Otolaryngology: Open Access

Trignani et al., Otolaryngol (Sunnyvale) 2016, 6:1
DOI: 10.4172/2161-119X.1000223

Research Article Open Access

Nutritional Management for Patients with Head and Neck Cancer: The Second Step of an Italian Survey: The Opinion of Italian Otolaryngologists

Marianna Trignani[1*], Melissa Laus[2], Valentina Mastronardi[2], Olga Leone[2], Marilina De Rosa[2], Giulio Campitelli[2], Angelo Di Pilla1, Giuseppe Santarelli[3], Albina Allajbej[1], Ambra Pamio[4], Domenico Genovesi[1] and Adelchi Croce[2]

[1]*Department of Radiation Oncology, G. DAnnunzioUniversity of Chieti, SS. Annunziata Hospital, Chieti, Italy*

[2]*Department of Otorhinolaryngology, G. DAnnunzio University of Chieti, SS. Annunziata Hospital, Chieti, Italy*

[3]*Department of Nutrition, SS. Annunziata Hospital, Chieti, Italy*

[4]*Department of Hygiene and Public Health, G. DAnnunzio University, Chieti, Italy*

[*]**Corresponding author:** Marianna Trignani, Department of Radiotherapy, SS Annunziata Hospital, Via Dei Vestini, 66100 Chieti, Italy, Tel: 3908713558244; Fax: 3908713557374; E-mail: marianna.trignani@unich.it

Rec date: January 13, 2016; **Acc date:** February 10, 2016; **Pub date:** February 16, 2016

Copyright: © 2016 Trignani M, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abstract

Background: The purpose of this study was to survey the opinion of Italian otolaryngologist about nutritional management in patients with head and neck tumors.

Materials and Methods: A survey of 10 questions was e-mailed to 100 Italian centers of Otolaryngology.

Results: A total of 27 surveys were filled in. Nutritional supplementation in preventive phase was used by 37% respondents. The majority of respondents (88.3%) stated to use percutaneous endoscopic gastrostomy (PEG) in a reactive phase. Nutritional counselling before starting treatment was performed "rarely" by 33.3% of respondents while "always" by 29.6% of respondents; however 85.2% of respondents stated that medical nutritionist assessment should represent a standard procedure before starting an oncologic treatment.

Conclusions: Current practice about nutritional management for head and neck tumors is wide heterogeneous. Early or reactive approaches remain questionable, though otolaryngologists agree on the use of PEG in a reactive phase.

Keywords: Endoscopic gastrostomy; Survey; Nutrition; Head and neck cancer

Introduction

Growing evidence shows that more aggressive therapeutic regimens improve survival outcome of patients with head and neck cancers (HNC) [1]. However these better treatment outcomes are associated with increased morbidity worsening quality of life of the patient [2-14]. HNC patients are more likely to experience nutritional deficiencies during all phases of disease [15-23]. Studies show that nearly 40-50% of HNC patients have a markedly impaired nutritional status at the time of diagnosis, 55% have a negative energy balance throughout the course of the disease; severe weight loss has been documented in 58% of patients without enteral nutritional support [17-20].

It has been demonstrated that pre-treatment weight loss is the strongest independent predictor of survival and that malnutrition is associated with poor treatment outcomes [24-27]. Nutritional support, oral supplements and enteral tube feeding such as nasogastric tube (NGT), percutaneous endoscopic gastrostomy (PEG) and percutaneous fluoroscopic gastrostomy (PFG), are often required for HNC patients and its can be employed in different phases of oncologic management (before, during or after the primary oncologic treatment). To date, due to a lack of relevant guidelines and scientific evidences, the debate over the better choice between PEG or NGT and over the timing of their placement persists; furthermore nutritional support strategy in HNC remains nonstandard and extremely variable for different centres and physicians [28].

