Clinical Nutrition ESPEN 30 (2019) 67–72

Contents lists available at ScienceDirect

Clinical Nutrition ESPEN

journal homepage: http://www.clinicalnutritionespen.com

Original article

Health care professionals' perceptions and experience of initiating different modalities for home enteral feeding

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ARTICLE INFO

Article history:
Received 28 January 2019
Accepted 10 February 2019

Keywords:
Percutaneous endoscopic gastrostomy tube
Nasogastric tube
Nutrition
Enteral tube feeding
Health care professionals
Perceptions
Experiences

SUMMARY

Background: With an aging population, there is a concomitant increase in number of patients with dysphagia; and hence increase in prevalence of enteral feeding. Health care professionals play a critical role in informing decisions of patients and caregivers on their choice of modality for long-term home enteral feeding.
Aims: To explore the perceptions of health care professionals on different modalities for enteral feeding and their experiences in initiating long-term enteral feeding among adult patients.
Methods: A qualitative explorative descriptive study design with purposive sampling approach was adopted. A total of four speech therapists, fifteen nurses and seven doctors who were ever involved in initiating long term home enteral tube feeding were recruited over a data collection period of August to December 2017. One to one interviews were conducted and audio-recorded. An inductive content analysis approach, with open coding, creation of categories and abstraction of data was adopted.
Results: Four main themes were generated: (1) Naso-gastric Tube Feeding (NGT) is health care professionals' first choice of modality; (2) Percutaneous Endoscopic Gastrostomy Tube Feeding (PEG) is regarded as an alternative approach; (3) Perceived better outcomes with PEG; and (4) Identified barriers to promotion of PEG.
Conclusion: NGT remained as the modality of choice although health care professionals perceived that patients will have better outcomes with the use of PEG.

1. Background

Adequate nutrition is important in the maintenance of good health. When oral access of feeding has been diminished or lost, alternatives such as enteral nutrition will be considered. Enteral feeding is commonly used as a treatment modality for patients with dysphagia as a result of stroke, neuromuscular disease; or patients who suffered from inadequate nutrition as a result of dementia or oro-pharyngeal and oesophageal malignancy [16]. Dysphagia affects one in every 25 adults in the United States [5]. The prevalence of dysphagia is also more common in the elderly than in the general population [1]. With Singapore's rapid and prominent aging population, there may be an increase in the risk of dysphagia among the elderly [4]. Nasogastric tube (NGT) is the most common route of access for patients who require long term enteral feeding in Singapore. According to [12]; every community nurse will need to visit 3–4 patients on NGT per week. An alternative modality for enteral feeding is the percutaneous endoscopic gastrostomy (PEG). Literature suggested many potential complications with the use of NGT, including aspiration, tube dislodgement and tissue trauma [23], while use of PEG can lead to infection or granulation tissue formation although it's use is associated with a lower probability of intervention failure [10]. The use of PEG is also more popular in the western countries as compared to Asian countries [23], despite no difference in mortality rates between the two modalities [10]. This study aimed to explore the perceptions of health care professionals (HCPs) on different modalities for enteral feeding. Results will help to inform the development of related hospital protocols and

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https://doi.org/10.1016/j.clnesp.2019.02.005
2405-4577/

strategies that will empower patients to make the most suitable choice for their long-term enteral nutrition.

In the Asian context, there remained large numbers of patients who chose to be on long-term NGT feeding [19,22,25], whereas PEG feeding is more acceptable and preferred in the Western countries [8,17,26]. There are only a few studies conducted in the Asia that explored the perceptions of patients or caregivers towards NGT and PEG feeding [13,19,22,23], with only some focusing on the perceptions of HCPs [13,23,25].

