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ORIGINAL ARTICLE

Comparison between Early and Standard Oral Feeding After Emergency Bowel Surgery

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ABSTRACT

Background: Laparotomy for small intestinal diseases accounts for a sizable proportion of all emergency operations. The perioperative outcome of these procedures may be enhanced by applying an adapted enhanced recovery after surgery (ERAS) regimen supported by evidence.

Aim: This research aimed to appraise the outcomes of near-the-beginning feeding to those of normal eating in patients who had undergone emergency surgery on their digestive tracts (GI) or bowels.

Methodology: This study was conducted at the departments of general surgery HMC Peshawar and Nishtar Hospital, Multan. Between November 2021 and April 2022, the data was collected from 84 patients who required emergency intestinal resection and anastomosis. Patients were not eligible if they had short bowel syndrome, intestinal ischemia, protracted bowel perforation, or septic shock. The patients were divided into two groups, those who began eating earlier (group E; n=44) and those who began eating later (group L; n=40). Early feeding entailed starting enteral nutrition within 48 hours of surgery. The surgical and clinical outcomes of the early feeding group were appraised to those of the late feeding cluster.

Results: Bowel perforation was the most prevalent reason for surgery, and the miniature intestine was nearly all common areas affected. There was no meaningful difference in the origins, places, or interventions between the two sets of participants. Group L, on the other hand, had a much higher incidence of pulmonary issues (13.6 per cent vs 47.5 per cent, p=0.001) and an extended mean length of stay (LOS) in the ICU (2 days vs 1 day, p=0.038) and hospital (9 days vs 12 days, p=0.012).

INTRODUCTION

Recent advancements during anesthesia and surgery and better cooperation across these professions have markedly improved surgical care for patients during the past 20 years. An example is an Enhanced Recovery After Surgery (ERAS) regimen by Dr Henrik Kehlet, MD, PhD [1]. It relies on several changes that have been shown to reduce physiological and psychological stress, facilitating faster recovery.

Many fields of medicine have adopted the ERAS protocols and are now considered the gold standard for numerous operations. Hospital stays for elective upper and lower gastrointestinal operations can be significantly shortened with the help of ERAS pathways, as indicated in meta-analyses of these procedures (LOH) [2]. There is a clear need to reevaluate the perioperative treatment methods among this population , as the morbidity and mortality rates associated with emergency surgery are higher than those of elective surgeries [3]. The potential for reducing perioperative morbidity using the established multimodal treatment approach is highlighted. Due in large part to confront involved in employing every aspect of ERAS protocol, reports of the application of these procedures during emergencies are sparse. It might be worth trying out some variant of the ERAS process in times of crisis [4].

There is scant information about using modified ERAS pathways in crises. Laparoscopic Graham piece revamps for perforated comestible ulcer has been shown by Gonenc et al. to reduce rates of LOH and complications [5]. Similar results with a lower complication rate were seen in an earlier trial conducted at our institution, including patients with a perforated peptic ulcer treated using the ERAS method. Some research on individuals who required emergency colectomy found that they recovered bowel function faster, had fewer problems, and had lower rates of LOH [6]. Although ERAS has been used in several emergency surgeries, there is a lack of large-scale randomized controlled trials examining its efficacy [7].

To the best of our knowledge, no studies have evaluated ERAS's efficacy during emergency laparotomy for small bowel illnesses. Small bowel diseases account for 22-33% of all emergency laparotomies, with the remainder being for various other conditions [8]. 13 Some reports indicate that patients with such surgery have a postoperative death rate of 10-14%. The perioperative outcome of these procedures may be enhanced by applying an adapted enhanced recovery after surgery (ERAS) regimen supported by evidence [9]. We ran this study to test the viability, safety, and efficacy of a modified ERAS pathway for patients requiring immediate small intestinal resection [10].