In view of this, we explored the opinion of otolaryngologists concerning nutritional management of HNC patients, with particular regard to PEG placement. In this study, we report the results of our survey, the first Italian survey directed to Otolaryngologists about the management of nutritional support in patients with HNC. This survey represents the second step of a project aimed to search for a point of view of experts dedicated to HNC (radiotherapists and otolaryngologists), in order to establish common guidelines [29].

Materials and Methods

A questionnaire focused on the different points of view of management of nutritional support in HNC (Table 1) was sent to 100 Italian centres of Otolaryngology. It was an online questionnaire of 10 multiple-choice questions, approved by a multidisciplinary team (MDT) composed by otolaryngologists, radiotherapists and nutritionists. The survey was prepared on the Survey Monkey online interface (www.SurveyMonkey.com). Starting from 1 April 2014 personalized e-mail invitations with direct links to the survey were sent to the Directors of the selected Italian centres of Otolaryngologists (the same questionnaire had sent to 106 Italian centres of radiation oncology) [29]. No compensation was offered to participating. Responses were collected over a 2-month period (until 30 June 2014).

We performed a descriptive analysis consisting in frequencies and percentage automatically calculated by Survey-Monkey; in addition one sample Chi-squared test was performed to determine the difference in frequency respect to uniform distribution a priori hypothesized.

Results

A total of 27 of 100 questionnaires (27%) sent to Italian centres of Otolaryngology were filled in, respondents answered all questions. Most otolaryngologists' respondents (66.7%) affirmed to treat less than 10 HNC patients per month. The three sites most frequently treated were: larynx (51.9%), oropharynx (29.6%) and oral cavity (22.2%). The majority of otolaryngologists respondents (33.3%) claimed to rarely make the nutritional counselling before surgery and 29.6% claimed to always make the nutritional counselling (p=0.535). While 29.6% of respondents do not use any nutritional supplement before surgical treatment, most respondents (37%) affirmed to use "other" nutritional supplements such as oral supplements and parenteral administration of nutrients (p=0.161). About the question "when do you use PEG?" 11.1% of the otolaryngologists respondents reported to place PEG in a prophylactic way, while 88.9% in a reactive phase; 92.6% of otolaryngologists said that PEG before starting treatment should not be a standard procedure (p<0.001). Tumor stage and site were considered as criteria for placement of PEG by 85.2% of otolaryngologists respondents (p<0.001). About nutritional counseling, 85.2% otolaryngologists stated that medical nutritionist assessment before starting an oncologic treatment should represent a standard procedure (p<0.001). At today it is assumed that a multidisciplinary approach is necessary for a proper nutritional management of HNC and in reference to this, 92.6% Otolaryngologists said to evaluate patients with HNC within a MDT.

Questionnaire	A1	A2	A3	A4
1. How many patients with H&N cancers are monthly treated in your department?	<10	20-Oct	>20	-
2. What is the site most frequently treated?	Larynx	Oral cavity	Oropharynx	Other
3. What is the second site most frequently treated?	Larynx	Oral cavity	Oropharynx	Other
4. Do you perform nutritional counseling before starting surgical treatment?	Rarely	Never	Always	Almost always
5. Which is the preferred route for prophylactic administration of nutritional supplements in patients with head and neck region?	Not use	NG tube	PEG	Other
6. In your experience, what are the criteria for PEG placement?	Stage	Site	Stage and Site	Other
7. When do you use PEG?	Prophylactic phase	Reactive phase	-	-
8. In your opinion, prophylactic PEG placement should be a standard procedure?	Yes	No	-	-
9. In your opinion, nutritional counseling before starting surgical treatment should be a standard procedure?	Yes	No	-	-
10. Do you work within a multidisciplinary team?	Yes	No	Other	
A: Answer				

Table 1: Questionnaire.

