



Early Versus Late Enteral Nutrition Following Upper Gastrointestinal Surgery – A Prospective Study

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Abstract

Gut anastomosis is one of the frequently performed surgeries in both emergency and elective setup. Anastomosis following gut resections in emergency set up is mostly done due to traumatic rupture, benign or malignant perforation or obstruction and in certain other inflammatory conditions. Mostly the patients are kept nil per orally till the intestinal peristaltic sound returns.

Rationality behind this practice is Postoperative gut dysmotility mainly affects stomach & colon along with small gut in a lesser magnitude. To protect the anastomotic site by providing rest to the gut and avoiding passage of food through it.

Great emphasis has been paid on early enteral feeding within 6 to 24 hrs after operation. Ideas behind early enteral feeding are Gut secretes and reabsorbs about 7 liters of fluid per day irrespective of oral intake, so giving 'rest to gut and protecting anastomotic site' is based on a false notion.

Gut recovers from dysmotility within 24 to 48 hours in case of stomach & colon while 4 to 6 hours in case of small bowel. It prevents translocation of bacteria or virus by maintaining integrity of gut mucosa which may become atrophied if gut remains in rest. Many patients remain malnourished before operation; they are predisposed to more postoperative complications. Starvation reduces the collagen content in the scar tissue and diminishes the quality of healing, whereas feeding reverses mucosal atrophy induced by starvation and increases anastomotic collagen deposition and strength.

Introduction

Formation of intestinal anastomosis is a critical component in surgical removal of gastrointestinal tumors. Prior to surgical treatment, patients with gastrointestinal cancers died due to intestinal obstruction and the best temporary alleviation of symptoms was the development of a cutaneous fistula, which in turn decompressed the obstruction.

This anastomosis can be undertaken using open, avoiding the use of occlusion clamps, or closed techniques. They are useful when access is not easy, as in transabdominal oesophago-gastric anastomosis or after low anterior resection, when there is disparity in the bowel lumen and when the bowel serosa is lacking.

The integrity of the anastomosis represents equilibrium between collagen lysis, which occurs

early and collagen synthesis, which takes a few days to initiate.

It has been demonstrated that early enteral feeding given within 24 hours of upper gastrointestinal surgery is feasible, safe and has its own benefits in term of reduction of postoperative complications and thus reducing the postoperative hospital stay. This leads to reduction of expense of the treatment, thus making enteral feeding cost-effective.

Materials and Methods

This study was undertaken with patients admitted in emergency and elective surgical wards of VSSIMSAR, Burla, Odisha during the period from November 2015 to October 2017, which are: Patients undergoing gastric, small bowel and uncomplicated simple biliary-enteric anastomosis on an emergency or elective basis. Feeding proximal to anastomotic site within 24 hrs following operation either per orally or through nasogastric tube. A randomized prospective study was conducted between two groups Group A - was fed within 48 hrs after enteric anastomosis and Group B - was fed 48-72 hrs after or sometimes even more following enteric anastomosis depending upon return of full peristaltic sounds.

Observations were made on the basis of adverse clinical outcomes like anastomotic leakage, post operative fever, wound infection, septicaemia, pneumonia, vomiting, intra abdominal collection, mortality, Routine haematological and biochemical investigations and Time of return of bowel sounds and passage of flatus and passage of stool.

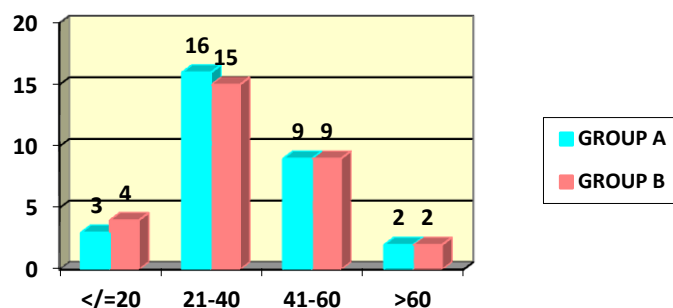
Results and Analysis

This prospectively conducted comparative study was carried out on 60 patients separated into two groups; Group A (30) and group B (30) was done. The group A was fed via enteral route within 48 hrs of enteric anastomosis. The group B was fed via enteral route after 48-72 hrs or appearance of full peristaltic sounds following enteric

anastomosis. These patients were followed in post operative period for their drain output, any nausea, vomiting, or significant abdominal distension, prolonged ileus, clinical leakage, infective complications and hospital stay.

In both the groups, most of the patients are in the age group of 21 yrs to 40 yrs.