A cross-sectional survey study conducted with Taiwanese patients on home enteral feeding reported that a large percentage of 93.4% (n = 427) of the patients were on NGT [22]. The patients were on tube feeding for an average of 33.5 months (range 0.1–124 months). Being too old to undergo an operation, worried about wound infection and leakage, and keeping one's body integrity were the main reasons identified for refusing a PEG among the Taiwanese patients [19]. Whereas in another survey that explored the reasons for PEG refusal among patients in Malaysia, 41.7% of the caregivers shared that they were not informed of the PEG option by their clinicians [23]. Other reasons given for not choosing PEG include fear of complication (25.7%), too invasive a procedure (12.9%), inadequate family consensus (8.5%) and deemed unhygienic (5.7%). In the same study, only 55% (n = 11) of the clinicians responded "yes" when asked if they would routinely recommend PEG in patients requiring long-term enteral feeding. Among those who answered yes, the common reasons were being convinced of benefits (54.5%), low risk of procedure (18.2%) and previous good experience (9.1%) [23]. Likewise, in another qualitative interview conducted with 17 healthcare professionals in Malaysia, inadequate communication between clinicians and patients, lack of knowledge among HCPs and patients, and affordability were the main factors contributing to the poor acceptance of PEG among patients [13]. A large percentage of 97% of patients who required feeding tubes had NGT which were used for a year or more in another study conducted in the long-term care facilities in Taiwan [25]. Among the reasons contributing to limited PEG use in the institutions were acceptability, availability, affordability and accountability.

The above-mentioned studies demonstrated the critical role of HCPs in informing the decisions of patients and caregivers on their choice for long-term enteral feeding and highlighted the low prevalence of PEG usage in Asia. In addition, previous studies conducted were limited by the use of surveys and closed-ended questionnaires and were conducted among fairly homogenous populations. There is a lack of qualitative studies among HCPs, which would allow respondents to elaborate on their answers; and provide in-depth and details to reasons for choice of enteral feeding tube in the initiation of long-term enteral nutrition among adult patients. Given differences in funding support, community resources and infrastructure available to support home enteral feeding; reasons for choice of mode of enteral feeding might also differ between patients in different developed countries in the Asian context. It is essential to explore the existing "cultural" barriers to PEG and perceptions of long-term NGT feeding in Singapore [3], as well as their decision-making process when recommending options for enteral feeding.

2. The study

2.1. Aim

To explore the perceptions of HCPs on different modalities for enteral feeding and their experiences in initiating long-term enteral feeding among adult patients.

2.2. Study design

A qualitative descriptive study design was adopted with the conduct of in-depth interviews to explore the unique and context-dependent individual experiences of HCPs' views in the involvement of the initiation of long-term enteral tube feeding. General qualitative descriptive research principles explicitly guided the research process throughout in this study [21].

2.3. Participants and setting

Purposive sampling was adopted in the recruitment of doctors, nurses and speech therapists working in different disciplines of internal medicine, general surgery and neurology of a tertiary public hospital in Singapore from August to December 2017. The purposeful sampling approach aimed to promote maximum variation [7]. Recruitment of participants stopped at 26 upon data saturation when there was no additional new information and codes generated [9]. When data reached a saturation point, it helps to verify earlier insight and provides the confidence that maximum description of the phenomenon has been apprehended.

2.4. Data collection

HCPs who were involved in initiating long-term enteral tube feeding were invited to participate in the study. The semi-structured interviews were conducted with an interview guide which was developed based on results of a preliminary study involving focus-group discussion with community nurses [18] (Table 1). The interviews were conducted and audio-recorded by the first (ASY) and second (LML) author who were not working in the same inpatient wards as the recruited participants.

2.5. Ethical considerations

This study was approved by the Centralised Institutional Review Board in Singapore (Ref no: CIRB 2017/2366). Voluntary participation and confidentiality of identity were ensured. Written consent was obtained from all participants.

