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Original Article

Comparison of Early Versus Delayed Oral Feeding after Resection and Anastomosis of Gut

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ABSTRACT

Objective: To compare the outcomes of early versus delayed postoperative oral feeding in patients undergoing resection and anastomosis of the gut.

Study Design: Quasi-experimental study

Place and Duration of Study: Surgical Department of Pak Emirates Military Hospital, Rawalpindi Pakistan, from Jun 2020 to May 2021.

Methodology: A total of 30 patients fulfilling the selection criteria were enrolled after taking written informed consent and were randomly divided into two groups of equal numbers. Patients in Group-A received early oral feeding, and in Group-B had delayed oral feeding postoperatively, and the outcome measures were assessed till the patients were discharged.

Results: The mean duration of hospital stay in Group-A versus Group-B was 50.94 days vs. 60.74 days (p=0.005), the mean time to passage of the first flatus was 30.61 days vs. 50.48 days (p<0.001), and the mean time to passage of the first stool was 40.59 days vs. 50.48 days (p<0.001), respectively.

Conclusion: Early oral feeding following gut resection and anastomosis was significantly associated with the early passage of flatus and stool and shorter hospital stay than delayed oral feeding postoperatively.

Keywords: Feeding, Gut resection, Postoperative complications.

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INTRODUCTION

Patients following abdominal surgery experience a temporary impairment in gastrointestinal tract motility termed postoperative ileus (POI).[1] A significant goal of postoperative management has always been ensuring adequate nutrition.[2] Traditionally, the passage of flatus has been used to determine oral feeding tolerance.[3] The pathophysiology of POI, however, indicated that such a strategy is highly conservative.[4] Early oral feeding (EOF) following the surgical intervention of the abdomen is typically avoided due to ileus and replaced with routine nasogastric (NG) decompression.[5]

Since the introduction of the laparoscopic intervention, trials have been carried out for regularly starting the feeding from the second postoperative day, which the vast majority of patients have successfully tolerated.[6] The results of these studies revealed that feeding patients in the immediate postoperative period underwent abdominal surgeries was a feasible and safe option.[7] Compared to parenteral nutrition, EOF in patients undergoing surgical intervention has the benefit of reducing the rate of septic complications and the rate of morbidity overall. Numerous studies have shown that multimodal or fast-track programmes hasten patient recovery and reduce hospital stays.[7,8]

Various studies have been internationally carried out which have compared the outcomes of early and delayed feeding in patients undergoing different abdominal surgeries.[9,10] However, there needs to be more local data on patients undergoing resection and anastomosis of the gut. Therefore, the current study aimed to compare the outcomes of early versus delayed postoperative oral feeding in patients undergoing resection and anastomosis of the gut. The study will guide a postoperative approach which can yield better outcomes in reducing the length of hospitalization, early return of bowel functions, and less pain, thus helping in the early mobilization of the patients and quick recovery resulting in a reduction of further morbidity and improved patient satisfaction.

METHODOLOGY

The study was carried out at the Pak Emirates Military Hospital, Rawalpindi, from June 2020 to May 2021, after approval from the Ethical Review Committee (ERC number A/28/58). The sample size of 30 patients was calculated by taking the meantime passage of the first flatus in the Early Feeding Group as 3.30.9 days and in the delayed feeding group as 4.21.2 days.[1] Non-probability consecutive sampling technique was used.

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Inclusion Criteria: Patients of either gender, aged 20 to 70 years, underwent elective resection and anastomosis of the gut and had ASA Grade-I and II were included in the study.

Exclusion Criteria: Patients who had chronic liver disease, had emergency laparotomy, those with metastatic lesions, had extra-abdominal surgery concurrently, had a preoperative need for endotracheal intubation and had an ASA Grade of III or above were excluded from the study.

