Evidence for prophylactic gastrostomy tube placement in head and neck cancer patients undergoing radiotherapy or chemoradiation.

PURPOSE OF REVIEW:

Head and neck cancer patients have a high risk of malnutrition and inability to eat/drink secondary to the cancer itself and/or side effects of radiotherapy or chemoradiation. A randomised controlled trial has demonstrated that enteral feeding improves outcomes compared to oral diet alone with higher protein/energy intakes and less weight loss (Hearne et al 1985).

Currently there are no nutrition support clinical pathways in the management of head and neck patients undergoing radiotherapy or chemoradiation in Australia. Some head and neck cancer patients have a percutaneous endoscopic gastrostomy (PEG) or radiologically inserted gastrostomy (RIG) placed prior to commencing chemotherapy and/or radiotherapy. A multi-disciplinary team decision is very rarely made. Patients undergoing chemotherapy and/or radiotherapy are often admitted to hospital with dehydration, and/or weight loss and require insertion of a nasogastric tube or PEG or RIG during or after their treatment. Therefore prophylactic gastrostomy placement may prevent this and potentially decrease health care costs.

The aim of this review will be to provide target users with evidence to inform clinical practice and is anticipated to support dietitians working in this area and to provide a basis for developing further practice guidelines for use by oncologists and other health professionals.
PICO/CLINICAL QUESTION:

“Does prophylactic gastrostomy placement improve patient outcomes in those having radiotherapy (XRT) or chemoradiation for head and neck cancer?”

P – Patient group or problem to be studied

Patients with head and neck cancer having chemoradiation or radiotherapy.

I – Intervention to be investigated

Gastrostomy placement pre treatment or within a fortnight of commencing treatment

C – Comparison

Late gastrostomy placement or nasogastric feeding or oral diet

O – Outcomes

Any of the following – weight, nutritional status, malnutrition, quality of life (QOL), response or tolerance to treatment, hospitalisation, dehydration, survival, costs

TARGET POPULATION:

Adult patients with head and neck cancer receiving chemoradiation or XRT alone.

DEFINITIONS & ABBREVIATIONS:

PEG = percutaneous endoscopic gastrostomy
RIG = radiologically inserted gastrostomy
NG = nasogastric
Wt = weight
BMI = body mass index

XRT = radiotherapy or x-ray therapy
QOL = quality of life
SCC – squamous cell carcinoma
TNM = staging of cancer
Ca = cancer
Evidence Based Review: Prophylactic percutaneous endoscopic gastrostomy tube placement in head and neck cancer patients undergoing radiotherapy or chemo-radiotherapy.

### SEARCH STRATEGY:

<table>
<thead>
<tr>
<th>P</th>
<th>Primary term</th>
<th>Synonym 1</th>
<th>Synonym 2</th>
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<tbody>
<tr>
<td>Head and neck cancer chemoradiation</td>
<td>Head and neck oncology radiotherapy</td>
<td>Head and neck neoplasms radiation</td>
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<tr>
<td>I</td>
<td>PEG or prophylactic PEG</td>
<td>Gastrostomy</td>
<td>Enteral feeding, enteral nutrition</td>
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<tr>
<td>C</td>
<td>Nil terms used in search</td>
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</tr>
<tr>
<td>O</td>
<td>Nil terms used in search</td>
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</table>

### Inclusion/Exclusion criteria:

**Inclusions:**
- Humans >19yr
- English
- Comparative studies for the intervention of prophylactic or early gastrostomy to either late gastrostomy (>2 weeks after commencing treatment), nasogastric feeding or oral diet alone
- Any outcomes including weight, nutritional status, malnutrition, QOL, response or tolerance to treatment, hospitalisation, dehydration, survival, costs.
- Studies included up until December 2004

**Exclusions:**
- Children
- Non-English
# Evidence Based Review: Prophylactic percutaneous endoscopic gastrostomy tube placement in head and neck cancer patients undergoing radiotherapy or chemo-radiotherapy.

## DATABASE SEARCH TERMS HITS

<table>
<thead>
<tr>
<th>DATABASE</th>
<th>SEARCH TERMS</th>
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<tr>
<td>Cochrane Library</td>
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Evidence Based Review: Prophylactic percutaneous endoscopic gastrostomy tube placement in head and neck cancer patients undergoing radiotherapy or chemo-radiotherapy.