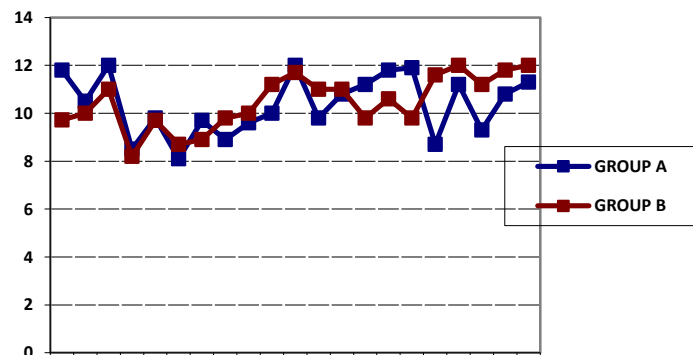
DISTRIBUTION OF AGE(YRS)



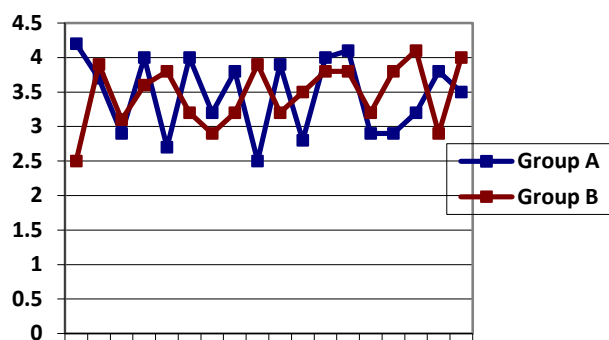
In group A, 12 cases are done in emergency (40%). In group B, 10 cases are done in emergency (33.33%). Both the groups are comparable in respect to their distribution as emergency and elective cases.

GROUP	EMERGENCY CASES	ELECTIVE CASES
A	12(40%)	18(60%)
B	10(33.13%)	20(66.67%)

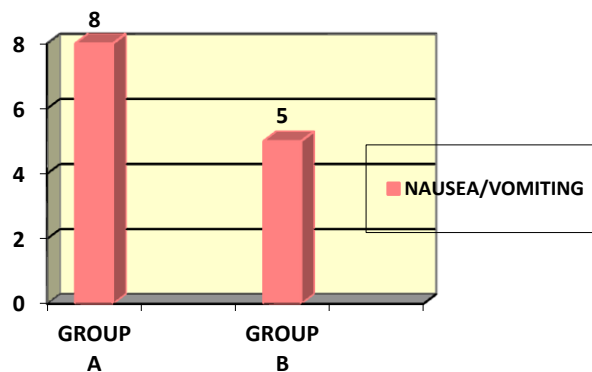
The mean preoperative haemoglobin levels in group A and group B are 9.73gm% (SD-0.997) and 9.8133 gm% (SD-1.2162).



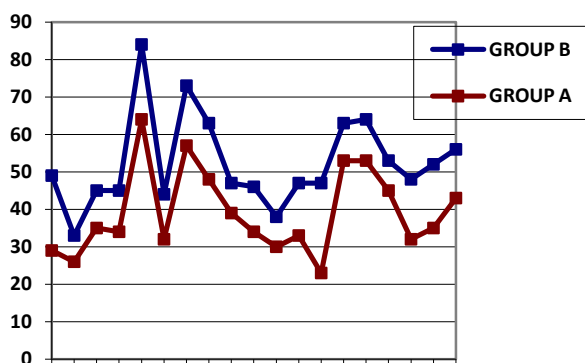
The pattern of distribution of preoperative albumin level in both the groups. The mean preoperative albumin levels in group A and group B are 3.513gm/dl (SD-0.456) and 3.463 gm/dl (SD-0.466), respectively.



Out of 30 patients of group A, 8 patients (26.67%) developed post operative nausea and vomiting and in group B, 5 patients (16.67%) developed post operative nausea and vomiting.



The distribution of time of appearance of IPS in both the groups. The mean time of appearance of IPS in group A and group B were 42.8 hrs (SD=10.772) and 53.6 hrs (SD=13.64) respectively.

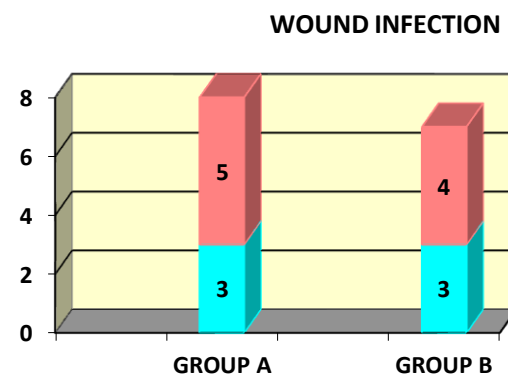


Out of 30 patients in group A, 4 patients developed clinical evidence of leakage of gastrointestinal anastomosis. In group B, out of 30 anastomosis, 2 patients developed clinical leakage. The leakage rates of gastrointestinal anastomosis in group A and group B were 13.33%

and 6.67% respectively. The clinical leakage rate in group A is higher than that of group B.