The study enrolled 30 patients who underwent resection and anastomosis of the gut. Delayed oral feeding (DOF) was defined as initiating a liquid diet from 4 to 6 postoperative days, administered after the passage of stools and in the absence of air-fluid levels on abdominal radiographs and gradual advancement to solid diets.[11] Early oral feeding (EOF) was defined as a clear liquid diet on postoperative day 1, followed by the gradual introduction of a solid diet on postoperative (POP) days 2 to 3.[12] The primary outcome measure that was assessed postoperatively daily till discharge was the mean duration to resume bowel function (in days), which was defined as the time to pass first flatus (TFF) or first stool (TFS) in the postoperative period and the secondary outcome measures were the mean duration of the postoperative hospital (DOH) stay (in days) which was assessed from the 1st POP day till the day of discharge and POP complications such as abdominal pain, vomiting, abdominal distension and anastomotic leakage were all observed until the patient was discharged.

All participants who fulfilled the selection criteria were enrolled after taking written informed consent. The surgical technique was standardized for both groups, and the surgeon removed any confounding element. Following surgery, the patients were divided by odd and even numbers into two equal numbers, i.e.,[15] in each group. Patients in Group-A (odd numbers) received EOF, whereas patients in Group-B (even numbers) received DOF with continuous POP care. POP vomiting and abdominal pain were assessed and treated by oral feeding suspension and appropriate drugs. However, if the symptoms continued for 24 hours, an NG tube was inserted.

The data were analyzed through Statistical Package for Social Sciences (SPSS) version 25.0. Quantitative data were presented as mean and standard deviation. Qualitative data were presented as frequency and percentages. Inferential statistics were explored using the chi-square test and independent sample t-test. The *p*-value lower than or up to 0.05 was considered as significant.

RESULTS

A total of 30 patients were enrolled in the study. The two groups differ significantly in terms of mean TFF, i.e. in EOF, and it was 30.61 days versus 50.48 days in DOF ($p<0.001$); in terms of mean TFS, i.e. in EOF, it was 40.59 days versus 50.48 days in DOF and terms of mean DOH stay, i.e. 50.94 in the EOF group versus 60.74 in the DOF group ($p=0.005$) (Table-I).

Table-I: Comparison of Clinico-Demographic Variables in Both Groups (n=30)

Variables	Group-A (n=15)	Group-B (n=15)	*p*-value
Age in years (Mean±SD)	50±9.21	54±5.71	-
Duration of hospital stay in days (Mean±SD)	5±0.94	6±0.74	0.005
Time to passage of first flatus in days (Mean±SD)	3±0.61	5±0.48	<0.001
Time to passage of first stool in days (Mean±SD)	4±0.59	5±0.48	<0.001

In terms of type of surgery, in EOF group, hemicolectomy was carried out in 4(26.7%) patients, colectomy in 5(33.3%) patients, low anterior resectomy in 4(26.7%) patients and abdominoperineal resection in 2(13.3%) patients, whereas, in DOF group, hemicolectomy was done in 3(20%) patients, colectomy in 8(53.3%) patients, low anterior resection in 3(20%) patients and abdominoperineal resection in 1(6.7%) patient (Figure).

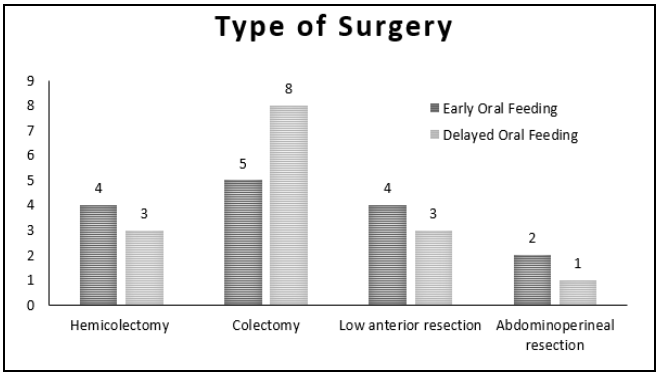

Figure: Distribution of Patients According to Type of Surgery (n=30)

Regarding POP complications, vomi-ting occurred in 3(20%) patients in EOF and 2(13.3%) in DOF; this difference was statistically insignificant. Abdominal pain occurred in 2(13.3%) patients in EOF and 2(13.3%) patients in DOF ($p=1.00$). Abdominal distension also occurred at similar rates in both groups, i.e.,

in 1(6.7%) patient in EOF and 1(6.7%) patient in DOF (p=1.000). Anastomotic leakage occurred in no patient in EOF and 1(6.7%) patient in DOF, and this difference was also statistically insignificant (p=0.309) (Table-II).

