Original Article / Özgün Araştırma

Percutaneous Endoscopic Gastrostomy Experience in A Tertiary Intensive Care Unit

Üçüncü Basamak Yoğun Bakımında Perkütan Endoskopik Gastrostomi Deneyimlerimiz

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Abstract

Objective: Percutaneous endoscopic gastrostomy (PEG) is a procedure performed for nutrition in patients whose gastrointestinal system functions are impaired. This study aimed to evaluate patients who were treated in our clinic and underwent PEG.

Materials and Methods: Patients older than 18 years who underwent PEG between November 2013 and November 2015 were studied. Patient follow-up forms and hospital electronic records were analysed retrospectively.

Results: Overall, 117 patients were enrolled, including 47 (40%) male patients. The mean Acute Physiology and Chronic Health Evaluation II score was 20±8; mean age, 72±15 years; mean length of stay, 43±42 days and mean procedure day, 14±5 days. About 35% of patients had dementia, 23.9% had malignancy and 22.3% had cerebrovascular disease. The total complication rate was 17%.

Conclusion: PEG is a safe procedure and provides patient comfort while maintaining enteral nutrition. Therefore, it is an effective method in feeding patients who cannot be fed orally in the long term.

Keywords
Enteral nutrition, gastrostomy, percutaneous endoscopic gastrostomy, intensive care

Anahtar Kelimeler
Enteral nutrisyon, gastrostomi, perkütan endoskopik gastrostomi, yoğun bakım

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Öz

Amaç: Perkütan endoskopik gastrostomi (PEG), gastrointestinal sistem fonksiyonlarını sürdüren hastalarda beslenme için kullanılan yöntemlerden biridir. Bu çalışmada amacımız, kliniğimizde tedavi edilen ve PEG işlemi uygulanan hastaların değerlendirilmesidir.

Gereç ve Yöntemler: Kasım 2013 ile Kasım 2015 arasında PEG prosedürü uygulanan 18 yaşından büyük hastalar çalışmaya dahil edildi. Hastaların takip formları ve hastane elektronik kayıtları retroskopik olarak incelendi.

Bulgular: Çalışmaya 117 hasta dahil edildi, hastaların 47'si (%40) erkekti. Ortalama Akut Fizyoloji ve Kronik Sağlık Değerlendirme II (APACHE II) skoru 20±8, ortalama yaş 72±15 yıl, ortalama yoğun bakım yatış süresi 43±42 gün ve ortalama işlem süresi 14±5 gündü. Hastaların %35'i demans, %23,9'u malignite, %22,3'ü serebrovasküler hastalık tanısı ile yoğun bakımda takip edilmekteydi. Toplam komplikasyon oranı %17'ydi.

Sonuç: PEG güvenli bir işlemdir, enteral beslenme fonksiyonlarını sürdüren hastalarda konfor sağlar. Uzun vadede ağızdan beslenemeyen hastaların beslenmesinde etkili bir yöntem olduğunu düşünüyoruz.

Introduction

Percutaneous endoscopic gastrostomy (PEG) is one of the methods used for nutrition in patients whose gastrointestinal system functions are maintained. It was first described in 1980 by Gauderer et al. (1). Nutrition with gastrostomy tube provides mucosal integrity, preserves normal flora and protects intestinal immunity (2). The advantageous aspects are that the procedure can be performed outside the operating room, has a short procedure time and low cost (3). Main indications are neurological diseases, psycho-mental retardation, cancers, unconscious conditions, frequent aspiration pneumonia, burns and congenital anomalies (4).

PEG should be evaluated according to the needs, preferences, diagnosis and life expectancy of the patient. The aim is not only to improve the survival and nutritional status of the patient, but also to improve the quality of life (5). Major complications are aspiration pneumonia, bleeding, necrotizing fasciitis and metastasis. Wound infection, PEG dislocation, tube obstruction, pneumoperitoneum, gastric outlet obstruction and peritonitis are minor complications (4).

Our aim in this study is to evaluate the patients who are treated in our clinic and underwent PEG procedure.

Materials and Methods

After obtaining the ethics committee approval (Ankara Numune Training and Research Hospital Clinical Research Ethics Committee decision no: 659/2015, date: 25.11.2015) our retrospective study was conducted in Ankara Numune Training and Research Hospital general tertiary intensive care unit between November 2013 and November 2015.

Patients older than 18 years old who underwent PEG procedure were included. One hundred seventeen patients were included in the study. Patient follow-up forms and hospital electronic records were analyzed retrospectively. Since our study was planned retrospectively, consent form was not obtained from the patients. In our unit, PEG procedure was performed in the endoscopy laboratory, and it was applied at the bedside for patients who cannot be transported. Enteral feeding was stopped 12 hours before the procedure and parenteral nutrition was started. Prophylactic antibiotherapy was not administered to patients who did not receive any antibiotherapy due to their treatment. During the procedure, sedo-anaesthesia was applied by a staff anesthesiologist. Enteral feeding was started with a low dose at the 8th hour after the procedure and the target dose was reached by increasing the dose every eight hours. A commercially available 18-Fr endoscopic gastrostomy set was used. By a special nutrition nurse care training was given to the relatives of the discharged patients.

Statistical Analysis

SPSS 22.0 for Windows was used for statistical data. Qualitative data were expressed as numbers and percentages, quantitative data were expressed as standard deviation.

