Concept Paper

Early Enteral Nutrition in Patients Undergoing Intestinal Anastomosis

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Posted Date: 6 September 2024

doi: 10.20944/preprints202409.0532.v1

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 doi:10.20944/preprints202409.0532.v1

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Early Enteral Nutrition in Patients Undergoing Intestinal Anastomosis

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Abstract: A prospective longitudinal study was carried out in 54 patients undergoing intestinal anastomosis who were started on early enteral nutrition at the University Hospital of Caracas (November 2022 to September 2023), all of whom met the inclusion criteria. Taking as early enteral nutrition two study groups: GROUP 1 tolerance at 24 hours and GROUP 2. Tolerance at 48 hours. The hospital stay and the complications they presented were evaluated. Of the 54 patients, 40 (74.1%) underwent emergency surgeries, 46 (85.2%) patients were men. There was no difference in the mean ages of the two diet groups (P = 0.254), the average age was 33.9 ± 14.8 years. There was no statistically significant difference (P=0.086) in the mean length of hospital stay (4.7±2.4 days) between patients on diet type. Vomiting occurred in 20.37%, with no statistically significant differences between groups 1 and 2 on diet. There were 2 (3.7%) cases of leakage requiring reintervention. This complication was not associated with the start of a particular diet, type of surgery, surgical time or site of injury.Early enteral nutrition is a viable option in patients undergoing isintestinal anastomosis, it is not associated with the incidence of dehiscence, it is well tolerated by patients, it has acceptable complications, vomiting being more frequently associated, and it reduces hospital stay. KEY WORDS: Early diet, anastomosis, complications.

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Introduction

The role of early postoperative enteral nutrition after intestinal surgery is controversial. After surgery there is typically a period of "nothing by mouth" before gradual administration of fluids and then solids. Within 24 hours of starvation changes in the body's metabolism are observed including increased insulin resistance and reduced muscle function [1].

The first study to address the issue of early enteral nutrition was conducted in 1979 where 30 patients had undergone gastrointestinal surgery and early initiation of nutrition, showing improvement in clinical and metabolic controls as well as shorter stay [2]

It was not until Lewis et al. performed a meta-analysis suggesting that early enteral nutrition decreased the risk of anastomotic dehiscence, decreased the rate of surgical wound infection, pneumonia, and intra-abdominal abscess, however they did not achieve statistically significant results.

Adequate nutrition has always been an important goal of postoperative care. Today, it is known that early oral feeding is safe and can be tolerated by most patients. It shortens the duration of ileus, accelerates the recovery of intestinal function, and decreases disturbances of nitrogen balance [4].

It improves the overall nutritional status of patients in the postoperative period, with a reduction in septic complications and catabolic response to surgery. Another potential advantage, although difficult to quantify, is the feeling of well-being of patients with oral feeding. The psychological impact of this can play an important role in the recovery process [4].

The time to start postoperative oral tolerance is controversial and often depends on the surgeon. Auscultation of peristalsis intestinal and the expulsion of gas or feces are parameters on which many rely to decide the start of oral tolerance [5].

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The concept of early feeding in gastrointestinal surgery can be confusing. When reviewing published articles on this topic, we do not see a clear description of how much time should elapse after surgery for the onset of tolerance to be considered early or not [5].

Some publications report with evidence level that early feeding is when tolerance starts in the first hours after surgery (Ib), others before the first 24 hours (Ia) and even early feeding is considered to be starting tolerance 48 hours after surgery (Ib). What is common in all series is that tolerance starts before intestinal peristalsis is auscultated or gases or feces are expelled, so that we can define early feeding as that which starts in the postoperative period before we clinically consider that intestinal peristalsis exists [5].

Early enteral nutrition has shown greater advantage due to decreased intestinal permeability, decreased exogenous inflammatory response after surgery, less protein degradation, less weight loss in the postoperative period, less anastomotic dehiscence, lower risk of infection, decreased surgical site infection, pneumonia and intra-abdominal abscess, shorter hospital stay and therefore lower costs [6].

The classic reasoning of maintaining these patients on an absolute diet to prevent nausea or vomiting, as well as dehiscences by preventing the passage of food through the anastomoses, is not supported by the data that clinical evidence provides us. Currently, there is no evidence that delaying the start of oral feeding is beneficial in the postoperative recovery of our patients [7].

