

Enteral Nutrition by Gastrostomy in Pediatric Patients: Experience in a Hospital of Colombia

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Summary

We collected data from 84 patients between 0 – 18 years old from August 1996 to May 2007 who received feeding by gastrostomy. *Results:* The indication more frequent was neurological diseases. Tubes used were foley, silicone, polyurethane and gastrostomy button. We found more complications in children under 6 months old and in the post-operative time. Also, we observed that patients using foley tubes had more complications. The follow-up of nutritional status 38 months post-gastrostomy reported 60.9% of malnourished. *Conclusion:* It is important to avoid the use of Foley tubes for gastrostomy, since they are not suited for it. Our patients tend to compromise their nutritional status and it could be related to their illnesses, socio-economic problems or lack of adherence to the nutritional recommendations.

Introduction

There are several circumstances, temporary or permanent which demand a special nutritional support. Gastrostomy is the enteral nutrition method ideal for children with cerebral palsy who have feeding difficulties or for children with pathology requiring greater ingest and who are not capable to achieve it through the mouth. We have an interdisciplinary team called “Enterostomal

Therapy Group” consisting in a pediatric gastroenterologist, nurse, nutritionist, social worker, speech and language therapist and sometimes other disciplines to help us, to evaluate and implement individual treatment and manage patients with gastrostomy, ileostomy, jejunostomy and colostomy since 12 years ago (1996 – 2008). Therefore, the aim of the present study was to characterize the group of patients with gastrostomy and to evaluate long-term follow-up results of their nutritional response.

Materials and Methods

A descriptive, retrospective and follow-up study was made including patients feeding by gastrostomy (surgical or percutaneous endoscopic) between 0 – 18 years old during August 1996 to May 2007. We collected data from clinical record and files of enterostomal therapy program and they were: medical indication for gastrostomy, gender, age at the beginning of gastrostomy, type of tube used, diameter of tube, complications (type, time to appear, age of child, type of tube used), duration of nutrition support with gastrostomy. We also collected data of nutritional status at the beginning of the procedure and at the end of the research or the nutritional support (weight, height, W/A, H/A and W/H using NCHS growth curves (z score) or in case of cerebral palsy using the appropriated curves) and data of some paraclinical parameters (before and at the follow-up).

A total of 160 patients were collected from the records of enterostomal therapy but 76 were excluded because insufficient data. Thus, just 84 patients were retrospectively reviewed and completely met the criteria of our study. Patients were registered in a database in Excel, then designed a form in Epi Info 6.04D and the statistics analysis was performed using absolute frequencies, percentages (%), mean, standard deviation (SD), Chi ² test and odds ratio with a P <0.05 and CI of 95%.

Results

Male gender predominated (54%), 30% were infants, 29% toddlers and 19% adolescents. The most frequent indication of gastrostomy was in neurological patients (77%), followed by obstruction of the digestive tract (see Table 1).

Table N° 1. Indications for gastrostomy

Disease	N	%
Neurological impairment	64	77
Upper tract digestive obstructive (esophageal atresia, esophageal strictures by caustic ingestion)	15	17
Cystic fibrosis	4	5
No data	1	1
Total	84	100

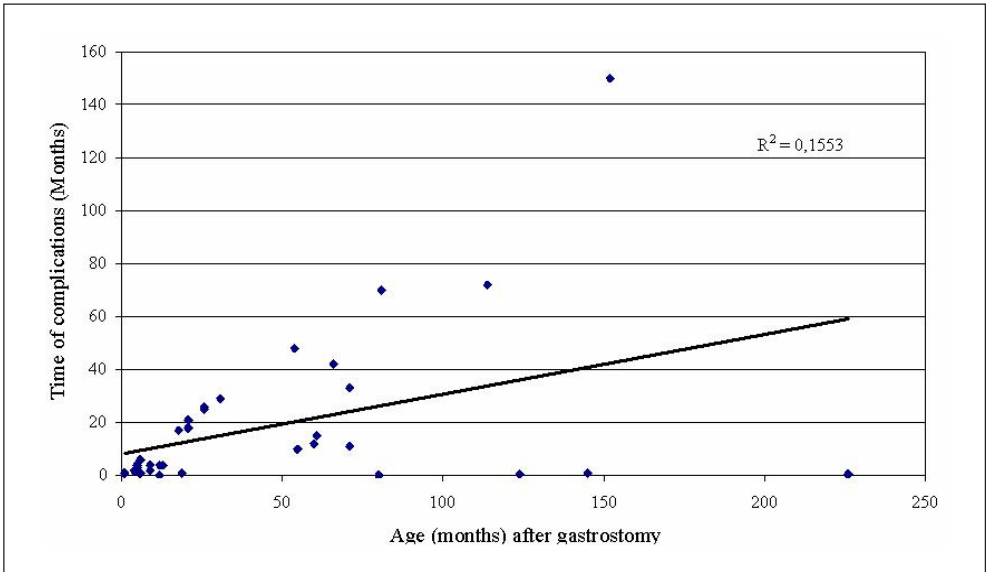


Figure N° 1. Time of complications depending on the age where complicated (months).