### SUMMARY: QUALITY OF EVIDENCE

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<tr>
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<th>STUDY DESIGN AND SAMPLE</th>
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<th>CONCLUSION</th>
<th>LIMITATIONS (critical appraisal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fietkau R, et al. <em>Strahlenther Onkol.</em> 1998; 174: Supp III: 47-51.</td>
<td>Observational study commenced as a prospective randomized trial in 1986 to investigate the effect of enteral nutrition during and after radiotherapy. Inclusions: patients with advanced head and neck cancer undergoing 6 weeks of radiotherapy with/out surgery or chemoradiation Exclusions: 31 patients (15%) had later PEG and excluded from study. N=212</td>
<td>III-2</td>
<td>Interventions: Comparisons between Patients following oral diet only (n=134, 63%) and those that had planned peg within 2 weeks after XRT started (n=47, 22%) Outcomes: nutritional status (wt, anthropometry, biochemistry) at time points 0, 2, 4, 6, 12, 18, 24 weeks after XRT, QOL.</td>
<td>Wt – oral diet group initially had higher wt, but had a mean loss of 2.5kg, whereas peg group gained mean 0.5kg. Difference in wt at end of XRT was significant. (p=0.01) Mid Upper Arm Circumference – oral diet initially greater than PEG, but no change in either during treatment Skin folds – oral diet group lost fat stores, but PEG group maintained Biochemistry – long half life proteins no different in each group. Short half life proteins decreased in oral group but improved in peg group significant (p&lt;0.01) QOL – oral diet group higher scores initially and dropped during XRT whereas peg group maintained. Significant (p=0.01)</td>
<td>Does not state whether QOL tool is validated. Groups were not equal at baseline with varying treatment regimes (n=24 for chemoradiation) It was noted that weight loss was higher in these patients on oral diet compared to PEG group. Does not address accreditation of investigators in measuring triceps skin folds. QOL returned to baseline in both groups at 24 weeks. Does not report on wt loss at 24 weeks but appears non- significant.</td>
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<tr>
<td>Fietkau R, Iro H et al. <em>Recent results in cancer research</em>. 1991; 121: 269-82.</td>
<td>Cohort study (same trial as above) commenced as a prospective randomized trial in Jan 1986 – July 1988 to investigate the effect of enteral nutrition during and after radiotherapy. Inclusions: patients with advanced head and neck cancer (most stage IV disease) undergoing 6 weeks of radiotherapy or chemoradiation. Exclusions: 31 patients from oral group (15%) had later PEG and excluded from study. N=212</td>
<td>III-2</td>
<td>Interventions: Comparison between prophylactic PEG and oral diet. Groups divided into 3 groups of nutritional status based on body measurements, biochemistry and immunological results. Poor nutritional status received immediate pre-radiotherapy PEG (n=47). Those with good nutritional status: oral intake alone (n=134). Outcomes: nutritional status (wt, anthropometry, biochemistry), QOL.</td>
<td>Mean wt loss on oral diet=3kg during the course of XRT, PEG patients gained 2 kg. Chemoradiation wt loss=6kg (oral). Sequential radio- and chemo wt loss=3.5kg (oral). Muscle arm circumference remained stable in both groups; triceps skin fold increase in PEG fed patients. QOL better pre-XRT in oral group but ↓ during treatment, QOL of PEG patients remained stable. Supports PEG insertion in aggressive multi-modal therapy, particularly where malnutrition and wt ↓ is already present.</td>
<td>Very poor definition of nutritional status: this affects whether patients received pre-treatment PEGs or not, (however groups were not similar at baseline) No statistics on QOL data. Results are expert opinion: indications for PEG: mastication or swallowing impossible due to tumour or major wt loss is feared due to aggressive tumour. Same study group and author as the above but wt loss reported is different and number of patients in the chemoradiation group only 13.</td>
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<td>Lees J <em>European J Cancer Care</em> 1997; 6, 45-9.</td>
<td>Prospective cohort study at Clatterbridge Centre for Oncology, Wirral UK, to compare different methods of enteral feeding during XRT. Inclusions: all head and neck ca patients receiving enteral tube feeding during radical and palliative XRT between August 1993-July 1995. Exclusions: nil n=100</td>
<td>III-2</td>
<td>Interventions: PEG or nasogastric (NG) feeding was initiated in those unable to meet requirements or maintain nutritional status on admission to the unit or during XRT. PEG placed if enteral feeding required &gt;21 days and XRT would not be interrupted. n=32 (PEG), versus n=68 (NG). Outcomes: wt, type and duration of feeding, survival</td>
<td>NG and PEG were equally effective in maintaining wt NG fed patients (68%) tended to use pump delivery of 1 kcal/ml feed. Mean duration 21.3 days PEG patients (32%) tended to have bolus 1.5 kcal/ml feeds. Mean duration 27.6 days. Ng tube not maintained in 7% (n=5). They went onto TPN (n=3) or oral supplements (n=2) Survival: 7% in each group died during admission. At 6 months, 66% NG patients had died, 78% PEG patients had died</td>
<td>No randomisation No statistics QOL data not assessed with a validated tool. QOL data on discomfort, blockage/displacement, mobility and cosmesis not reported or compared and big generalizations made outside the scope of the paper. Patients who did not maintain NG should have been excluded from the study to prevent bias/error.</td>
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Evidence Based Review: Prophylactic percutaneous endoscopic gastrostomy tube placement in head and neck cancer patients undergoing radiotherapy or chemo-radiotherapy.

