ORIGINAL ARTICLE

THE OUTCOME OF HOSPITAL STAY IN EARLY AND DELAYED ENTERAL FEEDING AFTER BOWEL ANASTAMOSIS

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ABSTRACT

Background: Early enteral feeding in bowel anastamosis is being encouraged and this can lead to decrease hospital stay and less financial burden. This study compares the mean hospital stay in early and delayed enteral feeding after bowel anastamosis.

Methods: A total of 80 patients underwent bowel anastomoses and were included in this study to record the hospital length of stay. Patients were randomly allocated into two groups. Forty patients in group A received early feeding and 40 in group B on delayed feeding. Patient was assessed on daily basis after surgery, time of passage of flatus or stool noted so that the patient can be discharged, Data was analyzed using Chi-square test.

Results: The average hospital stay was significantly low in group A than group B. Rate of anastamotic leakage was low in group A than group B (7.5% vs. 25%; p=0.0034). Similarly paralytic stay, pneumonic patch, unsettling fever, deep venous thrombosis and wound dehiscence are also the reason of delay hospital stay.

Conclusion: It is concluded that early oral feeding after intestinal anastomosis leads to decrease hospital stay as bowel movement comes back early. However, a large sample size is recommended to further confirm our findings.

KEY WORDS: Bowel anastamosis, early feeding, deep venous thrombosis, pneumonic patch, unsettling fever.

INTRODUCTION

The process of intestinal anastomotic healing is similar to wound healing elsewhere in the body. The single most important molecule for the determining intestinal wall strength is collagen[1].Traditionally, after abdominal surgery, the passage of flatus, or bowel, movement was the clinical evidence for starting an oral diet [2]. Passage of flatus is the hallmark of resolution of postoperative ileus and usually occurs within 5 days [3]. Early feeding is being investigated in terms of its benefits after different abdominal surgeries. It has established role in the outcome of patients with trauma and burns, although few investigators have studies its use after bowel anastomosis [4].

Early nutrition not only improve energy and protein intake but also decreases the negative impact of the metabolic response to surgery [5]. Fast track rehabilitation or enhanced recovery after surgery enhances postoperative recovery and outcome. Nevertheless, early postoperative oral nutrition preserves organ functions based on rational principles and scientific data [6]. It also helps in achieving early discharge criteria based on postoperative pain control, ambulation and complete recovery of gut and urinary bladder functions which remains similar to delayed oral feeding [7].

The standard technique for initiating and advancing oral diet after surgery is changing[8]. Although the use of nasogastric tubes (NGT) for Decompression

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post-operatively is less common, the introduction of oral diet is still often held. The resumption of an oral feeding may begin with sips of water, then clear liquids and then slowly to a regular diet. There is considerable evidence that this traditional approach can be avoided in most cases [9]. Recent literature suggests that early enteral feeding is well tolerated (65%-90%); decreases wound infections and shorten the hospital stay [5.8 + 3.09 (early) vs. 10.56 + 7.01 (late) p <0.05] with no further increase in the anastomotic leakage [12% (late) vs. 8% (early)] [10].

The early enteral feeding in bowel anastamosis is being encouraged and this will lead to decrease hospital stay and less financial burden on the patient.

METHODS

A total of 80 patients underwent bowel anastomoses at the local hospital of Karachi were included in this study to record the effect of early versus delayed enteral feeding in terms of hospital length of stay.

Inclusion criteria:
- Adult patients of either gender
- ASA 1 & 2
- All patients going for resection anastamosis of bowel in absence of infection

Exclusion criteria:
- Preoperative diagnosis of peritonitis.
- Stoma formation
- Metastatic tumors

Patients were checked for indications of intestinal anastomosis can be broadly divided into two categories; restoration of bowel continuity following resection of diseased bowel and bypass of unresectable diseased bowel. We have in this study a mix of small and large bowel anastomoses.
- Our study also considered the contraindications of Intestinal anstomosis in conditions of Severe sepsis
- Poor nutritional status like severe hypoalbuminemia
- Disseminated malignancy (multiple peritoneal and serosal deposits, ascites)
- Viability of bowel in doubt
- Fecal contamination or frank peritonitis
- An unhealthy bowel condition precludes primary anastomosis

