust clinical trials comparing the use of prophylactic feeding tube placement in head and neck cancer versus a "watch and wait" approach in which feeding tube placement is considered only when swallowing difficulties and/or malnutrition arise. Therefore, patient values and clinician preference may end up being stronger factors in clinical decision-making than the current body of medical evidence. As such, palliative care clinicians may get involved in this clinical-decision making process to foster optimal patient centered care. This *Fast Fact* will review some of the benefits and burdens of prophylactic feeding tube placement in head and neck cancer patients.

Head and Neck Cancer Patients Who May Need Feeding Tubes A single-institution retrospective review suggested that the following factors may be independently associated with the eventual need for feeding tube placement in head and neck cancer patients (6):

- Body mass index < 25 (at baseline)
- A tumor T classification (which relates to the original size and/or location of the primary tumor) ≥ 3
- A cumulative cisplatin dose of 200 mg/m^2

Potential Risks of Feeding Tube Placement in Head and Neck Cancer

- *Procedure-related morbidity*: A retrospective review of percutaneous endoscopy gastrostomy (PEG) tube placement in head and neck cancer (included both prophylactic feeding tube placement and other) showed a procedure-related morbidity rate of 7.4% (7). Post-procedure complications include tube dislodgement and cellulitis.
- *Hospitalizations*: The hospitalization rate for PEG-related complications in that review was 7.8% (7).
- *Dysphagia leading to gastrostomy tube dependence*: PEG feeding is associated with paryngo-esophageal and upper esophageal stricture attributable to muscle disuse and atrophy from reduced swallowing. While, there is a clinical concern prophylactic PEG feedings can increase the risk for long term dysphagia, a prospective study of head and neck cancer patients receiving prophylactic PEG tubes showed that 86% were able to have the PEG tubes removed within 1 year (8).
- *Metastasis:* Although rare, metastasis of primary tumor to the gastrostomy site has been reported (9).

Comparative Evidence Although the comparative evidence is not robust, retrospective and prospective studies have compared prophylactic versus as needed feeding tube placement in head and neck cancer patients receiving chemoradiotherapy.

- *Nutritional outcomes*: One clinical trial showed modest improvement in malnutrition in the prophylactic group (10). Among other lower quality studies, no consistent difference in BMI at 6 months post-treatment or amount of weight loss during and at the end of treatment have been identified (11-17).
- *Unplanned interruptions of chemoradiotherapy:* Only one of five studies found that prophylactic feeding tube placement prevented unplanned interruptions of chemotherapy or radiotherapy (11-15).
- *Disease-free survival*: appears to be similar in both approaches (10, 13-17).
- *Quality of life*: Feeding tubes can be associated with psychological suffering from interference with family life, intimate relationships, and social activities (18). However, two non-blinded, prospective,

randomized trials suggested that, following an initial decline, prophylactic gastrostomy placement *may* improve quality of life at 6 months for patients with unresectable squamous cell cancers treated with radiation and chemotherapy (10,14).

Recommendations To best assist head and neck cancer patients with this challenging clinical dilemma, clinicians should first identify the intent of therapy and prognosis. In cases in which it is clear that the patient is experiencing refractory cachexia from an untreatable terminal cancer, feeding tube placement should be avoided. In other cases, clinicians may wish to frame the issue around trade-offs – "*What are the trade-offs you are and are not willing to make at this point in your medical care?"* For patients who prioritize the pleasure from oral feeding or would find the potential interruptions to their family or social life from tube feeding placement (e.g. PEG-related hospitalizations) particularly objectionable, a "watch and wait" approach should be supported by treating clinicians. In other patients who prioritize maximizing nutritional status as they undergo an often grueling cancer treatment, prophylactic feeding tube placement may be prudent, especially if know risk factors are present.