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<tr>
<td>Senft et al <em>Supportive Care in Cancer</em>.1993;1:5:272-5</td>
<td>Cohort study at University of Erlangen, Germany, to compare outcome on QOL of patients receiving planned PEG or oral diet alone. PEG insertion was planned as a randomised study; however the study continued as an observational study only. Inclusions: consecutive head and neck cancer patients undergoing XRT between 1987 and 1990 Exclusions: 31 patients (15%) from oral group had later PEG and excluded from study. Excluded patients who had a PEG after 20GY XRT. N= 212</td>
<td>III-2</td>
<td>Interventions: 22% (n=47) received a PEG within 2/52 after XRT started and 63% (n=134) no PEG. Outcomes: QOL</td>
<td>At 6/52: significant difference in QOL of oral nutrition versus PEG especially with respect to domains of work, appetite and strength, but not pain and satisfaction. (p=0.038)</td>
<td>Same study population as the above 2 studies by Fietkau. Probable bias due to poor response rate to QOL questionnaire (only 60%). QOL data compared 28 patients with PEG insertion within 2/52 of commencing XRT versus 81 patients with no PEG.</td>
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</table>
### Reference

**Piquet M, Ozsahin M, Larpin et al. Support Cancer Care 2002; 100: 502-4**

<table>
<thead>
<tr>
<th>Study Design and Sample</th>
<th>Level of Evidence</th>
<th>Interventions</th>
<th>Conclusion</th>
<th>Limitations (Critical Appraisal)</th>
</tr>
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<tbody>
<tr>
<td>Cohort with historical control to compare outcomes of patients receiving nutritional support during XRT.</td>
<td>III-3</td>
<td>Interventions: Prophylactic PEG insertion according to indications for = wt loss &gt;10% or BMI&lt; 20 or age &gt;70. Those without a PEG received counseling and supplements.</td>
<td>Complications of PEG: minor (site infection, leakage, abdominal pain): 21%, major (site infection requiring admission) 2%. Significant differences between intervention group and the control group related to incidence of early PEG and NG feeding. More patients were reliant on oral diet alone. 18% controls required hospital admission for dehydration versus. 0 in intervention group (p&lt;0.01)</td>
<td>Did not measure QOL but assumed that QOL is better for PEG patients. PEG insertion based on clear criteria.</td>
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<td>Inclusions: Cohort consisted of consecutive series of ambulatory patients with oropharyngeal Ca undergoing XRT for 6-7 weeks from September 1998 to September 1999. Historical control group matched on age and TNM staging were treated from 1995-1997. Exclusions: nil</td>
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<td>N=90</td>
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### Reference

### Study Design and Sample
Matched case-control study.

- **Inclusions**: SCC head and neck patients (stage II, III and IV) with radiologically placed PEGs having radiotherapy (curative or palliative) versus matched case control of patients who did not have a gastrostomy.
- **Exclusions**: nil
- n = 64
  - Intervention group n = 34
  - Control group n = 30

### Level of Evidence
III-3

### Interventions
- **Interventions**: Elective Pre-radiotherapy gastrostomy (n=12) within week 1 of XRT and those with non-elective insertion after XRT commenced in approx week 3 (n=22).
- **Outcomes**: weight loss

### Conclusion
- **Wt loss**: 3% in elective G tube versus 6% in control.
- **Average wt loss**: at 4-6 weeks and 3/12 significantly different (p=0.001,) 3% in elective, versus 5% in all tube fed versus 9% controls.
- **Length Of Stay**: in elective peg = 4.9d, and non elective peg 19d but results skewed by non-nutrition related problems
- **Average gastrostomy tube in situ**: 21 weeks in elective patients. 97% success rate of gastrostomy tube insertion.

