

## Early and Late Oral Feeding in Intestinal Repair

MAHBOOB ALAM CHISHTI, BILAL AFZAL TARAR, NAWAL NASEEM, ABAD MAHMOOD, ZULFIQAR SALEEM\*, USMAN KHAN

Department of Surgery, Avicenna Medical College/Hospital, Lahore

\*Associate Professor Surgery

Correspondence to Dr. Mahboob Alam Chishti, Assistant Professor Email: drmahboobalamchishti@gmail.com Cell: 0333-4461610

### ABSTRACT

**Background:** GIT is primarily for oral feeding and nothing per oral is considered against the nature. Some time there is requirement to temporarily pass this principle for another goodness. A period of nothing per oral after gastrointestinal repair used to be considered essential and still it is being practiced.

**Aim:** To change old concept by starting early oral feeding in intestinal repair including variety of procedures.

**Methods:** Fifty patients underwent intestinal repair at Avicenna Hospital, Lahore from January 2017 to January 2019. They were randomly distributed in group A & B as alternative outpatient door number. The early feeding group-A patients were began fluids orally on the first postoperative day after first few hours, when they become fully conscious and requested for feed. While the second group –B patients were managed in the traditional way, nothing per oral for 3-4 days till the complete resolution of ileus and passage of stool.

**Results:** Eighteen patients (72%) remained asymptomatic after taking fluids on first postoperative day. Flatus in these patients was passed between 2-4 days. That was remarkably early in group-A patients. These patients stayed in hospital less than B group patients (2-4 days vs. 4-8 days). Anastomosis leakage was noted in one patients in group A and abscess formation was also seen only in one patient in this group. Anastomosis leakage was noted in two and abscess formation in one case in group B patients.

**Conclusion:** Early oral feeding after gastrointestinal repair causes less morbidity and produces more satisfaction as compared to late oral feeding.

**Keywords:** GIT, enteral nutrition, surgical anastomosis.

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### INTRODUCTION

After intestinal repair, the most dangerous complication is anastomotic leak. In past, surgeons were used to start oral feeding till patient bowel opening which happened after so many days of the surgery. Before starting oral feed, patients were routinely given intravenous nutrition. There are many other complications after bowel repair including anastomotic leak. TPN (Total parenteral nutrition) remains the major source of nutrition in these patients which is too expensive. Nasogastric feeding is an alternative but bothersome for the patient. In modern era, early feeding showed good results as compared to nasogastric tube<sup>1,2,3,4,5,6</sup>. Settling of ileus is also prerequisite to early start of fluids.

Early postoperative feeding in small quantity has been practiced since long time. It ranges from liquids to semisolids & then solids in step ladder pattern. After gastrointestinal anastomosis, generally it takes 4-5 days till ileus is settled<sup>7,8</sup>. The method of early oral feeding was considered in 1979 for the first time. Segar et al started early oral feeding in last few years which resulted in provision of good nutritional status and shorter hospital stay<sup>9</sup>. As laparoscopic procedures became more popular, the theme of early feeding was more practiced as compared to previous experiences. On the post-operative day, early feeding can be initiated & this was more useful in patients with laparoscopic large bowel resection & anastomosis. Within time this approach was shifted to conventional open surgical procedures. A lot of work yet has been done to augment it.

Early oral feeding leads to improved oral intake early & frequent which is responsible for short hospital stay along with other advantages<sup>10,11,12,13,14</sup>. Less infective complications with reduced morbidity is other major benefit of early feeding<sup>16,17,18,19,21,22</sup>. Ng and Neill also have performed a lot of

effort to support this technique by their review articles. This includes 15 studies and 1352 patients which all were practiced early oral feeding. The morbidity ranged from 0% to 25%. The early feeding was tolerated in 72% to 100% patients. Early feeding reduces post-operative ileus too, according to another research. The underlying mechanism was, the stimulus to gastrointestinal tract which initiates peristaltic movements. The purpose of these all this research was to change the old idea of late oral feeding in post-operative period (Ng WQ, Neill J-2006)<sup>23</sup>.

Instead of this extensive research effort, the early feeding method is yet not even being implemented in many large centers of the world. Patient satisfaction level is very high after early feeding which reduces hospital stay and is cost effective as well.