Table-II: Comparison of Postoperative Complications in both Groups (n=30)

Postoperative Complications	Group-A n=15, n(%)	Group-B n=15, n(%)	*p*-value
Vomiting			
Yes	3(20%)	2(13.3%)	0.64
No	12(80%)	13(86.7%)	
Abdominal Pain			
Yes	2(13.3%)	2(13.3%)	1.00
No	13(86.7%)	13(86.7%)	
Abdominal Distension			
Yes	1(6.7%)	1(6.7%)	1.00
No	14(93.3%)	14(93.3%)	
Anastomotic Leakage			
Yes	0(0%)	1(6.7%)	0.30
No	15(100%)	14(93.3%)	

DISCUSSION

Our study compared this early feeding intervention with the conventional delayed feeding protocol postoperatively in patients undergoing gut anastomosis and repair. The current study results revealed that the mean TFF, TFS, and DOH stay were significantly short in patients who received EOF compared to DOF in patients with resection of the gut and anastomosis. Regarding POP complications, vomiting occurred in more patients in the EOF group compared to the DOF group, abdominal pain and abdominal distension occurred equally in both groups, and anastomotic leakage was more frequent in the DOF group. However, this difference in POP complications between both groups was statistically insignificant.

Our study aimed to assess the effect of EOF versus DOF regarding bowel functions and DOH. Our study results revealed that in terms of mean TFF, the duration was significantly short in the EOF group compared to the DOH group, i.e., 30.617 versus 50.487 days (p=0.001), respectively. A previous study conducted found that in the EOF versus DOH group, the mean TFF was 1.32±0.55 versus 2.76±0.87 days, and the difference was statistically significant, i.e. p=0.001.13 Another study revealed that the mean TFF in the EOF versus DOF group was 1.080.27 versus 2.120.6 days (p<0.05), respectively.14 In a study by El-Nakeeb *et al.*, it was found that the mean TFF was 3.30.9 versus 4.21.2 days in the EOF versus DOF group, respectively (p=0.005)1. These findings are consistent with our study findings.

Our study revealed that the mean TFS (in days) in the EOF group was 40.59; in the DOF group, it was 50.48, and the difference was statistically significant (p=0.001). A study conducted found that in the EOF versus DOF group, the mean TFS was 2.28±0.89 versus 3.92±0.90 days (p<0.05), respectively.[15] Another study revealed that the mean TFS in the EOF versus DOF group was 2.28±0.89 versus 3.92±0.90 days (p=0.001), respectively.[16] These findings are in line with our study findings.

Our study results revealed significantly shorter DOH stay in the early versus delayed feeding group. One study revealed that EOF was associated with significantly shorter DOH stay compared to DOF in patients who underwent upper gastrointestinal surgery.[17] There was no significant difference between the two groups regarding postoperative complications, and this finding is supported by the study conducted by Mawrah *et al.*[18]

LIMITATIONS OF STUDY

The cause of the gut resection was not assessed, which could have affected the results. Lastly, patients were only followed up until discharge, so the long-term complications were not assessed.

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CONCLUSION

Early oral feeding following gut resection and anastomosis was significantly associated with the early passage of flatus and stool and shorter hospital stay than delayed oral feeding postoperatively.

Conflict of Interest: None.

Authors' Contribution

Following authors have made substantial contributions to the manuscript as under:

UUS & AUDN: Conception, study design, drafting the manuscript, approval of the final version to be published.

SI & KS: Data acquisition, data analysis, data interpretation, critical review, approval of the final version to be published.

MOF & SR: Critical review, data acquisition, drafting the manuscript, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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