The aim of this study is to demonstrate that early initiation of postoperative enteral nutrition is associated with fewer complications in patients undergoing intestinal anastomosis.

Methodology

Type of Research

A prospective, longitudinal study was conducted

Population and Sample

Population: It was represented by all patients who were admitted to the General Surgery Service of the CARACAS UNIVERSITY HOSPITAL COMPLEX during the months of November 2022 to September 2023 and who underwent intestinal anastomosis.

Sample: It was represented by 54 patients with intestinal anastomosis who started early enteral diet.

Inclusion criteria

- All patients with anastomoses performed at our Center, both emergency and elective surgeries.
- Patients over 12 years old

Exclusion criteria

- Patients under 12 years of age.
- Patients with severe head trauma
- Patients admitted to the intensive care unit
- Patients operated on at other centers.

Data Collection

Data were collected using a form (Annex 1) where patients were distributed into two groups according to early tolerance of the diet. GROUP 1 tolerated the diet at 24 hours. GROUP 2 tolerated the diet at 48 hours. See Annex 1.

Statistical Analysis

The data were processed in the SPSS 21.0 program. Frequency and percentage of categorical variables were calculated. Mean, deviation and range of continuous variables were calculated. The KS test was used to determine the normality of the data, the ANOVA test was used to compare the

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means of continuous variables and the CHI2 test was used to compare percentages. Statistical validity was set at $P < 0.05$.

Results

Fifty-four patients who underwent intestinal anastomosis were studied, of which 40 (74.1%) were emergency surgeries and 14 (25.9%) were elective surgeries. 46 (85.2%) patients were men and 8 (14.8%) were women. There was no difference in the mean ages of the two diet groups (P=0.254), the average age was 33.9±14.8 years. See Table 1.

Table 1.

Age(years)					
Type of diet	N	Mean±SD	Range	Pa	Pb
Diet1	34	32.1±13.4	16-70	0.066	0.254
Diet2	20	37.0±17.0	18-77	0.111	
Total	54	33.9±14.8	16-77		

Pa:K-S test for normality. Pb:T test for independent samples. Diet 1: 24 hours. Diet 2: 48 hours.

34 patients tolerated the diet at 24 hours and 20 patients at 48 hours. There was no statistically significant difference (P=0.086) in the average days of hospitalization (4.7±2.4 days) between patients according to the type of diet. See Table 2

Table 2.

	Hospital stay (days)			
Diet	N	X±S	Pa	Pb
24 hours	34	4.3±2.2	0.067	0.086
48 hours	20	5.5±2.7	0.111	
Total	54	4.7±2.4		

Pa:K-S test for normality.Pb:T test for independent samples.

The most frequent cause in emergency surgeries was gunshot wounds in 24 (44.4%) and in elective surgeries, restoration of intestinal transit in 14 (25.9%) patients. See Table 3.

Table 3.

Cause	**N**	**%**	**Type of intervention**
AB	8	14.8	

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PAF	24	44.4	
Others	8	14.9	Emergency
Restitution	14	25.9	Elective
Total	54	100.0	

AB: White weapon, PAF: Firearm projectile.

15 (27.8%) patients had associated injuries (intra-abdominal or thoracic), 14 intra-abdominal, 3 thoracic, 2 intra-abdominal and thoracic. Patients with anastomosis plus associated injury remained on average 5.9±2.8 days, higher than the average of 4.2±2.2 days of patients operated on only with anastomosis (P=0.021). See Table 4.

Table 4.

	Hospital stay				
Type of injury	N	%	Mean±SD (days)	P^{to}	P^{b}
Anastomosis	39	72.2	4.2±2.2	0.229	0.021
Anastomosis+INTRABOTX	15	27.8	5.9±2.8	0.441	
Total	54	100.0	4.7±2.4		

INTRAB:Intra-abdominal injury.TX:Thoracic injury.DS:Standard deviationPa:K-S test for normality.Pb:T test for independent samples.

The most frequent complications were vomiting in 20.37%, surgical site infection in 14.81%, with no statistically significant differences between the groups of patients with diet 1 and 2. See Table 5.

Table 5.

COMPLICATIONS	Diet1	Diet2	Total	%
Vomit	**5**	**6**	**11**	**20.37**
Distension	1	4	5	9.26
Drain	1	1	2	3.70
Abscess	0	1	1	1.85
ISO	**4**	**4**	**8**	**14.81**
Respiratory	1	3	4	7.41
Reintervention	1	1	2	3.70

ISO:operative site infection.

