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Original Research Paper

General Surgery

COMPARATIVE STUDY OF AN EARLY ENTERAL FEEDING WITHIN 16 TO 24 HOURS POST- EXTUBATION VS CONVENTIONAL ENTERAL FEEDING IN RESECTION AND ANASTOMOSIS OF INTESTINE

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ABSTRACT

Aim: To compare early enteral feeding with late enteral feeding in patients undergoing resection and anastomosis of bowel.

Objectives:

- To study the impact of early feeding on duration of paralytic ileus and start of oral feeds following resection and anastomosis.
- To study the rate of anastomotic leak
- To study the rate of wound infection
- To compare duration of hospital stay

Methodology: All patients who underwent resection and anastomosis were included in the study duration. As per previous hospital records minimum patients were 3 to 4 (1 month).Sample Size: 50cases [25 from Early feeding group (A) & 25 from Late feeding group (B) **Results:** In our study we randomised the 50 cases who underwent resections and anastomosis of intestine , in which early enteral feeding group holds better outcome in postoperative patient on the basis of time of appearance of bowel sounds, time of passage of flatus/stool,postoperative Anastomotic leak, presence of surgical site infection, better patient's compliance,duration of hospitalization,and less postoperative complication. There is no advantage to withhold early enteral feeding in patient of Resection and Anastomosis of Intestine. **Conclusion:** Early enteral feeding promotes patients physical and mental well-being in terms of early removal of ryles tube, shorter mean hospital stay , incidence of infection and less postoperative nausea,vomiting and abdominal pain and anastomotic leak. We can confidently infer from the aforementioned evidence that the conventional wisdom of postponing enteral feedings until peristaltic sound first appear may not hold true over time.

KEYWORDS : Early Feeding, Late Feeding, Anastomosis, Bowel Sound, Flatus/stool, Hospital Stay

INTRODUCTION

Post-operative withholding of eating is the most common technique used after intestinal operations. It is normal to prevent patients from consuming oral nutrition during the healing phase in order to improve patient compliance and protect the anastomotic site. In order to reduce post-operative ileus symptoms and the risk of anastomotic leak, the conventional feeding regimen after intestinal anastomosis is to keep the patient off oral nutrition until they start to exhibit signs and symptoms of gut motility.

After significant intestinal surgeries, the small intestine (jejunum) will restore its regular motility 4 to 8 hours later. Postoperative ileus is typically transient, and patients can tolerate eating normally within 24 hours of intestinal anastomosis.

The benefits of beginning enteral feeding early have been demonstrated in a number of clinical studies and animal experiments, even if it is unclear whether postponing enteral feeding is favourable. Clinical studies have demonstrated that feeding is tolerated and the nutrients are absorbed within 24 hours post laparotomy.After a laparotomy, the small bowel returns to normal within 4 to 8 hours, whereas the stomach and colon need longer to heal. Early enteral feeding improves patients overall survival.

The nutritional, metabolic, immunological, and barrier functions of the intestine are maintained by enteral nutrition (EN), which is believed to be less expensive, safer, and more effective. EN is better over TPN in terms of less septic sequelae following abdominal surgery in trauma patients. Early enteral feeding after abdominal injuries and pancreatitis may reduce septic morbidity and mortality.

In order to compare the results of patients who received early enteral feeding within 16 to 24 hours of extubation with conventional enteral feeding in resection and anastomosis of the intestine, the present study was carried out.

METHODOLOGY

Patients who underwent intestinal resection and anastomosis were divided randomized into early feeding group and late feeding group and study conducted in department of general surgery, SMIMER hospital , Surat. The patients in the early feeding group had started sips of clear liquids orally, the amount was gradually increase as tolerated by patient. Patients were evaluated on the basis of time of appearance of bowel sounds, time of passage of flatus/stool, presence of surgical site infection, duration of hospitalization.

In post operative period patients compliance was assessed on the basis of abdominal pain, abdominal distention, nausea, vomiting. While in late feeding group patients kept on maintanance intravenous fluids containing dextrose and saline. Ryle's tube was removed and feeds had started orally as decided by the operating surgeon depending on the clinical condition of the patient and the presence of bowel activity.