The tubes used were foley in 20 patients (24%), silicone in 18 patients (21%), polyurethane in 17 patients (20%) and gastrostomy button in 3 patients (4%). In 31% of the patients there were not data in reference to the kind of tubes used. The diameter more frequently used was 18 french (26.9%) and the least used was 10 french (1%). The complications were more frequent in children under 6 months old and in the post-operative period ($\text{Chi}^2 = 8.93$ $p < 0.05$; OR = 2.4 CI of 95%) (Figure 1). Patients using foley tubes in their gastrostomies were complicated by 85% (17/20 patients). On the other hand, from the total patients presented complications (50 patients) most of them were those with tubes Foley (34%). Some of these complications were infection, fistulas, leakage, dilatation of the gastrostomy orifice, tube dislodgment and obstruction (Tables 2 & 3).

The patients' nutritional status at the moment of the gastrostomy ($n = 74$) according to W/A was malnutrition in 68.9%, risk of malnutrition in 8.1% and normal in 23%. After the procedure, precisely 38 months post-gastrostomy, 60.9% of the children continued malnourished (Figure 2).

Conclusion

To conclude, the gastrostomy is one of the most helpful way of feeding in special patients like some with neurological diseases, children with genetic syndromes who frequently have feeding problems and swallowing dysfunction or some children with very high requirement wich are impossible to fill by mouth. In this study of our twelve years of experience we realized that it

Table N°2. Type of complications in patients with gastrostomy, Clínica del Niño PREVIANDES. Period August 1996 – May 2007.

Complications	Number of patients	%
Stomal/Skin (irritation, leakage, hypergranulation)	26	52%
Stomal Infection	24	48%
Mechanical(dislodgment, obstruction)	20	40%
Dumping	4	8%
Surgical complications	3	6%
Metabolic	2	4%
Death	1	2%
Total patient with complications	50	62%
Total patients without complications	34	38%

Table N°3. Type of complications in patients with gastrostomy, depending on the type of tube used (n=50). Clínica del Niño PREVIANDES, Period August 1996 – May 2007.

Type of tube	Complication	Number of patients	%
Foley	Stomal infection Stomal/Skin Mechanical	17	34%
Silicone	Stomal infection Stomal/Skin Mechanical	11	22%
Poliurethane	Stomal infection Stomal/Skin Mechanical	8	16%
Gastrostomy button	None	0	0%
No data		14	28%
Total		50	100

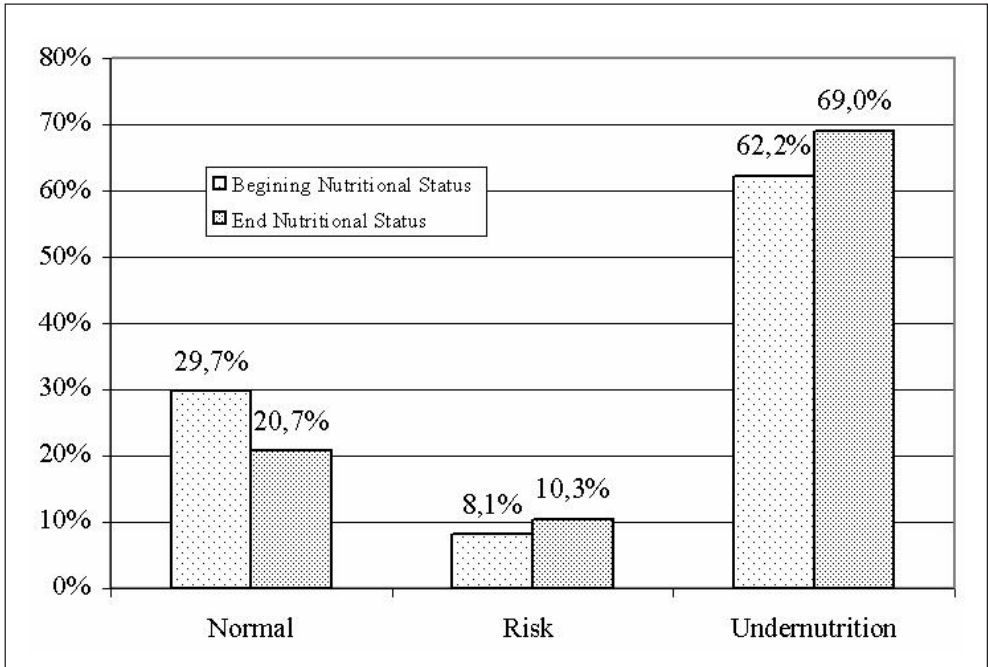


Figure N° 2. Change of nutritional status during study period (at the beginning of gastrostomy and 38 months after) (n=74).

is important to avoid the use of Foley tubes for gastrostomy, since they were responsible for most of the complications (infectious, mechanical, stomal and skin) in our patients. Regardless of total or partial nutritional support by gastrostomy, our patients tend to compromise their nutritional status and it could be related to their illnesses, socio-economic problems or lack of adherence to the nutritional recommendations. It is very important to implement vigilance and control measures, supervised by an interdisciplinary team to prevent the appearance of complications. In addition, it is necessary to establish contacts with governmental and non-governmental organizations to financial assistance of these families to be able to have better care of their children.

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