



## EARLY ENTERAL FEEDING VERSUS FEEDING AFTER PASSAGE OF FLATUS AFTER ABDOMINAL OPERATION”

**Dr N. Mallikarjuna**

Assistant Professor, Dept of General Surgery, Kurnool Medical College.

**Dr Rathod Shiv Prasad\***

General Surgery Resident, Kurnool Medical College. \*Corresponding Author

**Dr K N Somesh**

General Surgery Resident, Kurnool Medical College.

**ABSTRACT** **BACKGROUND:** A period of nil per oral is a common practice after most abdominal surgeries because of postoperative ileus. But the ileus predominantly affects the stomach and colon. However, the small bowel recovers from the ileus within 4-6 hours after laparotomy. Postoperative period of ileus correlates well with patient's age, BMI and small bowel surgery and magnitude of surgery. Many patients come with diseases with vomiting and poor appetite leading to a state of malnutrition which is a common finding in preoperative patients requiring abdominal surgeries. It is well documented that length of hospital stay is prolonged in poorly nourished surgical patients. Keeping the patient nil per oral aggravates the malnutrition further in a state where the need of calorie is more with postoperative stress. The early postoperative feeding is established to be safe and well tolerated. Most of the early enteral feeding study concentrates on a single surgery. Hence, it is decided to include all the abdominal procedures including elective and emergency, open and minimal invasive, benign and malignant to have an overall view of efficacy of early enteral feeding in these patients.

**KEYWORDS :** Enteral feeding, ileus, nutrition.

### INTRODUCTION

- A period of nil per oral is a common practice after most abdominal surgeries because of postoperative ileus. but the ileus predominantly affects the stomach and colon. However, the small bowel recovers from the ileus within 4-6 hours after laparotomy.1
- Postoperative period of ileus correlates well with patient's age, BMI and small bowel surgery and magnitude of surgery.2
- Many patients come with symptoms like vomiting and poor appetite leading to a state of malnutrition which is a common finding in preoperative patients requiring abdominal surgeries.
- It is well-documented that length of hospital stay is prolonged in poorly nourished surgical patients.4
- Keeping the patient nil per oral aggravates the malnutrition further in a state where the need of calorie is more with postoperative stress. The early postoperative feeding is established to be safe and well tolerated.5
- Early feeding may enhance wound healing and increase anastomotic strength particularly in malnourished patients.6,7
- Preexisting malnutrition is a major clinical problem in surgical patients.8. Nutritional depletion is an independent determinant of serious complications after major gastrointestinal surgery.9
- Early nutritional support was associated with significant reduction in postoperative complications.
- Early postoperative Enteral nutrition either afforded no advantage over standard care or seemed to have a deleterious effect.
- Early postoperative enteral nutrition may have a beneficial effect on function of intestinal barrier in respect of permeability, bacterial translocation and subsequent development of septic complications. Early postoperative nutrition influences intestinal permeability.

### AIMS AND OBJECTIVES

#### This study is undertaken to:

- To evaluate the tolerance of the patient to early enteral feeding.
- To evaluate the incidence of abdominal distension, nausea, vomiting, and effect on the wound.
- To evaluate any dys-electrolytemia.
- To evaluate any deficiency of trace elements (zinc and selenium) on the day of passage of flatus.
- To evaluate the early passage of flatus/stool in any particular group.

### MATERIAL AND METHODS

Type of study: Prospective, randomized control study.

#### 100 patients included in this study, divided into 2 cohorts:

- 1) Study group: 50 patients

- 2) Control group: 50 patients

#### INCLUSION CRITERIA:

- Patients consent.
- Patients in the age groups between to 18-75 years of age.
- Patients of both sexes.
- All elective and emergency abdominal surgeries.
- Patients on feeding jejunostomy considered as enteral feeding.

#### EXCLUSION CRITERIA:

- Patient not given consent for the present study.
- Age 75 years.
- Haemodynamically unstable patients with or without pressure agents like dopamine, dobutamine, noradrenaline.

### OBSERVATIONS AND RESULTS:

**Table 1: Age of the patient**

	Cases	Control	P-value
	Mean ± SD	Mean ± SD	
Age	40.94 ± 13.36	41.85 ± 13.68	0.456
Range	14-75	13-77	

The mean age of the patients started on early feeding was 40.94 yrs and that of the control group was 41.85 yrs. The difference in age group is not statistically significant as the p value is 0.456.

