

Attitudes of radiation oncologists to percutaneous endoscopic gastrostomy in patients with head and neck cancer and eating difficulties: A survey in China

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Abstract

Objective: To investigate the attitudes of radiation oncologists towards using percutaneous endoscopic gastrostomy (PEG) to solve nutritional problems in patients with head and neck cancer (HNC) undergoing radiotherapy.

Methods: A self-reported questionnaire was developed and used to assess the willingness of radiation oncologists from 26 hospitals throughout several provinces in China to use the nutritional method.

Results: Of the 433 radiation oncologists who were contacted and returned questionnaires, 361 were completed correctly and used in the study (83.4% completion rate). Years of working and degree of understanding PEG were significantly related to the willingness of oncologists to use PEG in patients with HNC. Radiation oncologists who were willing to accept PEG training were more willing to use PEG. Main reasons for unwillingness to use PEG were poor understanding of the operation or cost and fear of side effects causing medical disputes.

Conclusions: The findings of the survey suggest that attitudes of radiation oncologists in China towards using PEG in patients with HNC requiring nutritional support may be improved by providing accessible training in the technique.

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Keywords

Radiation oncologist, head and neck cancer, radiotherapy, percutaneous endoscopic gastrostomy

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Introduction

Head and neck cancer (HNC) is the fifth most common cause of cancer death worldwide with approximately 550,000 new cases diagnosed per year.¹ Stomatitis is a common side effect experienced by patients with HNC who are receiving radiotherapy with or without chemotherapy; its incidence, severity, and duration are dependent on the dose and fractionation of radiation therapy and the type of chemotherapeutic drug.²⁻⁴ Between 40% to 60% of patients who receive chemoradiation develop severe mucositis lasting from one to three months.⁴ Indeed, patients with HNC frequently experience dysphagia and require nutritional support.⁵ Studies have shown that poor nutrition may cause treatment interruption or delay which may lead to a poor prognosis.⁶ Enteral nutrition (feeding via a tube into digestive tract) is usually the method of choice for malnourished patients with a normally functioning gastrointestinal tract. Compared with parenteral nutrition (nutrients given intravenously) enteral nutrition is associated with less risks, provides enteral stimulation, prevents subsequent compromise of the gut defence barrier and is less expensive.⁷ Commonly used methods of enteral nutrition include nasogastric tube (NGT) and percutaneous endoscopic gastrostomy (PEG) feeding. PEG is recommended by American Gastroenterological Association for periods of tube feeding lasting more than 30 days and NGT is recommended for nutritional supplementation during shorter periods.⁸

PEG, which was first described in the early 1980's, provides nutrition for malnourished dysphagic patients with neurological diseases and for patients with dysphagia due to HNC.^{9,10} In patients with HNC, PEG can prevent weight reduction, dehydration, malnutrition, delays in treatment, prolonged hospitalization and can improve the patient's quality of life.¹¹ The PEG method involves a catheter being passed through the abdominal wall to the stomach. The catheter's replacement and maintenance are considered easy and the whole procedure is associated with low morbidity and mortality.¹²

Although, PEG is a well-established technique for providing nutrition in malnourished patients with HNC,¹³ less experienced oncologists may not recognize its benefits. In fact, the attitudes of radiation oncologists towards the application of PEG as a solution to nutritional problems that may follow head and neck radiotherapy have not previously been studied. Therefore, this study was designed to investigate attitudes of radiation oncologists in several Chinese hospitals towards the use of PEG in solving feeding difficulties in patients with HNC undergoing radiotherapy.

Participants and methods

The study took place from April to July 2014. Based on a previous survey which was used to investigate attitudes of radiation oncologists towards sexual issues in patients with cervical cancer,

¹⁴a self-reported questionnaire was developed by one of our investigators [X.D.] (Appendix1). Using a sample of 12 radiation oncologists affiliated with the Department of Oncology in Mianyang Central Hospital, the same investigator conducted a pilot test and made revisions to the survey. In total, 26 Chinese hospitals (22 general and 4 specialist) were contacted and participants were obtained from Sichuan, Jiangsu, Shandong, Hubei, Hebei, Henan, Guangdong, Beijing, Shanghai, Chongqing, Tianjin and Ningxia provinces. Informed consent was not required because the survey was completed anonymously by radiation oncologists. The protocol was approved by the Medical Ethics Committee of Mianyang Central Hospital.

The χ^2 test was used to assess associations between demographic variables and attitudes of radiation oncologists towards PEG. Statistical analyses were performed by two investigators [X.D. and L.F.] using SPSS software (version 19.0 for Windows ; (IBM SPSS, Armonk, NY: IBM Corp, USA). A two-sided analysis was used and a P -value <0.05 was considered to indicate statistical significance.