Discussion

Nutritional management is one of the most important problems in HNC patients. Several factors affect nutritional status in these patients during all phases of disease: locally advanced disease at diagnosis, anatomic location of the tumor mass, low socioeconomic status, older age, tobacco and excessive alcohol intake, treatments performed on primary tumor [15,16,21-23,30-34]. Studies show that nearly 40-50% of HNC patients have a markedly impaired nutritional status at the time of diagnosis [17,18]. Severe weight loss has been documented in 58% of patients without enteral nutritional support and it has been shown that 55% of patients could experience an additional 10% or more weight loss during both radiation therapy and chemotherapy [20,35-36]. It was demonstrated by several authors that malnutrition is associated with poor treatment outcomes, in terms of surgical site infections, wound dehiscence, morbidity, cancer recurrence, mortality and quality of life [26,27] therefore it is very important to prevent, to recognize and to treat malnutrition in an early phase of HNC treatment.

Initial nutritional intervention often involves food enrichment and oral nutrition supplements and there are several enteral feeding strategies, such as NGT, PEG and PFG, used to improve the nutritional status of patients, but up till now there has been no consistent evidence about which method is the optimal one [30,33,37,38]. NGT and PEG are the preferred strategies for enteral support, both of them have been demonstrated to be effective in achieving nutritional intake in HNC patients undergoing radiation therapy or concurrent radio-chemotherapy [37,39,40]. NGT is easy to place but poorly tolerated for prolonged periods of feeding, because it is associated with frequent ulceration, esophageal reflux and general discomfort; however PEG is better tolerated, with a lower rate of acute complications if compared with other tubes, and quality of life is potentially improved [41]. The debate over the use of PEG and NGT in HNC patients is still open and it involves considerations about modality and timing of tube feeding

positioning, particularly in patients whose nutritional status is intact [31,32,34,37,39,42]. Furthermore, best practice nutrition management guidelines recommend that specialized nutritionist should be part of the MDT, together with surgeon, radiotherapist and oncologist.

This survey showed the opinions of Italian otolaryngologists regarding the role of nutritional supplementation and early placement of PEG in HNC patients. 27 out of 100 Italian Centres of otolaryngology responded to the survey, showing a poor response rate (27%) but coherent with rates recorded in other similar investigations with otolaryngologists [43,44]. The majority of Italian otolaryngology centres rarely perform nutritional counselling (33.3%) and do not use preventive nutritional supplements (29.6%), but we found no statistically significant differences in these recorded responses ($p=0.535$). Otolaryngologists agree with placing PEG in reactive phase (88.9%), in fact only 11.1% of otolaryngologists place PEG in prophylactic phase ($p<0.001$). Indeed 92.6 % of physicians affirmed that the placement of PEG before starting treatment should not be a standard procedure, confirming their common clinical practice ($p<0.001$). Dedicated MDT, in Italy, represents a consolidated reality (92.6% of the interviewed otolaryngologists reported to work within a MDT) and 85.2% of otolaryngologists interviewed consider that medical nutritionist assessment before starting treatment should represent a standard procedure, but only 29.6% declared to perform it always, suggesting that medical nutritionist is not steady part of the MDT. This latter result appeared to be statistically significant ($p<0.001$). This survey showed results partially conflicting in respect to the best practice management guidelines recommending the nutritionist within a dedicated MDT, while it is in agreement with other evidences in relation to the enteral feeding (both about type and timing of placement) [28].

Despite this study showed that the nutritionist is a ghost figure, the importance of nutritional evaluation in clinical practice is largely demonstrated and several authors observed a smaller weight loss, a better nutritional status and global quality of life in HNC patients when an intensive nutritional counselling is performed [45-50]. Regarding enteral nutrition, 92.6% of Italian otolaryngologists believes that prophylactic feeding should not represent a standard procedure, in agreement with a great part of literature, showing consensus that prophylactic feeding doesn't give benefits on nutritional or therapeutic outcomes if compared to reactive feeding. The present survey has as major limitation, namely the low participation rate. As in other surveys addressed to surgeons, response rates are often unsatisfying; however, in our opinion, this failing result is a starting point to encourage otolaryngologists discuss and share their practice using tools such as surveys, as well. We do not claim to provide recommendations nor strong scientific evidence from this survey, but it is clear that there is no uniformity in the nutritional management of HNC; furthermore, personal opinion and clinical experience often affect decision making more than recommendation and guidelines. Further researches are required in order to establish the optional nutritional approach and standard guideline for a common nutrition management in HNC patients. Finally, we believe that participation in the surveys should be encouraged in order to better use the information that this tool can provide.