References

1. Wiggenraad RGJ, Flierman L, Goossens A, et al. Prophylactic gastrostomy placement and early feeding tube may limit loss of weight during chemoradiotherapy for advanced head and neck cancer, a preliminary study. Clin. Otolaryngol. 2007;32: 384–390.
2. Atasoy BM, Yonal O, Demirel B, Dane F, Yilmaz Y, et al. The impact of early percutaneous endoscopic gastrostomy placement on treatment completeness and nutritional status in locally advanced head and neck cancer patients receiving chemoradiotherapy. Eur Arch Otorhinolaryngol. 2012;269:275-282.
3. Arends J, Bodoky G, Bozzetti F, Fearon K, *et al.* ESPEN guidelines on enteral nutrition, non-surgical oncology. *Clin. Nutr.* 2006;25:245-259.
4. Dy SM. Enteral and parenteral nutrition in terminally ill cancer patients: a review of the literature. American Journal of Hospice and Palliative Medicine. 2006 Oct 1;23(5):369-7
5. Bossola M. Nutritional interventions in head and neck cancer patients undergoing chemoradiotherapy: A narrative review. *Nutrients* 2015;7(1):265-276.
6. Strom T, Trotti AM, Kish J, Rao NG, *et al.* Risk factors for percutaneous endoscopic gastrostomy tube placement during chemoradiotherapy for oropharyngeal cancer. *JAMA Otolaryngol. Head Neck Surg.* 2013;139:1242-1246.
7. Rutter CE, Yovino S, et al. Impact of early percutaneous endoscopic gastrostomy tube placement on nutritional status and hospitalization in patients with head and neck cancer receiving definitive chemoradiation therapy. Head Neck. 2011;33:1441-1447.
8. Crombie JM, Ng S, *et al*. Swallowing outcomes and PEG dependence in head and neck cancer patients receiving definitive or adjuvant radiotherapy +/- chemotherapy with a proactive PEG: A prospective study with long term follow up. *Oral Oncol.* 2015 Jun;51(6):622-628.
9. Paccagnella A, Morello M, et al. Early nutritional intervention improves treatment tolerance and outcomes in head and neck cancer patients undergoing concurrent chemoradiotherapy. Support Care Cancer. 2010;18:837-845.
10. Salas S, Baumstarck-Barrau K, et al. Impact of the prophylactic gastrostomy for unresectable squamous cell head and neck carcinomas treated with radio-chemotherapy on quality of life: Prospective randomized trial. Radiother Oncol. 2009;93(3):503-509.
11. Nugent B, Parker MJ, McIntyre IA. Nasogastric tube feeding and percutaneous endoscopic gastrostomy tube feeding in patients with head and neck cancer. *J. Hum. Nutr. Diet.* 2010;23:277-284.
12. Lewis SL, Brody R, et al. Feeding tube use in head and neck cancer patients. *Head Neck.* 2013;36(12):1789-1795.
13. Chen AM, Li BQ, *et al.* Evaluating the role of prophylactic gastrostomy tube placement prior to definitive chemoradiotherapy for head and neck cancer. *Int. J. Radiat. Oncol. Biol. Phys.* 2010;78:1026-1032.
14. Silander E, Nyman J, *et al.* Impact of prophylactic percutaneous endoscopic gastrostomy on malnutrition and quality of life in patients with head and neck cancer: A randomized study. *Head Neck.* 2012;34:1-9.
15. Williams GF, Teo MT, *et al.* Enteral feeding outcomes after chemoradiotherapy for oropharynx cancer: A role for prophylactic gastrostomy? *Oral Oncol.* 2012;48:434-440.

16. Olson R, Karam I, *et al*. Population-based comparison of two feeding tube approaches for head and neck cancer patients receiving concurrent systemic-radiation therapy: Is a prophylactic feeding tube approach harmful or helpful? *Support. Care Cancer.* 2013;21:3433-3439.
17. Kramer S, Newcomb M, Hessler J, Siddiqui F. Prophylactic vs reactive PEG tube placement in head and neck cancer. *Otolaryngol. Head Neck Surg.* 2014(3);150:407-412.
18. Rogers S, Thomson R, O'Toole , & Lowe, D. (n.d.). Patients experience with long-term percutaneous endoscopic gastrostomy feeding following primary surgery for oral and oropharyngeal cancer. Oral Oncol. 2007;43(5):499-507.

Conflicts of Interest: None
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Version History: Originally edited by Sean Marks MD; first electronically published August 2016.