### Limitations
- No selection criteria: depend on individual oncologist.
- Small study.
- QOL and survival not examined
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</table>
| Beaver M, Matheny KE et al. *Otolaryngology-Head and Neck Surgery.* 2001; 125(6), 645-8. | Retrospective chart audit at MD Anderson Cancer Centre to determine risk factors for weight loss or dehydration during XRT. Inclusion: sequential patients with SCC nasopharynx, oral cavity/oropharynx, hypopharynx, or supraglottic larynx undergoing definitive or post operative XRT during 1985 and 1996. All treatment provided at same centre. Exclusion: incomplete records, incomplete treatment, palliative/short term treatment, death during treatment. N=249 | IV | All patients received nutrition counseling on weight loss and oral supplementation prior to treatment. Some patients received NG or PEG prior to XRT dependent on clinician decision. Compared enteral feeding to no enteral feeding with outcome measures of: tube placement rate, timing of tube placement, incidence of hospitalisation for dehydration, attendance at emergency room for dehydration, incidence of severe weight loss during XRT | Patients with severe wt loss during XRT=33%  
- Weight loss not affected by age, sex, race, alcoholism, smoking, T stage, N stage, dose of XRT or fractionation schedule.  
- Nasopharynx Ca patients more severe wt loss compared with the other sites (oral cavity/oropharynx, hypopharynx, larynx) p<0.05  
- For oral and oropharynx Ca: base of tongue had more wt loss than tongue/tonsil/buccal (p<0.05).  
- less severe wt loss during XRT in those who had pre-treatment tubes versus. no tube or tube placed during treatment (p<0.05)  
- Patients who had lost>7% of BMI before XRT had higher incidence of severe wt loss. (p<0.05)  
- Those who had surgery and post-operative XRT had a lower incidence of severe wt loss.(p<0.05)  
32% required feeding tubes at some time during treatment: 16% during, 12% prior and 4% after.  
- Patients with T3-4 had more tubes placed than smaller tumours | Selection bias: No definition of decision making in relation to whether NG or PEG used: depends on head and neck surgeon.  
Clear definitions of severe weight loss: >10% UBW in 6 months, 5% UBW in 1 month, 2% UBW in 1 week, >7% BMI in 6 months. (UBW = usual body weight)  
Clearly defined inclusion and exclusion criteria, although impact on final numbers in analysis not discussed.  
Reports total tube placement rate of 32% (which would be n = 80), but according to Table 3 this was n=105 and therefore 42%  
Poorly written and difficult to link the discussion and the tables. Not clear what significance levels relate to within tables of results.  
No data presented or significance levels to support some conclusions and statements |
Evidence Based Review: Prophylactic percutaneous endoscopic gastrostomy tube placement in head and neck cancer patients undergoing radiotherapy or chemo-radiotherapy.

- Patients with nasopharynx had less tubes and patients with oral cavity/oropharynx had more tubes placed
- Patients with severe weight loss pre treatment and those with surgery had more tubes placed

11% of the group required admission to hospital/emergency room for dehydration:
- higher for nasopharynx and patients with chemoradiation. (p<0.05)
- lower for oral cavity/oropharynx and for patients with surgery plus XRT (p<0.05)
- Patients with severe weight loss during XRT had increased attendance at emergency room for dehydration
- Patients with a feeding tube placed during or post XRT were more likely to attend emergency room that those patients who had tube placed pre treatment
### Allied Health
Evidence Based Review: Prophylactic percutaneous endoscopic gastrostomy tube placement in head and neck cancer patients undergoing radiotherapy or chemo-radiotherapy.