Results

From the 433 radiation oncologists who were contacted and returned questionnaires, 361 forms had been completed correctly (i.e., 83.4% completion rate). Demographic details of the oncologists involved in the analyses are shown in Table 1. Their median age was 35 years and there was a similar number of male and female participants. Most oncologists (76.7%) worked in a general hospital and there were similar numbers with primary, middle or advanced levels of professional experience. Although 23% oncologists had no understanding of PEG, 69.3% had a

Table 1. Demographic characteristics of the participants.

Characteristic	Radiation Oncologists
Participants, <i>n</i>	361
Age, years,	
mean \pm SD	36.8 \pm 7.8
median(range)	35 (20–62)
Sex, <i>n</i> (%)	
male	178 (49.3)
female	183 (50.7)
Professional level, <i>n</i> (%)	
primary	110 (30.4)
middle	142 (39.3)
advanced	109 (30.3)
Times in qualification, years,	
mean \pm SD	9.7 \pm 7.4
median(range)	8 (0.5–40)
Work environment, <i>n</i> (%)	
General hospital	277 (76.7)
Specialist hospital	84 (23.3)
Degree of understanding of PEG, <i>n</i> (%)	
high	28 (7.7)
partial	250 (69.3)
none	83 (23.0)

SD, standard deviation

partial understanding and 7.7% had high experience.

The willingness of the radiation oncologists to use PEG in relation to their demographic characteristics is shown in Table 2. Interestingly, 269 oncologists (74.5%) came from hospitals with ≥ 1000 beds. Among the 361 oncologists, most (260, 72.0%) were willing to accept PEG training but nearly one-third (101, 28.0%) stated that they were not willing. Work experience and the degree of understanding PEG were significantly related to willingness to use the feeding method. For example, oncologists with work experience ≥ 5 years were more likely to choose PEG (75.2%) compared with those with work experience of < 5 years (67.6%; $P=0.044$). More oncologists with a high understanding of

Table 2. Demographic characteristics and oncologists' willingness to use percutaneous endoscopic gastrostomy (N=361).

Characteristic	Willing to use PEG	Not willing to use PEG	Statistical significance
Sex			
male	121 (67.4)	57 (32.6)	ns
female	139 (76.0)	44 (24.0)	
Age			
<40 years old	161 (69.4)	71 (30.6)	ns
≥40 years old	99 (76.7)	30 (23.3)	
Years of working			
<5 years	75 (67.6)	36 (32.4)	0.044
≥5 years	188 (75.2)	62 (24.8)	
Work environment			
General hospital	206 (74.4)	71 (25.6)	ns
Specialist hospital	54 (64.3)	30 (35.7)	
Number of beds			
<1000 beds	61 (66.3)	31 (33.7)	ns
≥1000 beds	199 (74.0)	70 (26.0)	
Number of years treating patients with HNC*			
<50	115 (70.6)	48 (29.4)	ns
≥50	144 (73.1)	53 (26.9)	
Incidence of difficulty in feeding			
<50%	161 (73.9)	57 (26.1)	ns
≥50%	99 (69.2)	44 (30.8)	
Degree of understanding of PEG			
high	25 (89.3)	3 (10.7)	0.031
partial	182 (70.8)	68 (27.2)	
none	53 (63.9)	30 (36.1)	
Hospitals carrying out PEG technology			
yes	127 (75.1)	42 (24.9)	ns
no	96 (71.6)	38 (28.4)	
don't know	37 (63.8)	21 (36.2)	
Confident user of PEG			
yes	15 (88.2)	2 (11.8)	ns
no	245 (71.2)	99 (28.8)	
Willing to accept PEG training			
yes	230 (88.5)	30 (11.5)	0.001
no	62 (61.4)	39 (38.6)	
Who will operate PEG?			
competent doctor	27 (73.0)	10 (27.0)	ns
trained professionals	149 (72.3)	57 (27.7)	
gastroscope room/ radiology department	80 (70.8)	33 (29.2)	
surgeon#	4 (80.0)	1 (20.0)	

Data presented as n (%)

*n=360

#some oncologists added their own text

PEG, percutaneous endoscopic gastrostomy

PEG (89.3%) were willing to adopt the method compared with those who had a partial (70.8%) or no understanding (63.9%) of the method ($P=0.031$) (Table 2). Overall, only 17 (4.7%) were confident in using the PEG technique.

Radiation oncologists who were willing to accept PEG training (88.5%) were more willing to use PEG than those who preferred not to have PEG training (61.4%; $P=0.001$). When asked who should perform PEG, 206 oncologists thought it should be a trained professional, 113 thought a doctor from the gastroscopy room or radiology department, 37 a competent doctor and 5 thought a surgeon would be the most suitable operator.

For the 151 oncologists who would not consider using PEG technology to resolve a problematic aspect of the patient's nutrition (Question 12), limited understanding about the operation or cost (37.1%) and fear of side effects causing medical disputes (33.1%) were the main reasons chosen for not using PEG (Table 3). Only 13.9% and 10.6% opted for busy workload or high cost of operation, respectively.