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Regarding anastomotic leaks, there were 2 (3.7%) cases of leaks that required reintervention. This complication was not associated with the start of a particular type of diet, type of surgery, surgical time or site of injury. See Table 6.

Table 6.

Complication	Gender	N	Age	Guy Surgery	Site of injury	Start of diet	TQ	Re-intervention	vomiting
Drain	Man 1	1	32	Emergency	Thin Handle/Colon	48 hours	5h	Yeah	Yeah
	Man 2	1	54	Elective	Colon	24 hours	1h	Yeah	No

Discussion

In our series, 54 patients who underwent intestinal anastomosis with tolerance to early enteral nutrition were studied, divided into two groups: GROUP 1: diet at 24 hours, GROUP 2: diet at 48 hours. Men represented more than 80% of the cases, the mean age of the sample was 33.9 ± 14.8 years of age.

Vomiting was the most frequent complication with an incidence of 20%, with rapid resolution and allowed the patient to be discharged safely between the third and sixth postoperative day. In studies conducted by Centeno et al., 2013, the risk of vomiting is higher in patients with early feeding.

In our series we showed that the average number of days of hospitalization in these patients is between 4.7±2.4, a time similar to the series where early nutrition is compared with traditional management, as demonstrated by the 2011 Cochrane review with level of evidence IA, where no significant differences were found with respect to hospital stay, although there is a certain tendency for it to decrease with early feeding.

This hospitalization time is longer if other injuries associated with the anastomosis are present (4.2±2.2 days compared to 5.9±2.8 days) and is statistically significant (P=0.021).

Anastomotic leakage is not associated with the initiation of early enteral nutrition, there were 2 cases, one at 24 hours and one at 48 hours. A Cochrane meta-analysis in 2011 states that anastomotic leakage was an outcome measure in ten studies and events were reported in nine studies. The risk of leakage ranged from 0% to 8.3% in the early feeding groups and 0% to 27% in the late feeding groups control. None of the nine included trials showed that early feeding resulted in a reduction in the risk of anastomotic leak with a combined relative risk of 0.69 (0.36 to 1.32), with no significant differences, and no advantage with an absolute diet compared to early feeding. Data that do not coincide with the meta-analysis of Lewis et al. where in 11 studies it was shown that with early enteral nutrition the risk of anastomotic leak was significantly lower. We interpret that cases of leak can occur in early nutrition without apparent precise cause.

In our series we found that the infection of the surgical site occurred in 8 cases (14.81%) being the same in both types of diet, so we cannot demonstrate that starting the diet early or not has any relation to the presence of infection of the surgical site, data that do not coincide with the literature, as shown by Centeno et al. in 2013 where they conclude that the risk of post-surgical infection is significantly reduced in those who start enteral nutrition early. Similarly, in the meta-analysis of 11 studies by Lewis et al. 2001 with level of evidence IA the risk of infection was lower in patients with enteral nutrition (p = 0.036).

Conclusion

Early enteral nutrition is a viable option in patients undergoing intestinal anastomosis. It is not associated with a high incidence of leaks, is well tolerated by patients, and has acceptable complications, with vomiting being more frequently associated.

 doi:10.20944/preprints202409.0532.v1

Annex 1

EARLY ENTERAL NUTRITION PROTOCOL

PATIENT:

AGE:_____SEX:_____

TYPE OF SURGERY EMERGENCY___ELECTIVE___

DIAGNOSIS:_____

CAUSE: AB____PAF_____OBSTRUCTION_RESTITUTION___

INJURY.ASADELGADA_COLON__BOTH_____

INJURIES ASSOCIATES: INTRA-ABDOMINAL_
THORACIC_____OTHERS_____

SURGICAL TIME:

DATEADMISSION:
DATE OF DEPARTURE:
DIET START:

GROUP124H____48_____

DAYS OF HOSPITALIZATION_RE-ENTRY_____

COMPLICATIONS:

VOMITING_____DISTENSION_____ANASTOMOTIC LEAK_____

INTRAABDOMINAL ABSCESS_____ISO_____RESPIRATORY___

KEYWORDS/PHRASES:
Early diet, anastomosis, complications

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