All patients fulfilling inclusion criteria were included in the study. Patients were randomly allocated into two groups of 40 each. Group A received oral feeds in the early postoperative period. Group B were on delayed feeding. Patients of both groups were assessed clinically on daily basis after surgery and the time of passage of flatus or stool noted and the duration of hospital stay was recorded .Data was compiled and analyzed statistically using Chi-square test to compare the duration of hospital stay with the variables under consideration.

Management:
Post-surgery complications like an anastomotic leak were diagnosed on the basis of clinical examination and such patients received intravenous fluid resuscitation and broad spectrum antibiotics. Further management is dictated by the clinical scenario and, if patient stability permits, radiologic investigation was performed to localize the leak and determine its severity. Management strategies include observation, bowel rest, percutaneous drainage, colonic stenting, surgical revision, diversion, or drainage (30). All anastamosis of bowel are hand sewn using vicryl 2/0 and Lembert suture technique in all cases was explored by laparatomies.

RESULTS

The study was conducted on a total of 80 patients with early and delayed feeding correlating the mean outcome of the hospital duration. Figure 1 compares the age distribution of the patients of two groups. The mean age was 39.21± 13.74 year (95%CI: 36.16 to 42.27) including 7(58.8%) male and 33(41.3%) female.

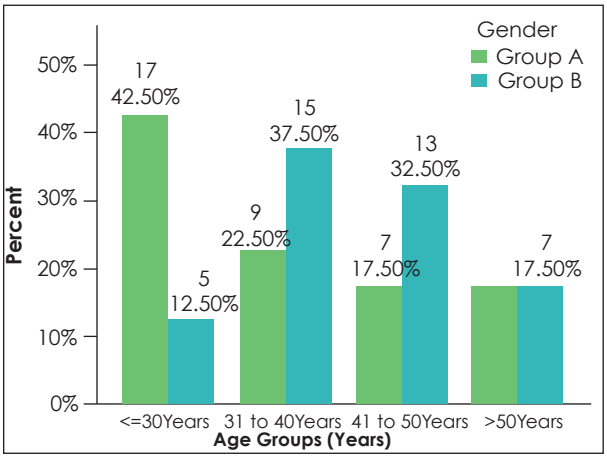

Figure 1: Age distribution of the patients between two groups (n=80)

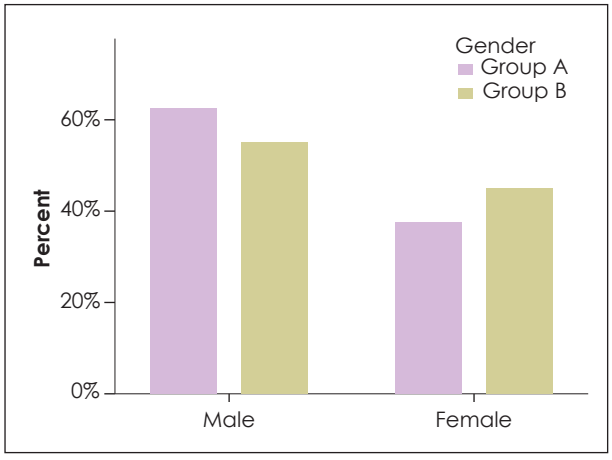

Figure 2: Gender distribution of the patients between two groups (n=80)

Table 1: Mean Hospital Stay in Early and Delayed Enteral Feeding After Bowel Anastamosis

Primary Outcome	Group A n= 40		Group B n=40		P-Value
	Mean	SD	Mean	SD	
Hospital Stay (days)	3.83	2.86	9.20	4.49	0.0005

Independent sample t-test

The mean hospital stay (Table 1) was significantly low in group A as compared to group B. The rate of anastamotic leakage (Table 2) was low in group A than group B (7.5% vs. 25%; p=0.0034). Similarly paralytic stay, pneumonic patch, unsettling fever, deep venous thrombosis and wound dehiscence are also the reason of delay hospital stay.