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<tr>
<td>Lee JH et al. Archives of Otolaryngology-Head and Neck Surgery 1998; 124(8): 871-5.</td>
<td>Retrospective chart audit of unmatched cohorts at Hospital of the University of Pennsylvania and the Philadelphia Veterans Affairs medical centre</td>
<td>IV</td>
<td>Intervention: Prophylactic gastrostomy (usually endoscopic) at the discretion of the treating physician, n=36 (41%), versus controls with no PEG n=52 (59%)</td>
<td>Unplanned breaks from treatment (&gt;3 days from XRT) not significantly different between groups. Trend in those with higher Karnofsky score having fewer interruptions in peg group than no peg. Unplanned hospitalizations for all causes (excluded 5 patients who remained inpatients) showed no significant difference between groups. From a total of 28 hospital admission, n=20 (70%) were due to malnutrition or dehydration. Fewer nutrition related admissions in PEG group n=4 (13%) to control group n=16 (34%), p=0.04. The 4 PEG patients requiring admission had under utilised their PEGs. Average wt loss during treatment for all patients was 5.3kg overall, and greater in the control group (7.0 ± 4.6kg versus 3.1 ± 2.5kg, p=0.001) Patients with pre treatment wt loss &gt;5% was only available for half sample, with an average 9% weight loss. Weight loss was greater in the control group (n=15 PEG, n=37 control), p=0.03. Patients in the control group (n=52) requiring later PEG placement was n=16 (31%), these patients had significantly more wt loss &gt;4.5kg (p=0.01)</td>
<td>Groups not similar at baseline with different pre treatment characteristics. Incomplete data on pre treatment wt loss – Selection criteria for PEG placement depended on the doctor, generally if expected ↑ toxic side effects. PEG more likely in patients with poor performance status (p=0.006) or oropharyngeal primary (p=0.001) Clear definitions of terms and outcome criteria measures Statistics well presented.</td>
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Inclusion: patients with locally advanced SCC of the head and neck undergoing definitive or post-operative XRT twice daily (n=59) or chemoradiation (n=29) during February 1991 and August 1997. Varying chemotherapy regimes (paclitaxel n=10, cisplatin n=19). Majority of patients had ca oropharynx n=38 (43%), ca larynx n=17 (19) and most had stage IV n=63 (72%). Exclusions: standard once daily XRT regimes, patients who remained in hospital for social reasons were excluded from part of analysis for admissions only (n=5) n=88.
### Allied Health Evidence Based Review: Prophylactic percutaneous endoscopic gastrostomy tube placement in head and neck cancer patients undergoing radiotherapy or chemo-radiotherapy.

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<tr>
<td>Magne N, Marcy et al. <em>Eur Arch Otorhinolaryngol</em>; 2001; 258:89-92.</td>
<td>Retrospective chart audit at Centre Antoine Lacassagne, France. Inclusions: consecutive patients with Stage IV scc oropharynx or hypopharynx, undergoing twice daily radiotherapy + chemotherapy during February 1992 and November 1999. All patients had normal renal, cardiac, haematological and hepatic function, life expectancy greater than 3 months and performance status 0 or 1 (World Health Organisation -WHO)</td>
<td>IV</td>
<td>Intervention: PEG placed within first 8 days of treatment (n=50) versus NG placed within first 21 days of treatment (n=40). Both groups received intakes of 8400kJ from enteral feeds + clear fluids/ additional oral diet. Outcomes: complications, duration of feeding and QOL compared between different methods of nutrition support. Compared weight and BMI changes between patients with BMI&lt;20 and BMI&gt;20. QOL completed in 1999 by n=33 due to mortality drop out. N=18(PEG) and n=15(NG).</td>
<td>No major complications of PEG or NG, and nil procedure related mortality. 30 day mortality rate n=6 12% (PEG) versus n=4 10% (NG) – attributed to disease progression. Minor complications; PEG n=17, NG n=61. Including aspiration pneumonia n=21 (NG) versus n=6 (PEG), and mechanical failure n=32 (NG) versus n=5 (PEG). Longest duration of use=605 days (PEG), 89 days (NG). Mean wt ↑=2.5kg (PEG) versus 0.7 (NG). Maintenance of nutritional status during treatment n=47, 94 % (PEG) versus n=39, 98% (NG) No statistical significant difference in BMI at weeks 1, 3 or 6. Improved global QOL reported by n=12, 67% (PEG) and n=4, 27% (NG). Advantages of PEG due to cosmesis and mobility.</td>
<td>Groups similar at baseline. Equal treatment regimens. Data obtained for medical charts retrospectively. No statistics on difference in rates of aspiration pneumonia or mechanical failure. Identifies the need for a randomized controlled trial (RCT) to determine effect on survival. QOL in 33 long term survivors: not adequately presented or discussed. Did not account for oral intake. Defines malnutrition using BMI.</td>
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| Scolapio JS, Spangler, Romano MM et al. 
N=54. | IV | Intervention; PEG placement by pull (n=41), push (n=10) or surgical (n=3) methods. Placement before treatment n=41 (76%) and placement during/post treatment (mean day 10) n=13 (24%). Patients received 25-30kcal/kg/d via PEG. 
Outcomes: duration of PEG use, weight change during treatment, unplanned treatment interruption and admissions, comparing prophylactic PEG group to later PEG. | Mean initiation of feeding – day 10 in prophylactic PEG (≈ average day of side effects commencing), versus day 23 when PEG placed after initiation of XRT. Median duration of feeding was 165 days. 
N=39 (95%) patients were required to use the prophylactic PEG. 
Despite goal intakes of 25-30kcal/kg, n=49 (90%) patients lost wt due to bloating/nausea/gastrostomy tube malfunction mean weight loss 3.4kg. Patients who received a prophylactic PEG lost less weight than those who received a later PEG (2.7kg versus 4.5kg). | Poor definition of selection criteria for PEG insertion and bias 
Groups were not similar at baseline with respect to diagnosis and treatment 
No statistical analysis |
SUMMARY OF RESULTS:

Enteral feeding using a nasogastric tube or a PEG results in less weight loss during treatment compared with an oral diet

- PEG fed patients with advanced head and neck cancer have significantly less weight loss at the end of a course of XRT versus oral diet, p=0.01 (Fietkau et al, 1998) Level III-2
- Oropharyngeal cancer patients given pre-treatment PEG’s have significantly less weight loss at the end of XRT compared with oral diet, p<0.01 (Piquet et al, 2002) Level III-3
- Stage IV head and neck cancer patients undergoing twice daily XRT or chemoradiation with prophylactic PEG’s have significantly less weight loss compared with oral diet, p=0.001 (Lee et al, 1998) Level IV
- Head and neck cancer patients given pre-treatment PEG’s or nasogastric tubes have significantly less severe weight loss during treatment compared with an oral diet, p=0.05 (Beaver et al, 2001) Level IV

The route of enteral feeding does not affect weight loss.
- Nasogastric tube feeding and PEG feeding are equally effective in preserving weight in head and neck cancer patients undergoing XRT (Lees, 1997) Level III-2
- Nasogastric tube feeding and PEG feeding are equally effective in preserving weight in head and neck cancer patients undergoing twice daily XRT + chemotherapy (Magne et al, 2001) Level IV

Pre-treatment PEG insertion results in significantly less weight loss than non-elective PEG insertion
- Weight loss at 4-6 weeks and 3 months is significantly less in those given elective PEG’s, p=0.001 (Tyldersley et al, 1996) Level III-3
- Pre-treatment nasogastric or PEG insertion results in significantly less severe weight loss compared with feeding tube insertion during or after XRT, p=0.05. (Beaver et al, 2001) Level IV

Pretreatment PEG insertion results in earlier commencement of nutrition support
- Mean initiation of feeding was day 10 in the prophylactic PEG group versus day 23 in those given NG tubes. (Scolapio et al, 2001) Level IV
Nasogastric tube feeding is more likely to have mechanical complications versus PEG’s

- Nasogastric feeding leads to more aspiration pneumonia and mechanical failure compared with PEG feeding in head and neck cancer patients undergoing chemo-XRT (Magne et al, 2001) Level IV

Enteral feeding does not effect tolerance or reduce unplanned treatment breaks

- Unplanned treatment breaks are not significantly different in prophylactic PEG’s versus oral diet. (Lee et al, 1998) Level IV

PEG feeding reduces hospital admissions for dehydration or nutrition

- Oropharyngeal cancer patients given pre-treatment PEG’s have significantly fewer hospital admissions for dehydration during XRT, p<0.01 (Piquet et al, 2002) Level III-3