Prospective sampling of 50 cases

Inclusion Criteria

- All patients undergoing intestinal resection and

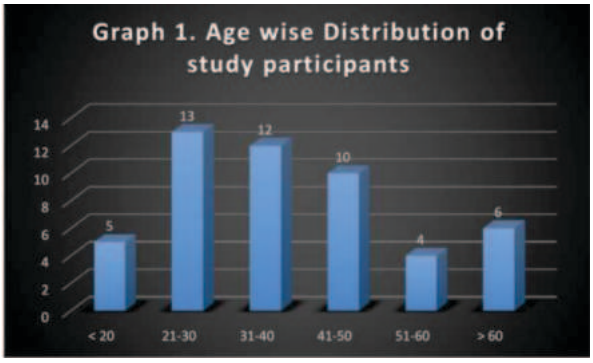
anastomosis 18 to 70 years old.
- All elective & emergency operation of intestinal resection and anastomosis All patients in which double layered suture done with PDS 3- 0.

Exclusion Criteria
- Patients who were immune compromised Pregnant female Patients requiring critical care Patients below 18 years and >70 years

RESULTS

Table 1. Age Wise Distribution Among Study Participants

Age group (in years)	Frequency (%)
<20	5
20-30	13
31-40	12
41-50	10
51-60	4
>60	6



Among the study participants, 13 patients (26%) were belonged to 21-30 years of age group followed by 12(24%) from 31- 40 years of age group. There were 6 cases, aged more than 60 years. (Table 1 & Graph 1)

Table 2. Gender Wise Distribution Among Study Participants

Gender	Frequency (%)
Male	36 (72%)
Female	14 (28%)

Out of total 50 patients, 36(72%) and 14(28%) patients were respectively, Males and females.

Table 3. Mean Age Comparison Among Both Groups.

Group A (Early feeding)	Group B (late feeding)	P –value
38.32 + 15.16	39.24 +15.49	0.832

There was a no statistically significant difference between age group and Type of feeding given. [Table 3]

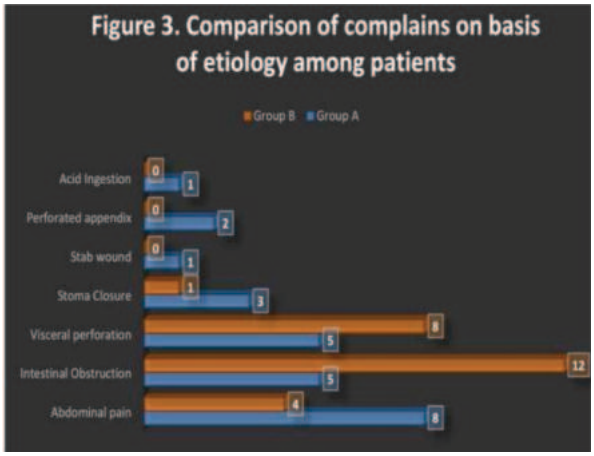
Table 4. Association Between Gender And Type Of Feeding

Gender	Group A (Early feeding)	Group B (Late feeding)	P –value
Male	16	20	0.207
Female	9	5	

There was no association found between Gender and type of feeding. [Table 4]

Table 5 .Comparision Of Both The Groups On The Basis Of Complains / Etiology:

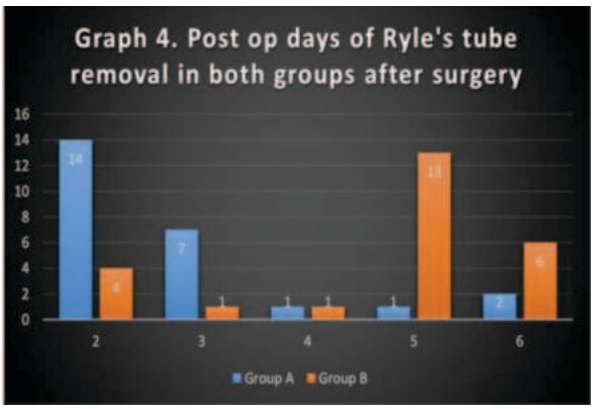
Complains/Etiology	Group A (Early feeding)	Group B (Late feeding)
Abdominal pain	8	4
Intestinal Obstruction	5	12
Visceral perforation	5	8
Stoma Closure	3	1
Stab wound	1	0
Perforated appendix	2	0
Acid Ingestion	1	0