**Table 2: Weight of the patient**

	Cases	Control	P-value
	Mean ± SD	Mean ± SD	
Weight at preop	61.02 ± 9.54	59.65 ± 9.15	0.105
Weight at discharge	61.55 ± 9.49	59.37 ± 8.88	0.008

The mean weight of the study cases preoperatively was 61.02kg. But the weight increased to a mean of about 61.55kg at the time of discharge. While comparing the same parameter in the patients of the control group, the mean preoperative weight was 59.65kg. But the weight decreased to mean of about 59.37 at the time of discharge. This difference in weight at discharge is statistically significant as the p value is 0.008.

**Table 3: Time taken for initial enteral feeding.**

	Cases	Control	P-value
	Mean ± SD	Mean ± SD	
Time taken for initial feeds	1.88 ± 1.03	2.96 ± 1.23	<0.001
Range	1-5	1-5	

The mean number of days to start oral feeds among the cases started on early feeding was 1.88 days while it was 2.96 days among the cases in

the control group. The p value being <0.001 the difference is statistically significant.

**Table 4: Duration of passage of flatus**

	Cases	Control	Total	P-value
24 hours	15(30%)	20(40%)	35	0.028
24-48 hours	19(38%)	12(24%)	31	
48-72hours	11(22%)	14(28%)	25	
>72hours	5(10%)	4(8)	9	
Total	50	50	100	

The mean number of days for passage of flatus at 24 hours is 30% for cases while it is 40% for control group. The mean number of days at 24-48 hrs for cases group is 38% while it is 24% for control group. Similarly at the time of 48-72 hrs it is 22% for cases group while it is 28% for control group. Lastly at a time for more than 72 hrs it is 10% for cases group while it is 8% for control group. Since the p value is 0.028, the difference is statistically significant.

**Table 5: Electrolyte imbalance**

	Cases	Control	Total	P-value
Yes	4(8%)	2(4%)	6	0.021
NO	46(92%)	48(96%)	94	
Total	50	50		

The number of patients having electrolyte imbalance in cases group is 4(8%) while number of patients having electrolyte imbalance in control group is 2(4%). The difference in the value is statistically significant as the p value is 0.021.

**Table 6: Passage of stools after surgery**

	Cases	Control	P-value
	Mean ± SD	Mean ± SD	
Stool passed after surgery	2.8 ± 1.19	3.99 ± 1.43	<0.001
Range	1-5	1-6	

The number of days taken by the patients to pass stool after surgery in case group is 2.8 days and number of days taken by the patients to pass stool after surgery in control group is 3.99 days. This is statistically significant as the p value is <0.001.

## DISCUSSION

- Among the various methods of access to the gut for the initiation of early enteral feeding, the choice in this study was the use of an oral route, nasogastric and nasojejunal feeding tube. The tube being made of polyurethane which is more pliable than conventional PVC or silicon tubes helped in the comfortness of having the tube in place. Complications of jejunostomy can be avoided by the use of a nasojejunal tube.
- On proper maintenance of the tube as per standard feeding protocols none of the tubes used in this study experienced mechanical complications like blockage and difficulty in removal.
- A nasojejunal tube is the ideal route for early enteral feeding with the least complications. The choice of feeds was milk based. This was due to the feasibility of preparation, maintenance, administration and cost effectiveness. The maximal calorie supplied was 2581 kcal/day by the full-strength feed.
- The mean age of the patients in the study group was 40.94 yrs, whereas in the control group was 41.85 yrs. This difference is not significant and an age-based bias is hence ruled out.
- Similarly, the sex distribution is also not different statistically and hence bias based of sex of the patient can be ruled out.
- The mean weight of the study cases pre operatively was 61.02 kg. But the weight increased to a mean of about 61.55 kg during the time of discharge. While comparing the same parameter in the patients of the control group, the mean preoperative weight was 59.65 kg, the weight reduced to 59.37 kg during the time of discharge. This difference in weight during discharge is significant. This is attributed to the significant maintenance of nutrition right from the early postoperative period.
- The duration of passage of flatus among the cases in the study group was 15 (30%), 19(38%), 11(22%), 5(10%) at 24hrs, 24-48hrs, 48-72hrs, >72 hrs respectively whereas in the control group was 20(40%), 12(24%), 14(28%), 4(8%) at 24hrs, 24-48hrs, 48-72hrs, >72 hrs respectively. This difference is significant p value 0.028 showed the advantage of early feeding.
- The time taken to start oral feeds is also reduced among the cases in the study group with the mean duration taken to start oral feeds

being 1.88 days when compared to those cases in the control group where the mean duration is 2.96 days. This difference is also significant with p value <0.001 and highlights the advantage of starting the postoperative patient on early enteral feeding.