- Stage IV head and neck cancer patients undergoing twice daily XRT or chemoradiation with prophylactic PEG’s have significantly fewer hospital admissions for malnutrition or dehydration but not overall unplanned hospital admissions, p=0.04 (Lee et al, 1998) Level IV

Enteral feeding using either a nasogastric tube or a PEG does not effect survival

- Stage IV head and neck cancer patients with prophylactic PEG’s undergoing twice daily XRT or chemoradiation do not have a significantly improved survival at three years or local control (Lee et al, 1998) Level IV

- Survival at 6 months in head and neck cancer patients undergoing XRT fed via NG or PEG was no different (Lees 1997) Level III-2

Pre-treatment PEG insertion maintains QOL significantly better than oral diet during XRT

- Patients with advanced head and neck cancer maintain QOL with PEG feeding during XRT, whereas QOL dropped significantly in the oral diet group, p=0.01 (Fietkau et al 1998) Level III-2

- Patients with advanced head and neck cancer given a PEG within 2 weeks of commencing XRT have significantly better QOL in the domains of work, appetite and strength compared with oral diet, but not in the domains of pain or satisfaction, p=0.04 (Senft et al, 1993) Level III-2
IMPLICATIONS FOR PRACTICE:

The implications for practice have been evaluated using the Model of the cascade of events leading to evidence of the effectiveness of medical nutrition therapy (Splett, 1996, Appendix 1.). Once the patient has been identified and referred for access to appropriate nutrition care, the nutrition intervention they receive can then be monitored and evaluated for a range of outcomes. The intermediate outcomes are generally assessed by the dietitian such as nutrient intake, weight, biochemistry. These outcomes can then have a cascade effect onto final outcomes such as clinical, cost and the patient. This review is focussing on the range of outcomes that can be achieved through the intervention of prophylactic gastrostomy insertion in head and neck cancer patients.

Intermediate outcomes:

- There is consistent evidence that any form of enteral feeding, either as nasogastric or PEG feeding, is effective in achieving higher protein and energy intakes and weight maintenance in head and neck cancer patients undergoing chemoradiation or radiotherapy, compared with oral intake alone. (Level II).

Considerations to type of nutrition support:

- Nasogastric feeding leads to more mechanical failure and aspiration pneumonia, compared with PEG feeding (Level IV)
- Prophylactic PEG insertion results in earlier commencement of nutrition support (Level IV)
- Prophylactic PEG insertion results in significantly less weight loss compared with non-elective PEG insertion (Level III-3).

Clinical and Cost outcomes:

- There is some evidence that enteral feeding does not reduce unplanned breaks in treatment (Level IV).
- Two studies have demonstrated PEG feeding reduces hospital admissions for dehydration or malnutrition (Level III-3).

Patient outcomes:

- There is evidence that PEG feeding of head and neck cancer patients leads to maintenance of quality of life compared with oral intake alone (Level III-2).
- Enteral feeding, either via a nasogastric tube or a PEG, does not improve either survival (Level III-2) or local regional control in head and neck cancer patients (Level IV).

Summary:

In those who are very likely to require alternative feeding during treatment, there is an intermediate benefit with prophylactic PEG insertion in the timeliness of commencing nutrition support and weight maintenance. In addition there is some evidence that a prophylactic PEG insertion in head and neck cancer patients can improve quality of life during treatment and reduce the likelihood of hospital admissions for dehydration and/or malnutrition.
Evidence Based Review: Prophylactic percutaneous endoscopic gastrostomy tube placement in head and neck cancer patients undergoing radiotherapy or chemo-radiotherapy.

REFERENCES:


KEY WORDS:

Head and neck cancer, chemoradiation, radiotherapy, PEG, gastrostomy
Evidence Based Review: Prophylactic percutaneous endoscopic gastrostomy tube placement in head and neck cancer patients undergoing radiotherapy or chemo-radiotherapy.

EXPERT REVIEWERS:

Provide the names and contact details of two expert reviewers who could be called upon to evaluate the clinical content and conclusions/recommendations made by the review.

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Appendix 1: Effectiveness of Medical Nutrition Therapy based on Outcomes

A theoretical model depicting the cascade of events leading to evidence of the effectiveness of medical nutrition therapy developed by Splett (1996) will be used the framework.

Figure 1. Model of the cascade of events leading to evidence of the effectiveness of medical nutrition therapy (Splett, 1996)