Results

One hundred and seventeen patients were included in the study. The procedure was performed on 113 patients in the endoscopy laboratory. Four patients who could not be transported for gastrostomy, procedure performed at the bedside. Forty seven of the patients were male (40%). The mean Acute Physiology and Chronic Health Evaluation II score was 20±8, the mean age was 72±15 years, the mean lenght of stay was 43±42 days, and the mean PEG opening day was 14±5 days. PEG indications are given in Table 1.

The discharge types of the patients are given in Table 2.

The ventilation types of the patients on the day the procedure is shown in Table 3.

Complications seen after PEG procedure are presented in Table 4.

Table 1. Percutaneous endoscopic gastrostomy indications

	n	%
Dementia	41	35.0
Malignancy	28	23.9
Myopathy	5	4.3
Parkinson disease	7	6.0
Cerebrovascular disease	26	22.2
Intracranial hemorrage	10	8.5

Table 2. Types of discharge		
	n	%
Exitus	27	23.1
Transfer to palliative care	52	44.4
Discharge	29	24.8
Transfer to lesser degree intensive care unit	9	7.7

Table 3. Types of ventilation		
	n	%
Tracheotomy	70	59.8
Spontaneous ventilation	45	38.5
Tracheal intubation	2	1.7

Table 4. Complications		
	n	%
Infection	4	3.4
Hemorrage	3	2.5
Catheter leakage	8	6.8
Blockage	5	4.2
Total	20	17

Discussion

The superiority of percutaneous gastrostomy over conventional gastrostomy for artificial enteral nutrition has been reported in previous studies (6). With PEG, absence of mucosal atrophy and reduction of bacterial translocation, which are the advantages of enteral feeding is ensured, the integrity of the gastrointestinal system is preserved and the risk of infection is reduced (7).

In our study, we found that 35% of the patients had dementia, 22.2% had cerebrovascular events and 8.5% had intracerebral bleeding. Löser et al. (8) reported intracerebral hemorrhage 6.2% and cerebrovascular events 12.4% in their study covering a four-year period. Chang et al. (9) reported that neurological disorders were 46%, esophageal damage 39.2%, and head and neck tumors 14.4%. It is clear that these rates vary according to the characteristics of the centers where the research was conducted. We think that dementia patients are higher due to the presence of intensive care for neurology in our center and less head and neck surgeries.

The average PEG procedure day was 14±5 days. It is recommended to provide an alternative enteral route for patients who unable to feed for a long time (10). Compared with nasoenteric nutrition, PEG has less risk of irritation, ulcer, bleeding, esophageal reflux and aspiration pneumonia (11). PEG is recommended for patients who are fed nasoenteric for 2-3 weeks and have medium-high malnutrition risk (4). In our center, patients who cannot be fed orally and whose enteral pathway are intact, nasoenteral route is provided and nutrition is started after admission. PEG is planned for patients who are fed nasoenterally for 12-14 days. We think that our average PEG procedure day is compatible with the recommended period in the literature.

In our study, we found that mortality was 23.1% in this patient group. The average length of stay was 43 days. Different mortality rates have been reported in various patient groups. Golestanian et al. (12) evaluated 8,185 patients with acute stroke and reported a 30-day mortality of 21% and a mean length of stay of 7.3±6.1 days. In his study by Oud (13), 276,056 elderly and dementia patients were retrospectively reviewed and the mean length of stay was reported as 7 days and mortality as 12%. We think that the length of stay and mortality rates are high due to the fact that the end-of-life decision cannot be made legally in our country, there is not enough palliative care and long-term intensive care bed. We previously reported that the tracheostomy procedure of geriatric patients was delayed due to the reluctance of their relatives and the average length of stay was prolonged (14). Long hospitalizations are also seen because the relatives of PEG patients do not allow discharge.

The fact that 59.8% of our patients had tracheostomy indicates that these patients are long-term intensive care patients.

No major complications were observed in any of our patients, and minor complications developed. Our complication rate was found to be 17%. Ozguc et al. (15) 12.2%; Kahramanoğlu Aksoy et al. (16) 15.9%; Löser et al. (8) 23%; Schneider et al. (17) 17%; reported complication rates. We found that our complication rate was compatible with the literature. None of our patients died due to PEG-related complications, and our patients died due to other reasons.

The weak points of our study are its retrospective nature and not evaluating long-term mortality.

Conclusion

PEG procedure, which has previously been proven to be superior to surgical gastrostomy, is safe, it is a method that provides patient comfort while maintaining enteral nutrition. We think that it is an effective method for feeding patients who cannot be fed orally in the long term.

Ethics

Ethics Committee Approval: This study was approved by the Ankara Numune Training and Research Hospital Clinical Research Ethics Committee (decision no: 659/2015, date: 25.11.2015).

Informed Consent: Since our study was planned retrospectively, consent form was not obtained from the patients.

Peer-review: Externally and internally peer-reviewed.

Authorship Contributions

Concept: P.Ö.Y., Design: P.Ö.Y., C.D., Supervision: C.D., Materials: P.Ö.Y., Data Collection or Processing: C.D., Analysis or Interpretation: C.D., Literature Search: C.D., P.Ö.Y., Critical Review: P.Ö.Y., Writing: C.D., P.Ö.Y.

Conflict of Interest: No conflict of interest was declared by the authors.

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