- The time taken for passage of stools is also reduced among the cases in the study group with the mean duration taken for passage of stools being 2.8 days when compared to those cases in the control group where the mean duration is 3.99 days. This difference 78 is also significant with p value<0.001and highlights the advantage of starting the postoperative patient on early enteral feeding.
- Electrolyte imbalance is common problems faced by the surgeons on postoperative period. Electrolyte imbalance in study group was seen in 19 patients and that of control group had 35 patients. The significant p value of 0.021 shows that early feeding helps in maintaining the electrolyte balance in the body.
- All patients in this study were managed as per protocol by reducing the amount of feeds transiently. None required cessation of feeding. Minimal intolerance to milk-based feeds may be prime cause for intolerance to feeds. This can be overcome by reducing the amount of feeds temporarily or by diluting the feed.

## CONCLUSION

- Nutritional status of the patient clinically and biochemically is better in early feeding.
- Duration of passage of flatus and duration of passage of stools is lesser in early feeding.
- Time taken to start oral feeds is lesser in early feeding.
- Decreased electrolyte imbalance and improvement of the weight is seen in early enteral feeding.

This study clearly shows the advantages of starting early enteral feeding in patients undergoing abdominal surgeries over late enteral feeding.

## REFERENCES

- Cheng-Le Zhuang, Xing-Zhao Ye, Chang-Jing Zhang, Qian-Tong Dong, Bi-Cheng Chen Zhen Yu. Early versus traditional postoperative oral feeding in patients undergoing elective colorectal surgeries: a meta-analysis of randomized clinical trials. *Dig Surg* 2013; 30:225-232.
- Meng YS, Su Y, Fan Y, Yu W, Wang Y, Zheng W, Shen C, Zhou LQ1, Zhang QL1. Risk factors for the development of postoperative paralytic ileus after radical cystectomy: a report of 740 cases. *Beijing Da Xue Xue Bao*. 2015; 47:628-33.
- Ramirez JA, McIntosh AG, Strehlow R, Lawrence VA, Parekh DJ, Svatek RS. Definition, incidence, risk factors, and prevention of paralytic ileus following radical cystectomy: a systematic review. *Eur Urol*. 2013; 64:588-97. doi: 10.1016/j.eururo.2012.11.051.
- Gupta D, Vashi PG, Lammersfeld CA, Braun DP. Role of nutritional status in predicting the length of stay in cancer: a systematic review of the epidemiological literature. *Ann Nutr Metab*. 2011; 59:96-106. doi: 10.1159/000332914.
- Pragatheeswarane M, Muthukumarassamy R, Kadambari D, Kate V. Early oral feeding vs. traditional feeding in patients undergoing elective open bowel surgery-a randomized controlled trial. 2014; DOI:10.1007/s11605-014-2489-1.
- Schroeder D, Gillanders L, Mahr K, Hill GL. Effects of immediate postoperative Enteral nutrition on body composition, muscle function and wound healing. *J Parenter Enteral Nutr* 1991; 15:376-83.
- Haydock DA, Hill GA. Impaired wound healing in patients with varying degrees of Malnutrition. *Parenter Enteral Nutr* 1986; 10:550-4.
- Hulsewe KW, Von Meyenfeldt MF, Soeters PB. Nutritional support for surgical Patient. In: J Payne-James, G Grimble, D silk, eds. *Artificial nutritional support in clinical practice*. London: Greenwich Medical 605-16.
- Keele AM, Bray MJ, Emery PW, Duncan HD, Silk DB. Two phase randomized Controlled clinical trial of postoperative oral dietary patients in surgical patients. *Gut* 1997; 40:393-9.