2.6. Data analysis

All interviews were transcribed verbatim. The transcripts were reviewed by the study team to ensure reliability. An inductive content analysis approach was utilized in this study which involved the identification of codes that represented participants' perceptions on different modalities for enteral feeding and their experiences in initiating long-term enteral feeding among adult patients [11]. Meaningful word patterns and recurring concepts were extracted through thorough discussion of the team. Essential themes and subthemes representing the perceptions and experiences of the participants were developed [2].

2.7. Rigor

The principles of qualitative rigor were maintained in this study to ensure trustworthiness of the data [27,28]. Credibility of the data was preserved through the process of data collection, analysis and examination among study team. Verification of the codes and themes from the analysis among the team members was conducted to enhance dependability. The vivid accounts of the participants served to enhance the data transferability. Confirmability was achieved through establishing a clear 'decision trail' throughout the study process with the examination of accounts from participants

Table 1
Semi-structured interview guide.

No.	Interview questions
1.	In your experience, how is the decision for mode of enteral feeding made?
2.	What is your opinion on the different modes of enteral feeding?
3.	In your experience, what profile of patients would benefit more from NGT and PEG?
4.	What are the factors influencing choice of feeding modality?
5.	Are there sufficient resources in community support on long term enteral feeding?

of different HCP groups including the doctors, nurses and speech therapists working in different disciplines [6].

3. Results

3.1. Demographic characteristics

A total of 26 participants including 7 doctors, 15 nurses and 4 speech therapists were recruited in this study. The mean age of the participants was 38 years. Their age ranged from 29 years to 45 years. Most were female (92.3%) and had more than 10 years of clinical experience (69.3%). The details of their sociodemographic data are reported in Table 2. The duration of the interviews ranged from 10 to 36 min. Four themes were generated from the data analysis to reveal perceptions and experiences of HCPs' experiences in initiating long-term enteral feeding among adult patients: (1) NGT being the first choice; (2) PEG is an alternative; (3) Perceived better outcomes with PEG; and (4) Barriers identified to promotion of PEG (Table 3).

4. Results of analysis

Theme 1 NGT being the first choice

Subtheme 1: *Convenient approach inserted at bedside*

All respondents alluded that NGT was the modality of choice as it could be easily inserted at bedside. It was a convenient approach which was always carried out first in the inpatient wards.

"As I as I said they usually decide to put in a nasogastric tube first... Because it's convenient and accessible." (Nurse 10.234)

"We hardly ever bring up different choices. NG tube. We always offer NG tube." (Doctor 16.165)

Table 2
Demographics characteristics of participants (n = 26).

Demographics	n	%
Age		
<30 years	1	3.8
30–35 years	8	30.8
36–40 years	9	34.6
41–45 years	8	30.8
Gender		
Male	2	7.7
Female	24	92.3
Profession		
Doctors	7	26.9
Nurses	15	57.7
Speech Therapists	4	15.4
Years of clinical experience		
<5 years	1	3.8
5–10 years	7	26.9
11–15 years	10	38.5
>15 years	8	30.8

Subtheme 2: *Supported in community*

Patients with NGT were well supported and followed-up in the community by the home care nurses in times of NGT dislodgement or due for change. Referrals to home care nurses were made for patients who were discharged from the hospital with NGT.

"*OK so right now, our NGT the uh you know it's the HNF, Home Nursing Foundation, who make it a bit…easier for the family to call." (Doctor 6.237)*

Subtheme 3: *Perceived as an approach providing hope as NGT is reversible*

NGT was preferred by HCPs for patients who required short term enteral feeding and expected to recover from swallowing issues within a short-time frame. They also found it easier to convince patients to be on enteral tube feeding when it was a temporary measure using the NGT.

"Because they would think that this is a transition period, so easier for them to accept as the NG tube. NG tube as a transition period of, for the solution, interventions. Ya, because when we put all these things, even doctors will tell them probably it's only for a short term, until your treatment is over, then we can take out." (*Nurse 2.47*).