### MATERIAL & METHODS

From January 2017 to December 2019, this randomized study was carried out at Avicenna Hospital, Lahore including emergency as well as elective procedures. Different operations including the gastrointestinal repairs & anastomoses were done on these patients. Every operation was decided according to scenario of the each patient, keeping in mind the safety and the selection was kept on random basis. Total number of patients were fifty, divided in two groups consisting of 25 patients each, labelled as group A & B. Early feeding was started in group A patients with liquids within first 24 hours of surgery. The liquids were enhanced to semi solids in next 24 hours depending on tolerance of the patients. This method did not cause any vomiting in group A patients. Late feeding group B started liquids at the time when they started passing flatus & stool within 3-5 days after surgery.

Early and late oral feeding group patients were well counseled about the research process and informed written consent was taken before start of the study. No serious ethical complications occurred in this research because it had been

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practiced in the past for many other research works. History of previous surgery with GIT anastomosis was a single inclusion criteria in this study. Patients with uncontrolled DM, on steroid therapy for immunocompromized conditions, hypothyroidism & psychiatric illness were excluded from the study. Other group for exclusion was patients with history of radiotherapy, colostomy or protective ileostomy. Elective & emergency conditions were operated randomly without any restriction. Nasogastric tube was removed in all patients either group A or B & passed again only when there was two episodes of vomiting containing effluent more than 100 ml & absent bowel sounds.

Resolution of ileus in group B patients was observed clinically as no subjective complaint of nausea & vomiting, passing flatus & stool and audible bowel sounds with no abdominal distension. After this confirmation, feed was started in these patients. Both group patients were discharged on similar criteria that was tolerance of diet for at least 24 hours after commencement.

Vomiting, abdominal distension, intra-abdominal abscess and anastomotic leak were the post-operative complications which decided the hospital stay of the patients in both groups. Visual analog scale (VAS) was the tool used for the assessment of patient satisfaction. Hospital stay in days was also calculated in both groups. Elective patients were prepared preoperatively with justified antibiotics as well. All data was saved in a patient record form by a person which was blind about the patients' details.

**RESULTS**

Table 1

Characteristics	Early feeding	Late feeding
<b>Gender</b>		
Female	10(40%)	14(50%)
Male	15(60%)	11(44%)
<b>Age (years)</b>		
10-30	7(28%)	8(50%)
30-50	15(60%)	12(48%)
50	3(12%)	5(20%)

Table 2

Characteristics	Early feeding		Late feeding	
	Pts	Score	Pts	Score
Pt satisfaction (visual analogue score=10)	13	9(52%)	10	6(40%)
	12	8(48%)	15	5(60%)
	Pts	Days	Pts	Days
Hospital stay (days)	18	2-3	15	3-4
	6	3-4	9	4-5
	1	4	1	5-6

Table 3: Complications

Characteristics	Early feeding	Late feeding
Abdominal distension	01	02
Ileus	01	02
Vomiting	02	03
Anastomosis Leak	01	02
Pelvic abscess	01	01
Wound infection	01	02

In this study, 26 patients (52%) were male & 24(48%) were female. 15 male (60%) & 10 female (40%) were in group A. Similarly, 11 male (44%) and 14 female (56%) were in the second group. Age & gender was almost similar in both groups (Table 1). In both groups, post-operative complications were assessed. Group B patients showed incidence of

complications more as compared to group B (Table 3). First group did not reveal any likely complications. Tolerance of early oral feeding was not related to patient's age, gender & type of operation.

**DISCUSSION**

Gastrointestinal repair & anastomosis is considered as special operations in abdominal surgery. To avoid post-operative nausea & vomiting and make surgery successful, these patients are used to make nothing per oral (NPO) till resolution of ileus. Late feeding was started to prevent expected complications & resolution of ileus was clinically judged by audible bowel sounds and passage of flatus & stool.

