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Enteral nutrition: our experience with percutaneous endoscopic gastrostomy (PEG) and revision of literature

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TITOLO

La nutrizione enterale: nostra esperienza con la gastrostomia percutanea per via endoscopica e revisione della letteratura

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Summary

Enteral nutrition (EN), as parenteral nutrition (PN), can be used in cases of patients whose medical conditions prevent the intake of food by mouth; unlike PN, EN keeps the functionality of the digestive tract and it makes home management of patients easier. However, the experience and literature have documented a number of serious complications, fortunately rare, which depend on the methods used in EN realization. We report in this paper our experience in 44 cases of percutaneous endoscopic gastrostomy (PEG), concluding that it is a safe and complications-free procedure. We believe that a nutritional intervention is indicated when, improving nutritional status, patients can obtain a better quality of life and have an average life expectancy.

Riassunto

La nutrizione enterale, così come quella parenterale, è indicata in quei pazienti le cui condizioni cliniche generali non permettono l'assunzione di cibo per via orale, ma a differenza di quest'ultima preserva la funzionalità del tratto digestivo e rende più facile la gestione domiciliare del paziente. Dalla letteratura è comunque noto che alcune particolari procedure di realizzazione della nutrizione enterale sono associate a complicanze anche severe, sebbene con una rara incidenza. In questo lavoro descriviamo la nostra esperienza nella realizzazione di 44 gastrostomie percutanee per via endoscopica, concludendo che la tecnica da noi utilizzata è sicura e priva di complicanze significative. Sulla base della nostra esperienza, e di una attenta revisione della letteratura, riteniamo che un intervento nutrizionale sia da consigliare nei pazienti con una aspettativa di vita media, qualora ciò contribuisca ad un miglioramento significativo della qualità di vita.

Introduction

The accesses to the digestive tract of routine use today are the following: nose-gastric tube (NGT), nose-jejunal tube (NJT), surgical gastrostomy (SG), endoscopic jejunostomy (EJ), surgical jejunostomy following Delaney's procedure (SJD), surgical jejunostomy following Witzel's procedure (SJW), percutaneous endoscopic gastrostomy (PEG), percutaneous radiologic gastrostomy (PRG) (1). Each of them has benefits but also disadvantages. NGT, for example is easy to position, easy to use, has minimal complications and low cost but limited period of utilization.

NJT can be introduced into the stomach as NGT, and directed to jejunum endoscopically (2). This reduces the risk of gastro-esophageal reflux, esophagitis and pneumonia but is related to risk of cardiac, pyloric and pharynx injury.

SG, although invasive, is indicated in patients who have not the pharyngo-esophageal transit patient, or who have abdominal scars or local sub-optimal conditions to perform a gastric transcutaneous puncture. It implies a high numbers of complications (30-40%) with a mortality rate varying from 6 to 60%, and a high septic risk, if we consider that these patients are often debilitated (3-8).

EJ is indicated in patients with esophageal reflux, with hiatal her-

nia, in obese patients or areflexia. Literature shows that complications are significantly lower than that in gastric jejunal nutrition (9). SJD is fast and easy to achieve and also to remove but it has some disadvantages as the necessity of a particular diet, or the impossibility of drugs administration.

Among the complications of SJW we can mention: formation of an abscess in the abdominal wall at the site of introduction of the probe., pneumoperitoneum, drilling, gastric bleeding (10).

Patients and methods

We achieved 44 PEG from March 2005 and September 2010. 61% of patients were men, 39% were women. The range of age was 47-82. 37% of patients suffered from Parkinson disease, 29% from a larynx carcinoma, 27% from amyotrophic lateral sclerosis, 5% from a gastric carcinoma and 2% from cancer cachexia.

We started using a "introducer technique" which gave complications (pneumoperitoneum) in five cases treated with a pharmacological therapy. On the basis of this experience we choose an introducer technique with T fasteners, observing peritonitis in 4 cases. Finally we followed the "inside out procedure", particularly "pull technique", because we believed it the safer and easier to achieve

(11). The mean time of execution of PEG, following the aforementioned method, was 25 minutes. The mean duration of the feeding tube was 170 days to a maximum of 18 months. In all cases we used big caliber tubes (20-24 Fr) which allowed us to feed patients with foods of various viscosities and to administer drugs. In 41 cases we administered an antibiotic therapy; in 3 cases it wasn't possible for a reported allergy. Interestingly in these cases we didn't observe any infective complication, in contrast with data reported in literature (12). Using "pull technique" we observed only three major complications (peritonitis), four tube obstructions and three dislocations 3 months after insertion. On the basis of our experience we think that PEG is better than NGT and NJT because it is well tolerated and it determines minor complications (13).

Discussion

Enteral nutrition is better than parenteral nutrition in terms of management, costs and outcome; in particular the major benefits are a better nutritional status of patients and a good tropism of digestive tract (14). After radical digestive tract surgery we think that the best choice is SJD, to obtain a rapid weaning of parenteral nutrition and a following long-term enteral

nutrition. In our opinion, on the contrary, in cases of palliative digestive tract surgery the best choice should be packaging of a nutritional jejunostomy using a technique which ensures a good quality of life. In acute and not stabilized patients, with a not defined life expectancy, a NJT could be the best choice waiting more stable clinical conditions. Finally, in patients who didn't undergo a digestive tract surgery, we believe that the best feeding access is PEG or EJ, using big caliber tube.

A careful revision of literature shows that packaging of a PEG has very few disadvantages. Mortality is very low and complications are observed in 10-22% of patients; among them we mention infective problems (4%), rupture of the stoma (1.7%), tube dislocation and peritonitis (1.5%), perforation (0.4%), bleeding (0.4%) (6). We believe that to minimize these risks the absolute and relative contraindications must be evaluated. Absolute contraindications are total obstructions of pharynx, duodenal ulcer, alteration of coagulation, ascites, sepsis, rapidly progressive diseases. Relative contraindications are portal hypertension with esophageal varices, ventriculo-peritoneal shunts, lack of contact between gastric and abdominal wall. Two techniques were developed to position a PEG: "push" and "pull". Randomized studies showed no si-

gnificant differences between these two methods regarding morbidity or mortality whose incidence is very lower than SG or NGT. In favor of PEG it is also management cost, which is lower than other digestive stoma.

In conclusion we think that PEG is the procedure of choice, when possible, for the following reasons: no major complications, a better quality of life, low cost, a easier home-management of patients and ease of execution.

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