Out Of total 50 patients, in Group A 8 (32%) patients had complain of abdominal pain followed by 5 (20%) cases had visceral perforation and 5 (20%) cases had intestinal obstruction. While in group B, majority 12 (48%) patients had intestinal obstruction and followed by 8 (32%) patients had visceral perforation. 4 (16%) patients had the complains of abdominal pain in group B [Table 5 & Graph 3]

Table 7: Comparision Of Both Groups On The Basis Of Ryle's Tube Removal

POST OP DAY OF RYLE'S TUBE REMOVAL	GROUP A (Early feeding)	GROUP B (Late feeding)
2	14	4
3	7	1
4	1	1
5	1	13
6	2	6



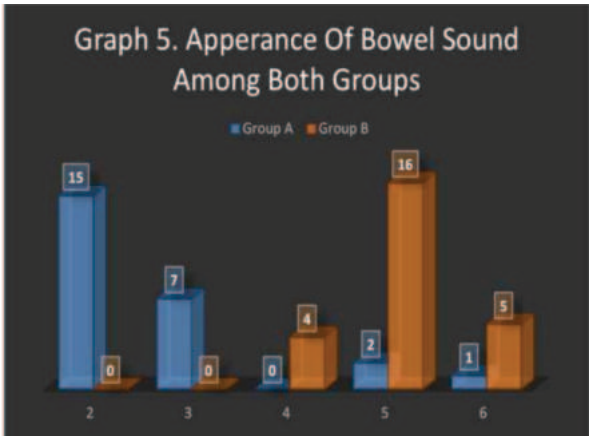
In 14 (56%) patients of group A Ryle's tube remove within 48 hours of surgery, while in group B only 4 (16%) patients had Ryle's tube remove within 48 hours of surgery [Graph 4]

In 13 (52%) patients of group B Ryle's tube remove after 5th day and in 6 (24%) patients Ryle's tube remove after 6th day. [Graph 4]

In our study we started oral feeding within 16 to 24 hours post extubation and keep Ryle's tube block so if patients develop any post operative abdominal distension, nausea or vomiting we use Ryle's tube for intermitten aspiration.

Table 8: Comparision Of Both Groups On The Basis Of Appearance Of Bowel Sound.

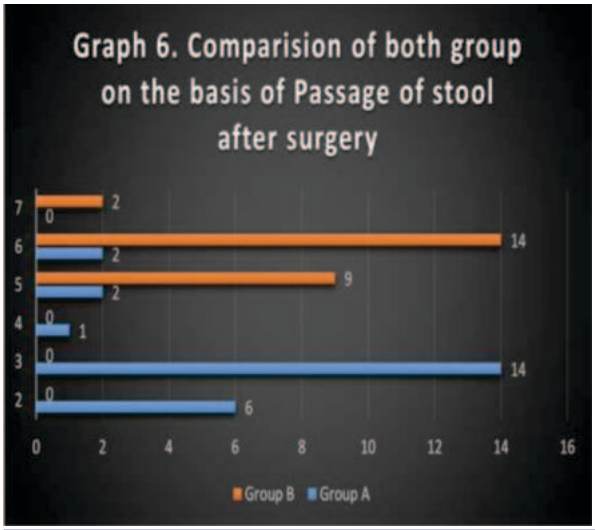
POST OP DAY OF APPEARANCE OF BOWEL SOUND	GROUP A (Early feeding)	GROUP B (Late feeding)
2	15	0
3	7	0
4	0	4
5	2	16
6	1	5



Among the study participants, In 15 (60%) patients of group A bowel sound appear on 2nd day of surgery and in 7 (28%) patients it appears on 3rd day of surgery. [Graph 5]While In 4 (16%) patients of group B bowel sound appear on 4th day of surgery followed by 16 (64%) patients it appears on day 5.In group A most of the patients were history of early bowel sound appearance as compare to group B.

Table 9: Comparision Of Both Groups On The Basis Of Passing Stool After Surgery.