Table 2: Comparison of Anastamotic Leakage between Groups

Reason for delayed hospital Stay	Group A n=40	Group B n=40	P-Values
Paralytic stay	1(2.5%)	3(7.5%)	0.35
Pneumonic patch	1(2.5%)	4(10%)	0.35
Unsettling fever	0(0%)	3(7.5%)	0.24
Deep venous thrombosis	2(5%)	6(15%)	0.26
Wound dehiscence	1(2.5%)	4(10%)	0.35
Anastamotic leakage	3(7.5%)	10(25%)	0.0034

*p value represents the Chi-Square test

DISCUSSION

Traditionally after abdominal surgery, the passage of flatus or bowel movement has been the clinical evidence for starting an oral diet. It is customary to keep the patients "nil by mouth" after gastrointestinal anastomosis till patient passes flatus. However, adequate nutrition has always been a major goal in postoperative care and now it is being increasingly recognized that with holding oral feeds for few days after surgery in such cases leads to nutritional depletion and its consequences. In the past few years, some studies have examined the role of early feeding after gastrointestinal anastomosis and found that it improved immune competence, decreased septic complications, improved wound healing and possibly improved anastomotic strength.[21-23].

In this study, the average age of the patients was 39.21± 13.74 year (95%CI: 36.16 to 42.27) including 7(58.8%) male and 33(41.3%) female. The mean age of the patients in our study group was comparable to Marwah et al, 2008 [10] 29.92±15.98 years and 38 ±14.34 years in the control group.

In this study the average hospital stay was significantly low in group A than group B (3.83±2.86 vs. 9.20±4.49; p=0.0005). Most common reason determined was anastamotic leakage that was observed in 13(16.25%) cases with delayed enteral feeding. Rate of anastamotic leakage was low in group A than group B (7.5 vs. 25%; p=0.0034). Recent literature suggests that early enteral feeding is well tolerated (65%-90%); decreases wound infections and shorten the hospital stay [5.8 + 3.09 (early) vs. 10.56 + 7.01 (late) p <0.05] with no further increase in the anastomotic leakage [12% (late) vs. 8% (early)] [10].

In the previous studies although incidence of postoperative leak is mentioned but the fate and further management of these cases are not discussed. A significant observation from our study is that the mean hospital stay was significantly low in group A than group B for all age groups and gender. Delany et al 1998 [25] reported that early postoperative feeding was particularly beneficial for patients younger than 70 years old which is contrary to Difronzo et al 2004 [26] as no significant differences for age was found but suggested that males were more associated with early postoperative feeding intolerance than females. Petrelli et al.2005 [27]did not find male sex to have an effect on whether patients would tolerate early oral feeding. A study reported the mean duration of postoperative hospital stay of 5.8±3.09 days in patients and 10.56±7.01 days in the control group and the difference was statistically significant (p<0.05)[8]. Duration of hospital stay in present study is comparable with the previous studies with some exceptions where postoperative hospital stay is much longer. One significant observation made by all these workers including present study is that postoperative hospital stay is significantly shorter in study group cases as compared to control group cases. It is possibly due to the fact that early feeding helps in early bowel movements, faster recovery, less postoperative complications leading to early discharge from the hospital.

Another study [7] also demonstrated that the length of hospital stay was significantly shorter in the early fed group with a median postoperative hospital stay of 5 days versus 9 days in the TPN group (P < 0.001). This confirmed the beneficial effect of early

oral feeding in reducing length of hospital stay with its physical, psychological and economic benefits.

CONCLUSION

Early oral feeding after bowel anastamosis is well tolerated, helps in low anastamotic leakage, decreased wound infection and improved wound and anastomotic healing leading to short hospital stay and reduced treatment cost. Hence it is concluded that early oral feeding after intestinal anastomosis is safe, effective, and lead to decrease hospital stay and less financial burden on the patient, however we recommend a large sample size to confirm our findings.

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