

Original Article

Comparison of Stay in a Hospital in Early Versus Late Enteral Feeding

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Abstract

Objective: objective of this study is to compare the length of stay in a hospital in early vs late enteral feeding.

Methods: This randomized control clinical trial was done at South Surgical Ward, Mayo Hospital Lahore Pakistan. The study was completed in Six months following the approval of the synopsis. Sample of 116 patients (58 in each group) was determined. The patients were allocated in two different groups; group A and a group B, by lottery. In the study group (A); the patients were kept nil by mouth for the first six hours following procedure. Six hours post-operative patient was allowed sips of clear fluids and was removed the nasogastric tube; the amount of fluid intake was increased as per tolerance of the patient. The diet was changed from fluids to soft diet and then to normal diet from 2nd post-operative day. A chart was maintained of any vomiting, Abdominal pain tenderness or swelling during feeding. In the control group (B); the patients were kept on maintenance fluids given intravenous post-operatively. Length of hospital stay was recorded. Data was entered in SPSS-20. Quantitative variables like age were presented as mean +S.D.

Results: The mean age of cases was 27.51 ± 9.67 years while the mean of ages in group-A and Group-B was 26.91 ± 8.67 years and 28.10 ± 10.62 years respectively with no statistical difference, p -value = $0.510 (> 0.05)$. In this study there were 71(61.2%) and 45(38.8%). In group-A there were 41(70.69%) males and 17(29.31%) females while in the group-B there were 38(65.52%) males and 20(34.48%) females. The mean hospital stay in groups A and B was 4.98 ± 1.40 and 3.97 ± 0.84 days respectively, the mean hospital stay in group-B was significantly less than that of the group-A, p -value < 0.0001.

Conclusion: This study established the role of early feeding in minimizing hospital stay, so in future we can use early feeding in these cases.

Keywords: Ileostomy, Fasting, Early feeding, Postoperative Complication, Hospital stay.

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Introduction

“Enhanced recovery after surgery (ERAS)” protocol is multimodal perioperative care which is designed to attain an early recovery after surgical procedures. Minimal trauma to the patient, standardized analgesics, early mobilization and early establishment of feeding are key elements of ERAS protocol.¹ Ileostomy reversal is a commonly performed surgical procedure in our setup.² Literature regarding early recovery after this procedure can bring positive impact on the outcome of large number of patients coming for ileostomy reversal. A variable period of “nothing per orem” is a common

practice after abdominal surgery in which an intestinal anastomosis has been made.³ Conventional practice of keeping patient nil by mouth, till the patient passes flatus, avoids early feeding for 4-5 days.⁴ The rationale of nil by mouth is to avoid nausea and vomiting and to protect the newly made anastomosis, allowing it to heal before being struck by food. It is, however, unclear whether early or late enteral feeding is beneficial or not. Even without feeding, about 2 liters of gastric and pancreatic secretions enter the small bowel daily and transit from the anastomotic site.^{3,5}

Enteral feeding has yet not an established adverse effect

on anastomotic site. Rather, there are many evidences in literature which show that feeding early after gastrointestinal anastomosis is even more safe and physiological. Moreover, it prevents Structural trauma and functional alterations in the gastrointestinal tract.

It helps modulating immune and inflammatory responses and also is least expensive as compared to parenteral nutrition. Early feeding also has the benefit of not contracting nosocomial infections, mean hospital stay, anastomotic site dehiscence, surgical site infection and abdominal sepsis.^{6,7} There are no established guidelines available in literature for starting early enteral feeding in ileostomy reversal patients to date. The concept of early enteral feeding to the patient after intestinal anastomosis has always been an interesting topic for researchers. This also brings the rationale to this study. Aim of this study is to compare early versus late enteral feeding in cases of ileostomy reversal in south surgical ward, Mayo hospital Lahore Pakistan.

