



ORIGINAL RESEARCH PAPER

General Surgery

STUDY OF EARLY ENTERAL FEEDING AFTER STOMA CLOSURE IN PEDIATRIC PATIENTS

KEY WORDS: early starting of enteral feed , colostomy closure

Dr Ashish Chhabriya	Alumni
Dr M M Ansari	Associate Professor
Dr Pravinkumar Wasadikar	Associate Professor
Dr Sarojini Jadhav	HOD
Dr Rajnikant Kide*	Junior Resident, GMC Aurangabad *Corresponding Author

ABSTRACT
Aims and Objectives: To study the outcome of early enteral feeding after elective stoma closure in pediatric patients and its effect on reduction in hospital stay, morbidity and mortality. **Methods:** The Children under 16 years of age undergoing elective ileostomy or colostomy closure were prospectively and consecutively enrolled in the early feeding protocol (Group A). A retrospective review was performed of patients under 16 years who had undergone elective distal bowel anastomosis (ileostomy or colostomy closure) without any set feeding protocol were taken as historical controls (Group B). In group A, early feeding was initiated (within 48 hrs/ POD 2), as soon as bowel movement had appeared or patient had passed flatus feeding was started to the patient. In Group B, feeds were started traditionally once the nasogastric tube was removed after the clinical onset of bowel activity, which varied from 3 to 5 days. **Results and Conclusion:** Sigmoidostomy and Transverse colostomy were seen in 38% each. Post-operative day for start of feeding was seen in second day in most of the children of Group A (52%) and on 1st day with 48% of children, whereas in group B it was on POD 3(52%) and POD 4 (40%). Different symptoms were studied and compared in both the groups. In that most of the people had wound infection and abdominal distention in 28% of the children in Group B. Whereas 16% of the group A children suffer from wound infection. In case of day of discharge the median days was 6 in Group A and that of Group B was 9 and this difference was found to be statistically significant (P<0.001). Post-operative complications were comparatively lower in early enteral feeding group. Post-operative hospital stay was significantly reduced in early feeding group when compared with delayed / traditional feeding.

INTRODUCTION

Acute Postoperative starvation until the resumption of bowel activity has been the traditional care model after elective distal bowel anastomosis. The justification for this has been the need to overcome postoperative ileus and to provide rest to the bowel for secure anastomotic healing. Early enteral feeding has been shown by various clinical trials as having benefits in the reduction of postoperative ileus and hospital stay.

In pediatric practice, the duration of postoperative fasting may vary from a few days to weeks and is primarily based on practitioner bias. However, studies have shown much earlier recovery of bowel function after laparotomy (small bowel 4–8 h, stomach 24–48 h, large bowel 48–72 h) which indicates the possibility of early feeding tolerance after bowel surgery.

Anastomotic healing and postoperative complications are directly affected by factors such as preoperative nutritional status, immunosuppression, local abdominal pathology, splanchnic blood flow and surgical technique. For patients with pre-existing malnutrition, postoperative starvation leads to further nutritional depletion and thereby increases the incidence of postoperative complications.

Small-volume oral feeds in the early postoperative period actually stimulate the gastrointestinal tract, produce propulsive peristalsis and reduce the period of postoperative ileus. Early enteral feeding prevents the translocation of bacteria or viruses by maintaining the integrity of gut mucosa which may become atrophied if the gut remains at rest for 5 days.

Review Of Literature

Anatomy of Colon:

The colon and rectum constitute a tube of variable diameter of about 100 -150 cm in length.

The terminal ileum empties into the cecum through a thickened, nipple-shaped invagination, the ileocecal valve.

Physiology Of Small Intestine- Digestion and Absorption:

The complex process of digestion and eventual absorption of nutrients, water, electrolytes, and minerals is the main role of the small intestine. Liters of water and hundreds of grams of food is delivered to the small intestine daily; and, with remarkable efficiency, nearly all food is absorbed, except for indigestible cellulose.

OSTOMY- Definition:

The term “ostomy” is derived from the Latin word “ostium,” which means mouth or opening. In the setting of abdominal surgery, the ostomy procedure refers to bringing a segment of the small intestine or colon from the abdominal cavity out through the abdominal wall fascia and suturing it in place to the skin.

MATERIALS & METHODS

Study Design:

Retrospective and Prospective observational study

Inclusion criteria:

Children under 16 years of age undergoing elective ileostomy or colostomy closure.

Sample size – 50

Study population:

All the patients posted for elective stoma closure under the age of 16 years at a tertiary care center.

Exclusion criteria:

1. Non-ambulatory patients
 2. Age more than 16 years
 3. Patients are taken on an emergency basis
- Patients not willing to participate in study

Study procedure:

The Children under 16 years of age undergoing elective ileostomy or colostomy closure in the Department of Surgery, Government Medical College, M.S, India, from Dec 2020 will be prospectively and consecutively enrolled in the early feeding protocol (Group A) after prior approval from the institutional ethical committee and informed parental consent.

A retrospective review will be performed of pediatric patients under 16 years who had undergone elective distal bowel anastomosis (ileostomy or colostomy closure) between Nov 2018 to Nov 2020. without any set feeding protocol would be taken as historical controls (Group B).

In Group B, feeds were started traditionally once the nasogastric tube was removed after the clinical onset of bowel activity and a decrease in aspirates, which varied from 3 to 5 days, and then progressed as tolerated. Patients with complicated associated anomalies, congenital heart disease, those requiring intensive care unit (ICU) management and those with persistent distal bowel obstruction were excluded from the study.