Theme 2 PEG is an alternative

Subtheme 1: *When NGT fails*

It was highlighted that PEG was often regarded as an alternative when the NGT approach has been tried and failed after multiple attempts.

"It's very commonly seen that patients go home with NGT and within two three times they get blocked and come back. OK. Doctor decide. Ah. "Do you want to have a PEG?"… So it's only after at least two to three admissions then they will decide to approach the topic about PEG." (Nurse 10.300)

Subtheme 2: *PEG is for aesthetic purpose which improves self-image*

HCPs perceived PEG as an approach mainly to improve patients' self-image which was essential for patients who were ambulating or working in the community.

"And most of the time for the patients who are NGT usually they are bedbound. So they may not find there's a self-image issue. Of course, if let's say hmm depending on whether am I able to be in the community or work. Of course, if let's say for some cosmetic purposes, definitely PEG will be a better choice." (Nurse 7.160)

Theme 3 perceived better outcomes with PEG

Subtheme 1: *Improved self-care with easy management, lower incidence of dislodgement and reduced frequencies of tube change*

Although PEG was considered as an alternative, HCPs recognized that PEG was advantageous in terms of improved self-care of patients who could better manage the enteral tube feeding independently at home. At the same time with PEG, there was a lower incidence of tube dislodgement and reduced the need for patients to change their feeding tube as compared to those with NGT.

"Definitely, feeding for NGtube is not as easy PEG I should say… PEG is relatively easy, because it's near to them, you don't need to hold the thing, so high up, and the flow is faster." (Nurse 2.60)

"If let's say patient want require a long term… I would suggest a PEG… Because the changing is not so often... And less complication

Table 3
Themes and sub-themes of participants.

Themes	Subthemes
Theme 1: NGT being the first choice	Subtheme 1: Convenient approach inserted at bedside
	Subtheme 2: Supported in community
	Subtheme 3: Perceived as an approach providing hope as NGT is reversible
Theme 2: PEG is an alternative	Subtheme 1: When NGT fails
	Subtheme 2: PEG is for aesthetic purpose which improves self-image
Theme 3: Perceived better outcomes with PEG	Subtheme 1: Improved self-care with easy management, lower incidence of dislodgement and reduced frequencies of tube change
	Subtheme 2: Integration back to daily lives with better quality of life
Theme 4: Barriers to promotion of PEG	Subtheme 1: Workflows involved and need for doctors' referrals
	Subtheme 2: Lack of awareness and knowledge
	Subtheme 3: Insertion of PEG regarded as an invasive surgical procedure
	Subtheme 4: Lack of support in community

as well. The block. The tube is thicker and there's less risk of blockage." (Nurse 15.374)

Subtheme 2: *Integration back to daily lives with better quality of life*

HCPs felt that PEG benefited younger patients who were ambulating and working. PEG enabled patients to continue their normal daily lives which improved their quality of life.

"…once a PEG is established right; I think you may have better quality of life." (Doctor 14.68)

Theme 4 barriers to promotion of PEG

Subtheme 1: *Workflows and need for doctors' referrals*

Participants narrated that the referral process for patients to have a PEG procedure unclear. There was insufficient communication among the multi-disciplinary team to who should be making the recommendations and the right discipline of surgeons to refer to. It was reported that surgeons from different disciplines including general surgery and gastroenterology who could be performing the insertion of PEG tube.

"…because ST recommend, usually is NG tube. They will not recommend others, because PEG is not their specialty, so they will not recommend PEG, you get what I mean? Unless it come out from the team doctors' advice, the team doctor, the swallowing cannot swallow. I think it's the referral process and the team work issues." (Nurse 2.123)

"…communication is not strong la. We also don't know what the medical condition is fully like … whether they are suitable for PEG? That's why we don't … sometimes don't dare to bring it up." (Speech Therapist 2.212)

Subtheme 2: *Lack of awareness and knowledge*

It was challenging to promote a higher adoption of PEG due to lack of awareness and knowledge among HCPs.