Methods

This was a randomized controlled clinical trial conducted at South Surgical Ward, Mayo Hospital Lahore Pakistan from..... till.....

Sample Size: An age, gender and comorbidity adjusted Sample of 116 patients (58 patient in each group) is estimated by using 10% significance level, 90% power of test with expected percentage of surgical site infections in group A as 13.04% and Group B as 33.3%.^{7,8}

Sampling Technique: Probability sampling, simple random sampling

Inclusion Criteria: All patients of both genders with age between 15-55years, having stoma, either loop or double barrel ileostomy and having body mass index (BMI) between 18.5-30 were included.

Exclusion Criteria: Patients with end ileostomy, having ileostomy done for malignancy, co-morbid conditions, including diabetes mellitus, steroid intake, requiring full midline laparotomy for ileostomy reversal and diagnosed as IBD (crohn’s disease and ulcerative colitis) were excluded from this study.

Methods

All the patients fulfilling inclusion criteria and presenting to OPD for loop or double barrel ileostomy reversal was admitted to south surgical ward after pre-operative investigations for fitness of anesthesia. Pre-operative distal loopogram was done to see patency of distal bowel. After anesthetic evaluation and getting fitness, patient was listed for elective ileostomy reversal. Consent was taken. Patient was kept NPO for 6 hours prior to surgery. Pre-operative information was collected by using case report form. Ileostomy reversal was done by senior registrar or consultant surgeon, trained in gut

anastomosis. Anastomosis was done in single layer, extra-mucosal and interrupted fashion with vicryl 3/0. Same anastomotic technique was applied in all cases. Included patients were allocated in two groups; group A and group B, by lottery method. In the study group (A); the patients were kept nil by mouth for the first six hours post operatively. After six hours of surgery, patient was started on sips of clear liquids orally after removal of nasogastric tube; the amount of fluid intake was gradually increased as per tolerance of the patient. The diet was stepped up to soft diet and then to regular diet from 2nd post-operative day. A record was kept of any vomiting, abdominal discomfort, pain or distension, if experienced by the patient during feeding. In the control group (B); the patients were kept on maintenance intravenous fluids post-operatively. Length of hospital stay was recorded.

Data Analysis: Data was entered in SPSS-20. Quantitative variables like age was presented as mean +S.D. Qualitative variable like gender was presented as frequency & percentages. Independent sample t-test was applied to compare mean hospital stay in both study groups. P value ≤0.05 was taken as significant.

Table 1: Descriptive Statistics of Age (Years) in Both Study Groups

	Mean	S.D	Min.	Max.	P-value
Group-A (n=58)	26.91	8.67	15	51	0.510
Group-B (n=58)	28.10	10.62	15	55	
Total (n=116)	27.51	9.67	15	55	

Group –A: Patients were kept nil by mouth for the first six hours post operatively

Group – B: Patients were kept on maintenance intravenous fluids post- operatively

The mean age of cases was 27.51 ± 9.67 years while the mean age in group-A and Group-B was 26.91 ± 8.67 years and 28.10 ± 10.62 years with no statistical difference, p-value = 0.510(> 0.05)

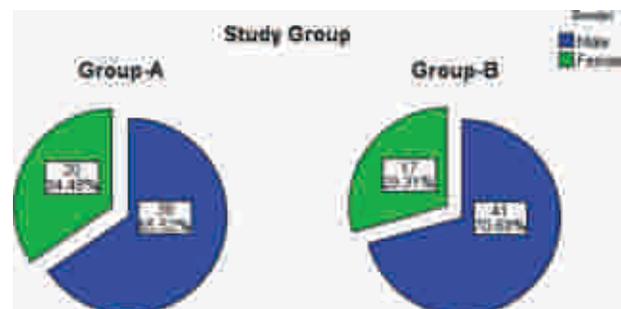


Fig1: Gender Distribution in both Groups

In this study there were 71(61.2%) and 45(38.8%). In group-A there were 41(70.69%) male and 17(29.31%) female cases while in group-B there were 38(65.52%) male and 20(34.48%) female cases, the gender distribution was statistically same in both group, p-value = 0.55 (>0.05).

