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Comparison of Early Versus Late Oral Feeding After Elective Stoma Closure

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ABSTRACT

Objective — *To evaluate the outcome of early versus late oral feeding in elective intestinal anastomosis in terms of postoperative ileus, anastomosis leakage, wound infection and hospital stay.*

Study design — *Comparative study.*

Place & Duration of study — *Department of Surgery, Bolan University of Medical and Health Sciences Quetta and Mohtarma Shaheed Benazir Bhutto Hospital Quetta, from January 2017 to December 2018.*

Methodology — *All patients with temporary stoma were included in this study. Patients with co-morbid conditions were excluded. Patients were divided in two groups. Group E and Group L. After preoperative assessment and informed consent patients were subjected to surgery. Data related to paralytic ileus, anastomotic leak, wound infection and hospital stay were recorded. In Group E oral sips were allowed within 24 hours while in Group L after 72 to 96 hours. Data were analyzed using SPSS version 20. The Chi-square test used to compare the difference.*

Results — *A total of 156 patients were enrolled. There were 94 (60.3%) males and 62 (39.7%) females. Male to female ratio was 1.51:1. In group E, 8 (10.25%) patients developed paralytic ileus compared to 27 (34.61%) patients of group L (p= <0.001). Postoperative anastomotic leak observed in 2 (2.56%) patients in group E while 7 (8.97%) had leak in group L (p=0.083). Infection developed in overall 36 (22.43%) patients. In group E 8 (10.25%) patients while in group L, 28 (35.89%) developed infection (p= < 0.001). Hospital stay was significantly less in study group (P=<0.001).*

Conclusion — *Early oral feeding is safe and has significantly less complications.*

Key words — *Early feeding, Paralytic ileus, Intestinal anastomosis, Anastomotic dehiscence.*

INTRODUCTION:

Preoperative optimization of patients with carbohydrates is well-established practice nowadays. The advent of technology also rationalized the concepts of postoperative paralytic ileus. A paradigm shift from delayed to early oral postoperative feeding is in usual practice nowadays. Patients undergoing intestinal anastomosis usually bear the brunt of surgical trauma as well as oral feeding restriction and nasogastric tube decompression.[1,2] It is found that peristaltic instability of stomach and small intestine after abdominal surgery resumes within 24 hours followed by large intestine in 48-72 hours.[2] Literature review revealed early oral feeding has dual beneficial effect. It reduces the respiratory complications, paralytic ileus, wound infection, hospital stay and mortality, while on the other hand it enhance the anastomotic healing.[3-6] Keeping the patients nil by mouth for five days does not prevent anastomotic leak and postoperative complications.[7] A meta-analysis revealed that early (<24 hours) oral feeding enhances recovery and decreases hospital stay, morbidity and mortality.[8] Similarly, French

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guidelines and ERAS consensus guidelines supports early oral feeding.[8]

Enteral feeding stabilize the enterocytes, improves immunity, enhances mucosal barrier function and reduces stress response. Studies proved that return of small bowel peristalsis within hours after laparotomy provides the theoretical support for early postoperative enteral nutrition.[9] Early enteral feeding is cost effective. Stoma reversal can be performed with early discharge protocols in order to reduce hospital stay and financial burden on patient and healthcare resources.[10] In our population typhoid and tuberculous perforation of small bowel and volvulus and traumatic injuries of large bowel are common problems. Late presentation with miserable conditions mandates temporary stoma formation at primary surgery. Closure of these stomas needs another lengthy hospital admission which causes psychological and financial burden to the patient and family. The present study was aimed to find out the safety of early (within 24 hours) oral feeding after stoma closure in terms of anastomotic leakage, paralytic ileus, wound healing and hospital stay.

METHODOLOGY:

The present study was conducted in the Department of Surgery Unit III, Bolan University of Medical and Health Sciences at Sandeman Provincial Teaching Hospital and Mohtarma Shaheed Benazir Bhutto Hospital Quetta from January 2017 to December 2018 after obtaining institutional approval. On basis of assumption from published literature and our own hospital experience that early oral feeding reduces the hospital stay as minimum as two days (2-3 days) from maximum of fourteen days (10-14 days),[11] calculated sample size keeping power of 80% with 5% significance level 78 patients were needed in each group (total=156). Four more patients were included for deaths, drop out and lost to follow up. The non probability sampling technique was used for patients' recruitment. Patient who had temporary ileostomy and colostomy were admitted for stoma closure. Informed consent was taken. Patients with comorbid conditions and immunosuppression due to chemotherapy were excluded from the study.

Preoperative investigations like CBC, electrolytes, BUN, total serum protein were done in all patients. Contrast radiological examination was performed to exclude distal obstruction. The stoma reversal was planned in selected patients. Prophylactic broad-spectrum antibiotics were administered to all patients prior to induction of anesthesia. Anastomosis was done by hand sewn two layer technique in all cases. Patients were randomly divided into two groups (Group E with early postoperative feeding and Group L with late postoperative feeding). In Group E, oral sips were allowed within 24 hours postoperatively. In Group L, oral sips were allowed only after the return of bowel functions. Patients in both groups were evaluated in terms of paralytic ileus (vomiting and abdominal distension), anastomosis leakage (signs and symptoms of peritonitis), wound infection, and length of hospital stay. Data were analyzed using SPSS version 20. The Chi-square test was used to assess and compare the variables in both the groups. $P < 0.05$ was considered statistically significant.