*"I think on our end even for us we are not fully educated about how PEG is like… Dependent on how much that person sees then we know how much about PEG. So when they ask us questions, we might not fully know. That they show us the tube, we are like oh this is how it looks like *laughs*. On our end, although we talk so much about it, we don't fully know about it" (Speech Therapist 2.237)*

Subtheme 3: *Insertion of PEG involved an invasive surgical procedure*

HCPs felt it was more challenging to convince patients to have PEG insertion as compared to the NGT as PEG insertion was perceived as an invasive surgical intervention with risks which may not be suitable for all patients.

"Going through a PEG involves surgery… So it's like you asking someone who is OK probably an elderly to through a surgery…To them it's "Wah. I need to go like you know, undergo a surgery. Go under knife," and things like that." (Nurse 10.316)

Subtheme 4: *Lack of support in community*

HCPs verbalised that there were generally lack of support in the community for patients with PEG, especially when patients encounter issues, as compared to those with NGT. They found patients with PEG returning to hospital when leaking and dislodgement of PEG occurred.

"It's just that how much people in the community know how to manage it (PEG)… In emergency, what happens? They come to A&E." (Doctor 6.196)

5. Discussion

Maintaining short-term enteral nutrition via the nasal route has been the common way of enteral access in most acute conditions [16]. However, NGT feeding tends to be poorly tolerated in patients who require long-term enteral tube feeding as many patients faced multiple complications, including aspiration, tube dislodgement and tissue trauma, as well as the inconvenience, discomfort, and body image issues [23]. An alternative modality for enteral feeding is PEG which has been widely used in the clinical practice and showed effectiveness in the improvement of nutritional status [10]. The current study explored the perceptions of HCPs including doctors, nurses and speech therapists on different modalities for enteral feeding and their experiences in initiating long-term enteral feeding among adult patients.

The participants in this study reported that NGT was their first choice of recommendation for all their patients regardless of clinical conditions because it was easily available and convenient to insert at patients' bedside. This decision NGT was often perceived as a more temporary solution for providing essential nutrition. NGT was perceived as a reversible process, thus providing hope for patients that they may be able to have a complete recovery to return to oral feeding. Only when the NGT approach fails, PEG became the alternative option for patients are on long-term enteral nutrition at home, which is viewed as a more permanent approach. These findings highlighted the impact of experiences and perceptions of HCPs when recommending feeding modality, which may result in the low uptake of PEG among local patients. Previous findings reported inadequate communication regarding the options for enteral nutrition between clinicians and patients; most often patients and caregivers were not informed of the PEG option [13,23].

It will be beneficial to provide opportunities and adequate explanations to patients and caregivers regarding the different modalities of enteral tube feeding at the beginning to enable them to participate in the care. Previous study reported that patients who chose to be on long-term home PEG feeding demonstrated improved physical functioning, reduced fatigue and better quality of life (QoL) as compared to pre-PEG insertion [20]. Patients and caregivers in another qualitative study highlighted the impact of PEG feeding on daily lives at home, whereby it had become part of their routine which enabled them to survive and continue to enjoy carrying on with other pleasures in their life [17]. In addition, the presence of Chinese cultural values plays a significant role in influencing decisions about PEG among patients and home carers in Asian context, including Singapore. Families in Taiwan perceive PEG as artificial and permanent violation of skin integrity, and the mere visibility of the stoma itself was unacceptable for the Chinese [25]. This may also be an influencing factor when HCPs promote acceptability and availability of alternative nutritional options.