Table 2: Descriptive Statistics of Weight (kg), Height (Feet) and BMI in both Study Groups

		Mean	S.D	Min.	Max.	P-value
Weight (kg)	Group-A (n=58)	56.81	8.28	40	72	0.381
	Group-B (n=58)	58.09	7.30	39	70	
	Total (n=116)	57.45	7.80	39	72	
Height (feet)	Group-A (n=58)	5.39	0.32	4.6	5.9	0.096
	Group-B (n=58)	5.48	0.26	4.8	5.9	
	Total (n=116)	5.44	0.30	4.6	5.9	
Body Mass Index	Group-A (n=58)	20.97	1.96	17.24	24.42	0.634
	Group-B (n=58)	20.78	2.27	17.16	25.47	
	Total (n=116)	20.87	2.11	17.16	25.47	

In group-A and group-B, the mean weight was 56.81 ± 8.28 kg and 58.09 ± 7.30 kg, mean height was 5.39 ± 0.32 feet and 5.48 ± 0.26 feet and mean BMI was 20.97 ± 1.96 and 20.78 ± 2.27 respectively.

Table 3: Descriptive Statistics of Weight (kg), Height (Feet) and BMI in both Study Groups

		Mean	S.D	Min.	Max.	P-value
Hospital Stay(days)	Group-A (n=58)	4.98	1.40	3.00	7.00	<0.001
	Group-B (n=58)	3.97	0.84	3.00	5.00	
	Total (n=116)	4.47	1.25	3.00	7.00	

The mean hospital stay in group-A and group-B was 4.98 ± 1.40 days and 3.97 ± 0.84 days respectively, the mean hospital stay in group-B was significantly less than the group-A, p-value <0.0001.

Discussion

Ileostomy is often considered a minor procedure and is usually performed 8 to 12 weeks following the primary procedure. But has a significant morbidity and mortality associated with it. A common practice is that patient is kept nil per mouth for a period of time following procedure and is given intravenous maintenance fluids along with stomach decompressed by nasogastric intubation.⁸ What is thought that illium goes into paralysis following stoma formation is a misconception. Even if it develops, is for a very short period or is insignificant. So feeds within 24 hours after laparotomy are tolerated and we'll

absorbed. As far nasogastric intubation is concerned, prospective cohorts on clinical data in recent years have shown that it may be unnecessary and even itself delays gastric motility and hence the passage of stool, flatus and hospital stay.⁹

The practice of nil per mouth is to prevent nausea vomiting post operatively and allowing the anastomosis to get healed before encountering any food or so. However there is no clinical data available on whether early or late enteral feeding is beneficial for the patient or not. In several cohorts benefit of less infections and hospital stay was shown.¹⁰ Different parts of gastrointestinal tract struck by surgical trauma take different intervals of time to recover from it, small intestine within 24 hours, stomach 12 to 24 hours later and large intestine takes 48 to 72 hours.so there is no point in keeping patient nil per mouth. Since surgical procedures induce a catabolic state in patients therefore they need proteins and other nutrients early either via oral or total parenteral root. There is a strong evidence deferring nil per oral but data are still conflicting comparing early enteral feeding versus conventional parenteral methods of nutrition. Early feeding may reduce sepsis following abdominal trauma,surgery or pancreatitis.¹¹