References

1. Forastiere AA, Trotti A (1999) Radiotherapy and concurrent chemotherapy: a strategy that improves locoregional control and survival in oropharyngeal cancer. J Natl Cancer Inst 91: 2065-2066.
2. Trotti A (2000) Toxicity in head and neck cancer: a review of trends and issues. Int J Radiat Oncol Biol Phys 47: 1-12.
3. Logemann JA, Pauloski BR, Rademaker AW, Lazarus CL, Gaziano J, et al. (2008) Swallowing disorders in the first year after radiation and chemoradiation. Head Neck 30: 148-158.
4. Bonner JA, Harari PM, Giralt J, Azarnia N, Shin DM, et al. (2006) Radiotherapy plus cetuximab for squamous-cell carcinoma of the head and neck. N Engl J Med 354: 567-578.
5. Mendenhall WM, Parsons JT (1998) Altered fractionation in radiation therapy for squamous-cell carcinoma of the head and neck. Cancer Invest 16: 594-603.
6. Parsons JT, Mendenhall WM, Cassisi NJ, Isaacs JH Jr, Million RR (1988) Hyperfractionation for head and neck cancer. Int J Radiat Oncol Biol Phys 14: 649-658.
7. Garden AS, Asper JA, Morrison WH, Schechter NR, Glisson BS, et al. (2004) Is concurrent chemoradiation the treatment of choice for all patients with Stage III or IV head and neck carcinoma? Cancer 100: 1171-1178.
8. Cohen EE, Lingen MW, Vokes EE (2004) The expanding role of systemic therapy in head and neck cancer. J Clin Oncol 22: 1743-1752.
9. Brizel DM, Albers ME, Fisher SR, Scher RL, Richtsmeier WJ, et al. (1998) Hyperfractionated irradiation with or without concurrent chemotherapy for locally advanced head and neck cancer. N Engl J Med 338: 1798-1804.
10. Pignon JP, Bourhis J, Domenge C, Designé L (2000) Chemotherapy added to locoregional treatment for head and neck squamous-cell carcinoma: three meta-analyses of updated individual data. MACH-NC Collaborative Group. Meta-Analysis of Chemotherapy on Head and Neck Cancer. Lancet 355: 949-955.
11. Fu KK, Pajak TF, Trotti A, Jones CU, Spencer SA, et al. (2000) A radiation therapy oncology group (RTOG) phase III randomized study to compare hyperfractionation and two variants of accelerated fractionation to standard fractionation radiotherapy for head and neck squamous cell carcinomas: first report of RTOG 9003. Int J Radiat Oncol Biol Phys 48: 7-16.
12. Bernier J, Domenge C, Ozsahin M, Matuszewska K, Lefèbvre JL, et al. (2004) Postoperative irradiation with or without concomitant chemotherapy for locally advanced head and neck cancer. N Engl J Med 350: 1945-1952.
13. Lazarus CL, Logemann JA, Pauloski BR, Rademaker AW, Larson CR, et al. (2000) Swallowing and tongue function following treatment for oral and oropharyngeal cancer. J Speech Lang Hear Res 43: 1011-1023.
14. Lazarus CL, Logemann JA, Pauloski BR, Colangelo LA, Kahrilas PJ, et al. (1996) Swallowing disorders in head and neck cancer patients treated with radiotherapy and adjuvant chemotherapy. Laryngoscope 106: 1157-1166.
15. (2006) Clinical trials: oral complications of cancer therapies. National Institutes of Health.
16. Bassett MR, Dobie RA (1983) Patterns of nutritional deficiency in head and neck cancer. Otolaryngol Head Neck Surg 91: 119-125.
17. Tisdale MJ (1997) Cancer cachexia: metabolic alterations and clinical manifestations. Nutrition 13: 1-7.
18. Westin T, Jansson A, Zenckert C, Hällström T, Edström S (1988) Mental depression is associated with malnutrition in patients with head and neck cancer. Arch Otolaryngol Head Neck Surg 114: 1449-1453.
19. Hammerlid E, Wirblad B, Sandin C, Mercke C, Edström S, et al. (1998) Malnutrition and food intake in relation to quality of life in head and neck cancer patients. Head Neck 20: 540-548.
20. Raykher A, Russo L, Schattner M, Schwartz L, Scott B, et al. (2007) Enteral nutrition support of head and neck cancer patients. Nutr Clin Pract 22: 68-73.
21. Mangar S, Slevin N, Mais K, Sykes A (2006) Evaluating predictive factors for determining enteral nutrition in patients receiving radical radiotherapy for head and neck cancer: a retrospective review. Radiother Oncol 78: 152-158.