It is also essential to maintain the knowledge and competency of HCPs, so they can provide evidence-based advice in a consistent approach. Studies have demonstrated that HCPs played a critical role in influencing the decisions of patients and family caregivers on their choice for long-term enteral feeding [13,19,23]. Although PEG was considered as an alternative approach by the HCPs in this study, they recognized the advantages of PEG in terms of improved self-care in patients who can better manage the long-term enteral feeding with lower incidence of tube dislodgement, reduced frequencies for tube changing as well as improved body-image in patients. On the other hand, it was challenging to promote a higher adoption of PEG due to inadequate knowledge among HCPs and perception that it was harder to convince patients to undergo an invasive surgical procedure (PEG). Similarly, in a previous study, the risk of PEG insertion was one of the reasons given by the HCPs including geriatricians and rehabilitation medicine specialists, for not recommending the procedure to their patients [23]. Improving the awareness and knowledge level of HCPs in enteral tube nutrition through education in nursing and medical school as well as regular hospital in-service training can boast their confidence in the routine recommendation of PEG.

The third practice issue relates to hospital work processes, as well as follow-up care and support in the community. HCPs in this study identified unclear workflow among different disciplines as barriers affecting the promotion of PEG. It appeared that the referral process for patients to have a PEG insertion was unclear. There were no clear guidelines to who should be making the recommendations for the patients to have a PEG and which discipline of surgeons should the patients be referred to for the procedure. The lack of accountability and collaboration among the multidisciplinary and allied health care teams resulted in limited PEG advocacy, consistent to findings from another study [25]. Long term enteral tube nutrition has significant implications for patients and impact on their daily lives. The decision-making should involve the patients, their caregivers as well as a multi-disciplinary team. It was found that in hospitals involving a multidisciplinary nutrition team reported less complications in patients with enteral tube feeding [24]. It was recommended for a multidisciplinary nutrition team to comprise of a nutrition nurse, a dietician, a clinician from a specific specialty, speech therapist and a pharmacist. Multidisciplinary guidelines including PEG referrals and clinical protocols based on evidence-based practices can be developed and implemented to enhance the consistency in care of patients with enteral tube feeding [14,17,24]. Long-term follow-up is also essential by patients who are on PEG feeding to provide support and assistance in the management of enteral tube nutrition including the assessment of nutritional status in response to feeding and potential complications [24]. The lack of support in the community was also reported by the participants in current study. Good support and follow-up care in the community was identified as an essential factor to reduce morbidity and costs incurred with long-term enteral feeding [15]. It is vital to regularly assess the needs of patients on enteral tube nutrition and manage their nutrition status, the need for the change of feeding tube and provide support when patients encounter complications. Collaboration between the hospital multidisciplinary nutrition team and community nurses needs to be developed.

5.1. Limitations

This study was limited to the perceptions of HCPs from one institution in Singapore which limited the generalisability of the findings. The rich account provided through the exploratory descriptive study design enabled the participants to share their experiences and perceptions of the process in deciding the modality for patients with long-term enteral feeding. Future studies can be conducted to explore the different experiences of HCPs across different health care settings with varied care practices and protocols.

6. Conclusion

NGT remained as the modality of choice although HCPs perceived better outcomes with the use of PEG. Improvement in partnership with patients can enhance their decision-making in the aspect of enteral nutrition while improving knowledge and competency of HCPs can enhance the consistency of care provided. Improvement needs to be made to the hospital work processes as well as collaboration and follow-up care in the community.

Funding statement

This study is funded by SingHealth Foundation Research Grant (Singapore), 2016.

Acknowledgments and declaration of conflicting interests

We thank the participants in this study for sharing their valuable views. The authors have no conflict of interest to disclose.

Statement of authorship

ASY was responsible for the grant application writing and obtaining the grant, developed, designed and conducted the study. LML and NXP conducted the study and did the data analysis. LSH conducted the research, did the data analysis and wrote the manuscript. VL was responsible for the grant application writing and obtaining the grant, provision of administrative support and mentoring. All authors read and approved the final manuscript. Each author certifies that this material or similar material has not been submitted and will not be submitted to or published in any other publication before it appears in Clinical Nutrition ESPEN.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.clnesp.2019.02.005.

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