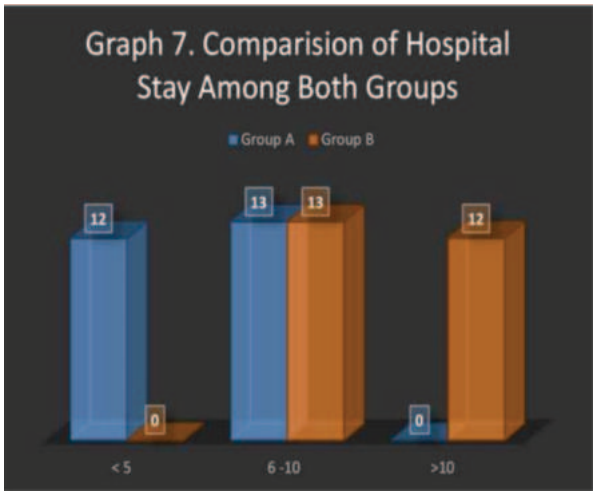
POST OP DAY OFPASSING STOOL	GROUP A (Early feeding)	GROUP B (Late feeding)
2	6	0
3	14	0
4	1	0
5	2	9
6	2	14
7	0	2



In 6 (24%) patients of Group A, passage of stool was observed within 2 days of surgery, while in group B 14 (56%) patients had passing stool after 6 days of surgery.In group A 14 (56%) patients had pass stool within 3 days of surgery and most of patients pass stool earlier in Group A compared to Group B. [Graph 6]

Table 10: Comparision Of Both Groups On The Basis Of Durartion Of Hospital Stay.

DURATION OF HOSPITAL STAY (IN DAYS)	GROUP A (Early feeding)	GROUP B (Late feeding)
LESS THAN 5 DAYS	12	0
6 TO 10 DAYS	13	13
MORE THAN 10 DAYS	0	12



In group A, 12 (48%) patients were stay only less than 5 days in hospital. Among the study participants, 13 (52%) patients in group A and 13 (52%) in group B had hospital stay in between 6-10 days duration.While total 12 (48%) patients in Group B had hospital stay more than 10 days. [Graph 7]

Table 11: Various Parameters Observed after Operation Among Both Groups

Variables	Group A (Early feeding)	Group B (Late feeding)	p-value
Removal of Ryle's tube	3.64 + 1.8	3.96 + 1.15	0.567
Appearanc e of Bowel Sound	3.4 + 0.8	4 + 1.5	0.04
Passage of Stool	4.8 + 2.5	5.5 + 1.6	0.00
Hospital Stay	7.4 + 3.1	8.48 + 1.77	0.001

There was significant difference found between the Ryle's tube removal after surgery, Appearance of bowel sound, Passage of stool, Hospital stays among Group A and Group B participants. [Table11]

Table 12. Association Between Postoperative Complications And Type Of Feeding

Post-operative complications		Group A (Early feeding)	Group B (Late feeding)	p-value
Infection	Yes	0	2	0.528
	No	25	23	
Leakage	Yes	1	1	1
	No	24	24	
Nausea	Yes	3	4	0.221
	No	22	21	
Vomiting	Yes	2	3	0.637
	No	23	22	
Diarrhea	Yes	1	5	0.817
	No	24	20	
Abdominal Distension	Yes	1	3	0.297
	No	24	22	
Abdominal Pain	Yes	0	2	0.55
	No	25	23	

Among the study participants, 0 (0%) patient and 1 (4%) patient of group A had history of infection and leakage in post operative period, while in group B it was seen in 2 (8%) and 1 (4%) patient respectively.In group A various post operative complications like nausea, vomiting, diarrhea, abdominal pain were seen in 3 (12%), 2 (8%), 1 (4%), 0 (0%) respectively. While in group B same complications were observed in 4 (16%), 3 (12%) , 5 (20%) , 2 (8%) patients
respectively.

CONCLUSION

- Early enteral feeding promotes patients' physical and mental wellbeing.
- The commencement of intestinal peristaltic sound and the passage of the first flatus and/or faeces occurred earlier in the early enteral feeding group.
- The early removal of Ryle's tube and naso gastric tube seen in early enteral feeding group as compared to conventional feeding group.
- Compared to the late feeding group, the early enteral fed group had a shorter mean hospital stay after surgery, making early enteral feeding far more cost-effective.
- The rate of infection problems is higher in the late feeding group than it is in the early feeding group, necessitating a longer course of higher antibiotics, which raises the average cost of care.
- Less post-operative nausea, vomiting, and abdominal pain are reported by early enteral feeding participants, which enhances patient compliance and lowers psychological anxiety.
- We can confidently infer from the aforementioned evidence that the conventional

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