22. Ravasco P, Monteiro-Grillo I, Vidal PM, Camilo ME (2003) Nutritional deterioration in cancer: the role of disease and diet. Clin Oncol (R Coll Radiol) 15: 443-450.
23. Lees J (1999) Incidence of weight loss in head and neck cancer patients on commencing radiotherapy treatment at a regional oncology centre. Eur J Cancer Care (Engl) 8: 133-136.
24. Heimburger DC, Ard JD (2006) Handbook of Clinical Nutrition (4th edn.), MO: Mosby, St Louis.
25. Mick R, Vokes EE, Weichselbaum RR, Panje WR (1991) Prognostic factors in advanced head and neck cancer patients undergoing multimodality therapy. Otolaryngol Head Neck Surg 105: 62-73.
26. Brookes GB, Clifford P (1981) Nutritional status and general immune competence in patients with head and neck cancer. J R Soc Med 74: 132-139.
27. van Bokhorst-de van der Schuer, van Leeuwen PA, Kuik DJ, Klop WM, Sauerwein HP, et al. (1999) The impact of nutritional status on the prognoses of patients with advanced head and neck cancer. Cancer 86: 519-527.
28. Findlay M, Bauer J, Brown T (2011) Evidence based practice guidelines for the nutritional management of adult patients with head and neck cancer. Sydney, Australia: Clinical Oncological Society of Australia.
29. Trignani M, Di Pilla A, Taraborrelli M, Perrotti F, Caponigro G, et al. (2015) Early percutaneous endoscopic gastrostomy and nutritional supplementation for patients with head and neck cancer: an Italian survey of head and neck radiation oncologists. Support Care Cancer 23: 3539-3543.
30. Langius JA, Zandbergen MC, Eerenstein SE, Van Tulder MW, Leemans CR, et al. (2013) Effect of nutritional interventions on nutritional status; quality of life and mortality in patients with head and neck cancer receiving (chemo)radiotherapy; a systematic review. Clinical Nutrition 32: 671-678.
31. Salas S, Baumstarck-Barrau K, Alfonsi M, Dique L, Baggary D, et al. (2009) Impact of the prophylactic gastrostomy for unresectable squamous cell head and neck carcinomas treated with radio-chemotherapy on quality of life: a prospective randomized trial. Radiother oncol 93: 503-509.
32. van den Berg MG, Rütten H, Rasmussen-Conrad EL, Knuijt S, Takes RP, et al. (2014) Nutritional status, food intake, and dysphagia in long-term survivors with head and neck cancer treated with chemoradiotherapy: a cross-sectional study. Head Neck 36: 60-65.
33. Magné N, Marcy PY, Foa C, Falewee MN, Schneider M, et al. (2001) Comparison between nasogastric tube feeding and percutaneous fluoroscopic gastrostomy in advanced head and neck cancer patients. Eur Arch Otorhinolaryngol 258: 89-92.
34. Capuano G, Grosso A, Gentile PC, Battista M, Bianciardi F, et al. (2008) Influence of weight loss on outcomes in patients with head and neck cancer undergoing concomitant chemoradiotherapy. Head Neck 30: 503-508.
35. Ng K, Leung SF, Johnson PJ, Woo J (2004) Nutritional consequences of radiotherapy in nasopharynx cancer patients. Nutr Cancer 49: 156-161.