RESULTS:

Total of 156 patients were enrolled. There were 94 males (60.3%) and 62 females (39.7%). The male to female ratio was 1.5:1. The mean age was 34+12.5 year. The age ranged from 17 year - 65 years. In early feeding group E (n= 78) 41 (52.56%) patients were male and 37 (47.43%) female. In these feeding started within 24 hours of stoma closure irrespective of bowel movements. In late feeding group L (n=78) 53 (67.94%) patients were male and 25 (32.05%) female. They were kept on traditional 4-5 days nothing by mouth and nasogastric (N/G) aspiration. Majority (n=111 - 71.2%) of the patients had loop ileostomy and 45 (28.8%) colostomy. Age, gender and stoma type were not statistically significant (table I).

In group E, 8 (10.25%) patients developed paralytic ileus of which 7 had moderate and one severe and prolonged ileus. In group L, 27 (34.61%) patients had ileus of which 8 were severe and prolonged (p= <0.001). Postoperative anastomotic leak was observed in 2 (2.56%) patients in early feeding group and in 7 (8.97%) patients in late feeding group (p=0.083). Wound infection developed in 36 (22.43%) patients in this study. There were 31 (19.87%) superficial wound infection while 5 (3.2%) developed deep infection. In group E, 7 (8.97%) patients had superficial and one patient deep infection while in group L, 24 (30.76%) developed superficial and four (5.12%) deep infection (p= < 0.001). In group E majority of the patients were discharged on 3rd postoperative day and two stayed in hospital for more than seven days while in group L majority patients stayed in hospital for 5- 7 days (table II).

DISCUSSION:

Early oral feeding after bowel anastomosis strengthens its healing by improving immune competence. Preoperative counseling of patients regarding surgical procedure and postoperative course, avoiding use of a nasogastric tube, early

Table I: Patients' Demography

Variables	Group (E) Patients (n)	Group (L) Patients (n)	Correlation	Significance
Age groups (Year)				
10-30	35	33	0.045	0.504
31-50	33	31		
>50	10	14		
Gender				
Male	41	53	-.157	0.05
Female	37	25		
Type of stoma				
Ileostomy	53	58	-.071	.380
Colostomy	25	20		

Table II: Comparison of Variables in Early Versus Late Feeding Groups

Variables		Feeding group			
		Group E (n %)	Group L (n %)	Total (n %)	P-Value
Paralytic ileus	No	69 (88.46%)	43 (55.12%)	112 (71.79%)	<0.001
	Moderate	8 (10.25%)	27 (34.61%)	35 (22.43%)	
	Severe	1 (1.28%)	8 (10.25%)	9 (5.76%)	
	Total	78 (50%)	78 (50%)	156 (100%)	
Anastomotic leak	Yes	2 (2.56%)	7 (8.97%)	9 (5.76%)	0.083
	No	76 (97.43%)	71 (91.02%)	147 (94.23%)	
	Total	78 (50%)	78 (50%)	156 (100%)	
Wound infection	Yes	8 (10.25%)	28 (35.89%)	36 (20.07%)	0.001
	No	70 (89.74%)	50 (64.10%)	120 (76.92%)	
	Total	78 (50%)	78 (50%)	156 (100%)	
Hospital stay	3 days	76 (97.43%)	0 (00%)	76 (48.71%)	<0.001
	4-7 days	0 (00%)	70 (89.74%)	70 (44.87%)	
	>7 days	2 (50.76%)	8 (10.25%)	10 (6.41%)	
	Total	78 (59%)	78 (50%)	156 (100%)	

oral feeding and mobilization, use of NSAIDs and epidural anesthesia, and avoiding opiates is integral part of early recovery after surgery program.[12] In this study we observed that patients on early oral feeding had fewer postoperative complications hence short hospital stay that was statistically significant as compared to conventional group. Abbas T et al in their study did not find any significant difference in postoperative complications especially in leakage rate in both groups.[13] Similarly in a study conducted by Ahmed SF et al there was no significant difference in over all complications rates between two groups.[14] In present study we observed less anastomotic leakage in group E when compared to conventional group L which was not significant. Hussain S et al observed significantly less anastomotic leaks in early feeding group.[1] Marwa S et al allowed early gum chewing to their patients and observed less anastomotic dehiscence but did not find significant level.[2] Same was observed in many other studies.[3,15,16]

It is reported that early postoperative feeding is associated with improved immunity and hence decreased wound infection, improved wound healing and possibly improved anastomotic strength.[5] In present study we observed significantly decreased wound infection rate when compared with late feeding group. In a study of Lewis S J et al the wound infection rate was less and statistically significant while in other studies the same observations were not made.[3,16,17]

Hospital stay in our patients was less in study group (group E) than conventional group (group L) that was significant. Dag A et al in their study found significantly shorter hospital stay in the early feeding group when compared with the regular diet group.[3] Similarly in Wang H et al study the hospital stay was less and statistically significant which is consistent with our study.[15] Statistically significant reduction in hospital stay was also observed in other studies.[16-18] However in a study authors found significantly longer hospital stay in late feeding group compared to early feeding group.[19]

CONCLUSIONS:

Early oral feeding following elective intestinal anastomosis was safe and well tolerated. There were less complications than traditional postoperative management protocols.

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Fida Ahmed. Data collection, manuscript writing, and reference collection.
Khan Mohammad Babar. Data collection, manuscript writing, and reference collection.
Mohammad Iqbal. Concept, Data collection and reference collection.
Shoaib Ahmed Qureshi. Concept, data collection, manuscript writing, final review and approval.

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