Traditionally following GI resection enteral feeding is held, stomach decompressed and parenteral nutrition is maintained untill evidence of bowl movements resumed is seen, after which patient is stepped up from fluids to soft and then regular diet. This is been followed for years to avoid nausea vomiting and anastomotic dehiscence.¹² A growing number of recent studies showing evidence that early feeding following surgery does not result in adverse outcomes rather improves surgical outcomes. Moreover meta-analyses published on this topic further support abandoning the conventional decompression practice¹³. In current study the mean hospital stay in group-A and group-B was 4.98 ± 1.40 days and 3.97 ± 0.84 days respectively, the mean hospital stay in group-B was significantly less than the group-A, p-value < 0.0001. Recently a prospective cohorts in 2016 in tertiary care hospital over a span of 24 moths performed to evaluate the tolerability safety and outcome of early enteral feeding. A total of 128 patients were randomly assigned to early and conventional feeding groups. Variables were noted and analysed. Study was found to have a statistical difference between the two groups showing association of early feeding with resolution of illieus and minimal hospital stay. Early feeding is safe, leads to early return of bowel function and minimal hospital stay.¹⁴ These findings are consistent with our study.

Another local prospective cohorts to compare versus late feeding at Lady Reading Hospital Peshawar on 60 patients from January 2010 to december 2011. Two

group of 30 each with group A allowed feeding within 24 hours and group B on conventional techniques. They all were followed on 7th and 14th day. Early feeding was tolerated in 83.3 percent of the cases while late feeding by 90 percent, the difference of which is statistically insignificant with p-value=0.7065. Hence the conclusion that early post-operative feeding is safe and should be encouraged in elective surgeries.¹⁴

In 2011 a meta-analysis performed to investigate surgical outcomes following early nutrition provided proximal to anastomosis within 24 hours of GI surgery compared to traditional methods. Databases were searched for randomized control trials comparing early and traditional postoperative feedings. Trials involving resection of gastrointestinal tract followed by feeding within 24 hours were included. No effect of early feeding was seen with relation to anastomotic dehiscence (OR 0.75; CI, 0.39–1.4, P = .39), mortality (OR 0.71; CI, 0.32–1.56, P = .39), days to passage of flatus (weighted mean difference [WMD] –0.42; CI, –1.12 to 0.28, P = .23), first bowel motion (WMD –0.28; CI, –1.20 to 0.64, P = .55), or reduced length of stay (WMD –1.28; CI, –2.94 to 0.38, P = .13); However the direction of clinical outcomes favored early feeding. Thus this meta-analysis concluded that early feeding is associated with reduction in complications and does not negatively affect mortality, anastomotic dehiscence and resumption of bowel habits and hospital stay.¹⁵ As our objective was to compare hospital stay only, so that is confirmed in study and above cited study that early feeding can reduce hospital stay.

In 2010 another study was performed comparing early versus late feeding in cases of upper GI surgery. 52 patients in consecutive manner were randomly assigned to the early versus traditional feeding. Statistical analysis showed tolerance in early as 24 (91.3%) and 21 (91.3%) in traditional oral group. p=0.89. There was no significant difference. But there was a significant difference in terms of time of first passage of stool flatus, starting time of feed, early nasogastric tube removal. This also is consistent with our study. Post-operative hospital stay was 5.62 and 8.04 in early versus late feeding respectively.¹⁶

Furthermore a meta-analysis was performed to evaluate early versus late commencement of enteral nutrition. Electronic database was searched, lists scanned and authors contacted for additional information. Lewis et al looked for randomized control trials commencing feeding within 24 hours compared to patients with no feeding following surgery. Variables were surgical site infection, intra-abdominal abscess, pneumonia, anastomotic leakage, mortality, hospital stay and other feeding complications. Common relative risk was calculated for a confidence interval of 95%. 13 trials with

total 1173 patients fulfilled the inclusion criteria. Mortality reduced, vomiting increased, direction of the analysis suggests reduced risk of complications and hospital stay which also is consistent with our study. So there is no point in keeping the patient nil per mouth and in hospital unnecessarily. Though mechanism is not clear.¹⁷

Conclusion

This study established the role of early feeding in minimizing hospital stay, so in future we can use early feeding in these cases.

Conflict of Interest: None

Funding Source: None

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