36. Silver HJ, Dietrich MS, Murphy BA (2007) Changes in body mass, energy balance, physical function, and inflammatory state in patients with locally advanced head and neck cancer treated with concurrent chemoradiation after low-dose induction chemotherapy. Head Neck 29: 893-900.
37. Wang J, Liu M, Liu C, Ye Y, Huang G (2014) Percutaneous endoscopic gastrostomy versus nasogastric tube feeding for patients with head and neck cancer: a systematic review. J Radiat Res 55: 559-567.
38. Ogino H, Akiho H (2013) Usefulness of percutaneous endoscopic gastrostomy for supportive therapy of advanced aerodigestive cancer. World Journal of Gastrointestinal Pathophysiology 4: 119-125.
39. Sadasivan A, Faizal B, Kumar M (2012) Nasogastric and percutaneous endoscopic gastrostomy tube use in advanced head and neck cancer patients: a comparative study. J Pain Palliat Care Pharmacother 26: 226-232.
40. Koyfman SA, Adelstein DJ (2012) Enteral feeding tubes in patients undergoing definitive chemoradiation therapy for head-and-neck cancer: a critical review. Int J Radiat Oncol Biol Phys 84: 581-589.
41. Löser C, Aschl G, Hébuterne X, Mathus-Vliegen EM, Muscaritoli M, et al. (2005) ESPEN guidelines on artificial enteral nutrition--percutaneous endoscopic gastrostomy (PEG). Clin Nutr 24: 848-861.
42. Nugent B, Parker MJ, McIntyre IA (2010) Nasogastric tube feeding and percutaneous endoscopic gastrostomy tube feeding in patients with head and neck cancer. J Hum Nutr Diet 23: 277-284.
43. Russi EG, Sanguineti G, Chiesa F, Franco P, Succo G, et al. (2013) Is there a role for postoperative radiotherapy following open partial laryngectomy when prognostic factors on the pathological specimen are unfavourable? A survey of head and neck surgical/radiation oncologists. Acta Otorhinolaryngol Ital 33: 311–319.
44. Sylvester DC, Carr S, Nix P (2013) Maximal medical therapy for chronic rhinosinusitis: a survey of otolaryngology consultants in the United Kingdom. Int Forum Allergy Rhinol 3: 129-132.
45. Isenring EA, Capra S, Bauer JD (2004) Nutrition intervention is beneficial in oncology outpatients receiving radiotherapy to the gastrointestinal or head and neck area. Br J Cancer 91: 447-452.
46. Isenring E, Capra S, Bauer JD (2004) Patient satisfaction is rated higher by radiation oncology outpatients receiving nutrition intervention compared with usual care. J Hum Nutr Diet 17: 145-15.
47. Arends J, Bodoky G, Bozzetti F, Fearon K, Muscaritoli M, et al. (2006) ESPEN Guidelines on Enteral Nutrition: Non-surgical oncology. Clin Nutr 25: 245-259.
48. Isenring EA, Bauer JD, Capra S (2007) Nutrition support using the American Dietetic Association medical nutrition therapy protocol for radiation oncology patients improves dietary intake compared with standard practice. J Am Diet Assoc 107: 404-412.
49. Bossola M (2015) Nutritional interventions in head and neck cancer patients undergoing chemoradiotherapy: a narrative review. Nutrients 7: 265-276.
50. Valentini V, Marazzi F, Bossola M, Miccichè F, Nardone L, et al. (2012) Nutritional counselling and oral nutritional supplements in head and neck cancer patients undergoing chemoradiotherapy. J Hum Nutr Diet 25: 201-208.