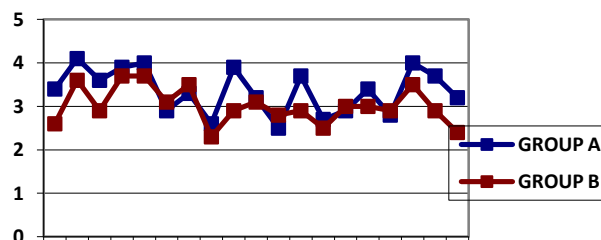
GROUP	CLINICAL LEAKAGE (YES)	CLINICAL LEAKAGE (NO)
A	4(13.33%)	26(86.67%)
B	2(6.67%)	28(93.33%)

Out of 8 wound infection of group A, 5 patients suffered from major wound infection and other 3 suffered from minor wound infection. In group B, 4 patients suffered from major wound infection and other 2 suffered from minor wound infection. Major wound infection requires repeated wound debridement at operating room with proper antibiotic therapy and regular dressing at wards with proper antibiotic therapy.

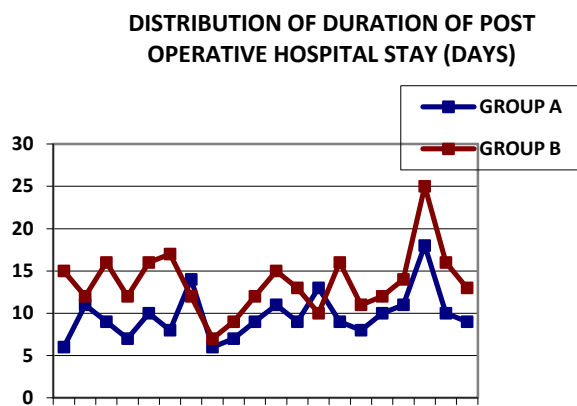


The distribution of post operative day 4 albumin level in both the groups. The mean of post operative day 4 albumin level in group A and group B were 3.147 gm/dl (SD=0.445) and 2.747 gm/dl (SD=0.475) respectively.

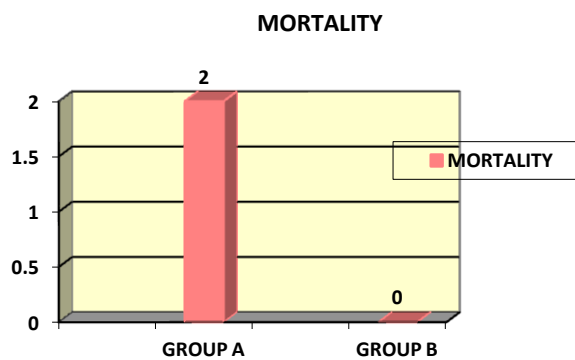
DISTRIBUTION OF POST OPERATIVE DAY 4 ALBUMIN LEVEL (GM/DL)



The distribution of duration of post operative hospital stay (day) in both the groups. The mean duration of post operative hospital stay in group A and group B were 7.4 days. Duration of post operative hospital stay in group B is higher than that of group A.



There are two mortalities in group A, but no mortality in group B. In group A, one patient died due to severe sepsis following clinical leakage of gastrointestinal anastomosis. The other patient died due to acute myocardial infarction with uncontrolled blood pressure in post operative period in the presence of evidence of clinical anastomotic leakage.



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. Adequate nutrition has always been a major goal in postoperative care. It is also being increasingly recognized now that withholding oral feeds for few days after surgery in such cases leads to nutritional depletion and its consequences.

In this study majority of the cases of both the groups underwent enteric anastomosis for closure of stoma(ileostomy), malignancy of gut requiring

resection and anastomosis of stomach, small gut. All the operations in both the groups are done under general anaesthesia. This study also reveals that out of 4 cases(13.33%) in group A and 2 cases (6.67%) in group B who had post operative leak , re-exploration was done in 2 patients in group A and 1 patient in group B. The drain was able to pick up all anastomotic leakage in both the groups and some cases of anastomotic leakage manifested as bilious discharge from main abdominal wound.

Enteral feed was started within 48 hours of surgery and it was well tolerated in 22(73.33%) cases of group A and 25 (16.67%) cases of group B. Remaining 8 cases (26.67%) of group A and 5 cases (16.67%) of group B could not tolerate early enteral feeds. Oral feeding had to be withheld for next 6-12 hrs, then all the patients could tolerate feed in small quantities. In the present study, 26.67% of patients in group A and 16.67% patients in group B complained of nausea and vomiting after the start of oral feeds which was comparable between the two groups.

In the present study the mean duration of postoperative hospital stay was 7.4 days in group A and 10.13 days in group B. One significant observation was made that post operative hospital stay is significantly shorter in group A cases as compared to group B cases. It is possibly due to the fact that early feeding helps in early bowel movements, faster recovery, less post operative complications, leading to early discharge from hospital.

Summary & Conclusion

This study shows that appearance of intestinal peristaltic sounds is earlier in early enterally fed group. Mean duration of post operative hospital stay is lower in early enterally fed group. Mean post operative day 4 albumin level is increases in early enterally fed group. The rate of clinical leakage, nausea/vomiting are equal in both the groups

From our study it can be concluded that the conventional wisdom of withholding enteral feeds

for prolonged periods to coincide with the appearance of peristaltic sounds might not stand the test of time. The practice of early enteral feeding doesn't have any impact on anastomotic outcome.

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