Discussion

To our knowledge, this is the first study to report attitudes of radiation oncologists towards PEG for solving nutritional problems in patients with HNC undergoing radiotherapy. Although our study sample was small and only involved 361 oncologists, data were obtained from several hospitals in China covering a wide geographical area. In addition, our completion rate was high (i.e., 83%).

Overall, 72% radiation oncologists in Chinese hospitals were willing to use PEG and compared with those who had worked less than five years, oncologists who had worked for five years or more were more likely to choose this method. Presumably, a greater understanding of the benefits of

Table 3. Reasons for not choosing percutaneous endoscopic gastrostomy.

Reasons	Radiation Oncologists (answered 'No' to Question 12) (Times=151)
Limited understanding about the operation or cost	56 (37.1)
Fear of side effects causing medical disputes	50 (33.1)
Clinical work too busy, do not want to increase the workload	21 (13.9)
The high cost of operation	16 (10.6)
Other*	8 (5.2)

*some oncologists provided their own text

PEG comes with long-term work experience. Although only 8% of oncologists had a high level of knowledge about the method, most oncologists who had either a high or partial degree of understanding of the method and were willing to adopt PEG. For example, approximately 90% of oncologists with a high understanding of PEG were willing to adopt the method compared with only 64% of those with no understanding. This suggests familiarity with the procedure influences the willingness to use the method. Moreover, a high proportion of oncologists who were willing to accept training were also willing to use the technique. This finding suggests that the attitudes of radiation oncologists towards PEG may be improved by providing training.

For those oncologists who stated they would not choose PEG, one of the main reasons selected was limited understanding about the operation or cost of the method. Therefore, making PEG training more readily available for radiation oncologists in Chinese hospitals is likely to improve this situation. The second most popular reason selected for not using PEG was fear of side effects causing medical disputes.

Currently, the doctor-patient relationship in China is poor^{15,16}. Misunderstandings and distrust between physicians and patients are common and are thought to be based on social, cultural, and economic factors.¹⁵ We believe that because of the current situation in China, many physicians prefer not to recommend perceived traumatic operations even if they would be beneficial for the patient and are associated with low risk of side effects.

Reports from China suggest that 80% doctors are overworked¹⁷ and so it is reasonable to assume that this factor will impact on the choice of nutritional support. Although in our survey approximately 75% radiation oncologists were from hospitals with more than 1000 beds, we found that only 14% of oncologists stated that this was the reason for their unwillingness to use the method. High medical fees in China afflict the people, government and hospitals and are the source of many medical disputes.^{15,17} Nevertheless, just 11% of our participants considered PEG to be a costly procedure which was a barrier in preventing them from selecting the method as a treatment option.

A limitation of the study was the small sample size. In addition, the questionnaire was designed for this particular study and had not been validated. Therefore, further research using the questionnaire in a large sample size is required to confirm our results.

In summary, our findings suggest that attitudes of radiation oncologists towards their willingness to use the PEG method may be improved by providing more training than currently exists; this would benefit patients with HNC who experience severe stomatitis during radiotherapy and so have nutritional problems.

Declaration of conflicting interests

The authors declare that there are no conflicts of interest.

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6. How many hospital beds does your hospital have (approximately)? —
 7. Annually, how many head and neck cancer patients are treated at your hospital? (number of patients = —).
 8. During the process of radiotherapy, approximately what percentage of patients encounter difficulty in eating? —%
 9. Are you aware of how percutaneous endoscopic gastrostomy (PEG) works as an enteral nutrition technology?
 1. Yes, I am aware of PEG use in enteral nutrition technology
 2. I am partially aware of PEG use in enteral nutrition technology
 3. No, I am not aware of PEG use in enteral nutrition technology
 10. Has your hospital conducted a PEG procedure?
 1. Yes
 2. No
 3. I don't know
 11. Do you feel that you fully understand the use of PEG technology?
 1. Yes
 2. No
 12. Would you consider using PEG technology to resolve this problematic aspect of a patient's nutrition?
 1. Yes
 2. No

If you have selected no, and are unwilling to consider PEG as an option, please select your main reason for doing so:

Appendix I Questionnaire

Oncologists' attitudes towards PEG when patients with head and neck cancer encounter eating difficulties

This form is only used for scientific research and your information will remain completely confidential. Please provide the most relevant options in the list. Any other answers you may wish to add can be also listed separately.

1. Sex: 1) male 2) female
2. Age: —
3. Title: 1) primary 2) intermediate 3) advanced medical practitioner
4. How long have you been engaged in tumour radiotherapy or chemotherapy? years
5. Do you work in: 1) a general hospital or 2) a specialized hospital?
1. I do not fully understand the operational technique or the costs of this procedure
2. I am too busy, with an already heavy clinical workload, and I do not want more work
3. The cost of the operation is too high
4. I am concerned that potential side effects may result in medical disputes
13. Are you willing to undergo the PEG technical training?

1. Yes
 2. No
14. Who do you think is best suited to perform this operation on patients?
1. A competent doctor
 2. Oncology personnel specialized in PEG technology training
 3. Gastroscopy department personnel or radiology department personnel