In group A ,early feeding was initiated (within 48 hrs. / Post operative day 2), as soon as bowel movement had appeared or patient had passed flatus feeding was started to the patient.

Distal loop cologram was done in most of the patients pre operatively to rule out any distal causes of obstruction, adequate nutrition status was maintained in all the patients and all patients were taken on elective basis after proper pre anesthetic evaluation and fitness.

All patients underwent standard preparation before surgery in the form of Bowel wash with polyethylene glycol , golytely (PEGLEC) taken orally and distal bowel washes and preoperative antibiotics (Ceftriaxone 50–75 mg/kg/day IV 12 hourly and Metronidazole 7.5 mg/kg/ dose IV 8 hourly) starting 24 h before surgery. All operations were performed under general anesthesia with additional caudal epidural block in most of the cases.

Bowel anastomoses were performed using either polydioxanone or polygalactin sutures of appropriate size. The duration of surgery and the medications used for anesthesia were recorded. Paracetamol 15 mg/kg/dose (oral/rectal suppository) or 5 mg/kg/dose IM or Diclofenac sodium 1–3 mg/kg/day was administered for postoperative pain relief.

RESULTS

- 1) Gender distribution: We have taken 25 samples in Group A and 25 samples in Group B Having a total of 50 samples. Among that there were 15 males and 10 females in Group A and 12 males and 13 females in Group B. By applying chisquare test we found that there was no significant difference between the groups. So, Gender is not the confounding factor in our study.
- 2) Age at stoma closure: 7 (28%) of the children were below one year of age in group A and 5(20%) in group B. Maximum number of children were there in 24 -60 months

in group A (32%) and 36% in Group B. Age at stoma closure is above six months in 7children(28%) in group B whereas it was only 4(16%) in Group A . By applying chisquare test the difference was found to be insignificant (p=0.557).

- 3) Age at stoma creation: Most of the children's age at stoma creation was within 7 days (62%). In Group A it was 68% and in group B it was 58%. So in Group B 36% of the children were having more than 1 month whereas in Group A it was only 24%. But the difference was not statistically significant (p=0.641) .

3)Type of stoma:

Types of stoma was presented in the above table. Sigmoidostomy and Transverse colostomy were seen in 38% each. While other types of stoma is very less.

Sigmoido stomywas seen in 14 cases (56%) of Group A and Transverse Colostomy was seen in 52% of group B. Here we could see the statistically significant difference between the two groups.(p=0.015).

5) Appearance of Bowel Sounds

Among 80% of the children the appearance of Bowel sounds were seen in post operative day 1 and the remaining in 2nd day in group A whereas. In group B also nearly 76% of the children had the bowel sounds in a day only. The difference was not significant (p=0.733).

6) Passage of stools :

Passage of stools were seen maximum 3rd postoperative day in Group A and 56% have showed on pod 4 in group B. when the post operative day between these two groups were compared it was seen that. it was statistically different (p=0.048).

7) POD for starting feed:

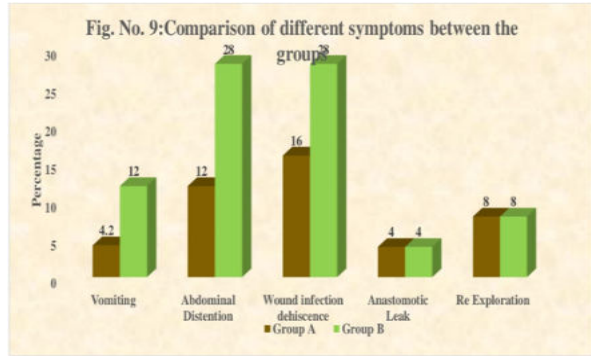
Post operative day for start of feeding was seen in second day in most of the children of Group A (52%) and on 1st day with 48% of children ,Whereas in group B it was on POD 3(52%) and POD 4 with 40%.The difference was found to be statistically very high. (p<0.001).

8) Comparing the Symptoms:

Different symptoms were seen in the children. In that most of the people had wound infection and abdominal distention in 28% of the children in Group B. Whereas 16% of the group A children suffer from wound infection.

Here each symptoms in both the groups were compared by using chisquare test. But the difference was not significant in any of the symptoms. (p>0.05).

	Group A		Group B		Total		P
	Number	Percentage	Number	Percentage	Percentage	Number	
Vomiting	1	4.2	3	12.0	4	8.2	0.3 17
Abdominal Distention	3	12.0	7	28.0	10	20.0	0.1 57
Wound infection dehiscence	4	16.0	7	28.0	11	22.0	0.3 06
Anastomotic Leak	1	4.0	1	4.0	2	4.0	1
Re Exploration	2	8.0	2	8.0	4	8.0	1



CONCLUSIONS

In this study we have documented and analyzed cases patients undergoing elective stoma closure at a tertiary care center , according to our observations we have documented when early enteral feeding is compared with delayed/ traditional fasting in patients bellow the age of 16 years. There is no statistically significant difference when post operative complications are compared where as significant difference is seen when post operative hospital stay is compared between the two groups. Treating and managing pediatric patients is a difficult task in a general surgery setup like ours, especially when the patient is kept nil by mouth when the child is hungry, securing IV lines for IV fluids and electrolytes. children easily get irritated while fasting and thus starting early feeding postoperatively definitely changes their behaviour and over all recovery is faster and easier. According to our study early enteral feeding is better than traditional / delayed feeding in pediatric patients .

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