Fear of leakage of the repair & anastomosis had been always behind this concept. Some valid logics changed the modern surgeon's mind in this regard. One of the logic was that normal GIT secretions even pass through the fresh anastomosis soon after surgery without harming it so there should be no way to not start early liquids in these patients which gradually can be increased depending upon response of the patient. The second logic was requirement of nutrition for anastomotic healing which could be full filled early & better as compared to late start of feeding. Post-operatively patients have also strong desire to drink & eat as early as possible. Early feeding in these patients is very natural & produces more satisfaction as well. Prolonged fasting becomes very intolerable also. Early oral feeding causes shorter hospital stay & less complications as well, as compared to late feeding (Table 2 & 3). Numerous studies have been conducted yet to support this theory in variety of other abdominal surgeries and most of studies favored this approach.

Total early and late feeding group patients were fifty with even & odd outpatient number allotment including 24 females and 26 males showing mild male dominance. Majority of patients were belonging to young & middle age group. First group was considered more successful. Only 8(16%) patients were above 50 years of age. In this age group anastomotic healing is poor & early oral feed is not well tolerated (Table 1).

Ten points visual analogue scale (VSA) was used to assess the patient satisfaction level after start of oral feed in both groups & hospital stay was measured in days. Patient satisfaction level remained in the range of 8-9 in group A & 5-6 in group B with late feeding. Hospital stay was calculated as 2-4 days in early feeding group and 4-8 days in late feeding group (Table 2). Patients in early feeding group tolerated liquids & later semi solid diet very well.

Abdominal distension, paralytic ileus, vomiting, anastomotic leakage, pelvic abscess and wound infection were the complications compared in both groups. Early feeding group showed its incidence less as compared to late feeding group i.e. 7 & 12 patients respectively (Table 3) Safety of the early feeding approach was very obvious with this outcome.

Previous research work was focused on elective gastrointestinal repair & anastomosis as compared to our study in which there was no discrimination between elective as well as emergency surgeries<sup>25,26</sup> Lee *et al*<sup>20</sup> in one study declared satisfactory results of early feeding in emergency patients. In other article, Riesman *et al.* gave result of successful early oral diet tolerance in 79% patients<sup>15</sup>. Ng and Neil reported early oral feeding tolerance in 86% of the patients<sup>24</sup>. Our study concluded early feed tolerance in 18(72%) patients which is comparable to any international research data till now.

In all patients, post-operative vomiting was considered an important complication. Ortiz *et al* did a study which showed vomiting in 21.5% patients in early feeding group but it was

more frequent in late feeding group<sup>19</sup>. In a study by Tavasolli *et al.* the vomiting was equal in both groups i.e. 3 patients (4.7%) in each group. Intense vomiting occurred in two patients (8%) in early feeding group, whereas in late feeding group, three patients (12%) were suffered from it. The patients who started early oral feed showed incidence of vomiting less. Charoenkwan concluded that early feeding actually produces a stimulus to move the bowel which also helps to resolve the ileus. Ileus takes 3-6 hours to be resolved<sup>27</sup>. This concept was also favored by Ng and Neill<sup>26</sup>. One other study stated that average feeding takes 2-4 days in early feeding patients and 4-8 days in patients with late feeding patients. In our study, incidence was significantly different in patients of both groups<sup>23</sup> which is consistent with results of the study (Table 2). In fact, the emergency surgery significantly increases the risk of wound infection. Early feeding group had minor wound infection in 03 cases (12%) and late feeding group had 05 cases (20%). A study by Lee *et al.* reported wound infection in 18(33%) which was significantly higher than in the current study (Table 3)

The anastomotic leak was noted in our study in only 1 patient (4%) and 2 patients developed peri-anastomotic & pelvic abscesses in early feeding group (A). Late feeding group (B) resulted anastomosis leak in 2 patients (8%) and developed abscesses in 3 cases.

The procedure type, its cost and hospital stay produced a significant impact on patient satisfaction. Discharge criteria in both groups was similar & patients were sent to home when they tolerated oral diet very well for first 24 hours. It was shorter in group A than group B which was very significant. After review of 15 studies, Ng and Neill declared that early onset of oral feeding shortens the hospital stay in patients of elective colorectal procedures<sup>24</sup>. Our patients in first group showed higher satisfaction level as compared to second group (Table 2).

## CONCLUSION

Early oral feeding after gastrointestinal repair is safe and effective method. It takes shorter time for resolution of post-operative ileus. Other advantage is less hospital stay & higher patient satisfaction level. This approach also causes less complications as compared to late start of post-operative oral feed.

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