METHODS

Patients' selection: Between November 2021 and April 2022, we analyzed data from patients who had emergency gastrointestinal surgery performed by surgeons. Individuals considered for membership had prior experience performing intestinal resection and anastomosis. Additionally, patients with short bowel syndrome, persistent intestinal ischemia, uncontrolled intestine rupture, or septic shock were not allowed to participate. Patients who had undergone a main revamp of pricked viscera, adhesiolysis devoid of bowel type anastomosis, or a simple appendectomy or cholecystectomy were also excluded. Also, people who needed intensive care for longer than 3 days were excluded from the study. Based on when patients typically started their meals, they were split into an "early" (E) group and a "late" (L) group. We defined early feeding as the administration of a tube or per so feeding of a liquid or soft diet within 48 hours following a surgical procedure. Hemodynamic stability, successful bowel anastomosis, and the absence of ischemia change in the intestine during surgery were all required before enteral feeding could begin.

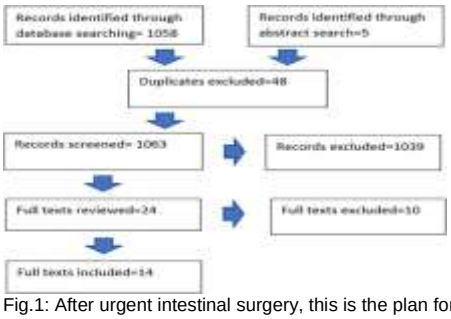

Fig.1: After urgent intestinal surgery, this is the plan for eternal eating.

To initiate feeding, we followed the steps in Fig. 1. Patients with certain conditions, such as mental incapacity, an underlying cerebral infarction, or those who have undergone gastric surgery, may require tube feeding using a nasogastric, mesenteric, or jejunostomy tube. The Society recommends early feeding for Parenteral and Enteral Nutrition to speed up the healing process, reduce postoperative problems, and speed up the patient's time to discharge. The Review Boards of the Institutions have approved this study.

The surgical outcomes and medical histories of both groups were compared. Age, sex, APACHE II score14 at ICU admission, indication for surgery, procedure type, and the surgical site. Some of the clinical factors that were analyzed included the ICU think about ratio, vasopressor use, mechanical type ventilation (MV), and MV interval. Indicators of surgical upshot included impediment rates, impediment categories, and hospital and intensive care unit (ICU) duration of stay. Patients who met the intensive care unit admission criteria included those older than 70 years old, had multiple medical conditions, were hemodynamically unstable following surgery, needed mechanical ventilation, and required constant monitoring. Denote arterial type pressure was upheld at >60 mm Hg (or >80 mm Hg if the patient enclosed baseline hypertension) utilizing vasopressors like elevated-dose dopamine (>15 mcg/kg/min) or norepinephrine (>0.25 mcg/kg/min).15 When a smaller amount than 1.5 meters of miniature intestine remained following surgery, the patient was diagnosed with short bowel syndrome. 16 Pneumonia, atelectasis, and pleural effusion are all respiratory problems. A diagnosis of diarrhoea was made if the patient had more than three episodes per day or passed more than 500 milliliters of stool each day. A simple abdominal radiograph can detect ileus, a non-mechanical obstruction of the intestine.

Statistical analysis: Values are only shown in the report seeing that percentages, medians sort, and ranges. Categorical data were analyzed using a chi-square category test, while continuous data were analyzed using a t-test. The statistical work is done in SPSS 18 by IBM. The cut-off for significance was a p-value of 0.05.

RESULTS

The initial consideration was to include as many as one hundred and twelve patients. Nineteen patients were disqualified because they needed postoperative intensive care for more than three days, and another nine were disqualified because they needed enteral feeding due to medical conditions (acute organ failure, intestinal ischemia, prolonged perforation of the colon, and severe shock). After various obstacles, a total of 84 people joined the study. The median age was 64 in the sample size of 47 males and 37 females. (Range, 16-102). The median APACHE II score in the intensive care unit was 15. (Range, 11-35). Postoperative hypotension affected 7 of the 63 patients treated in the ICU, or 8.3 per cent. The median duration of MV was one day in 22 individuals (24.2%). (Range, 1-3). After surgery, patients typically spend 11 days in the hospital (with a range of 4-72 days) and 2 days in the critical care unit (with a range of 1-3 days). Most cases requiring surgery involved either a bowel perforation (n=37, or 44%) or an intestinal obstruction (n=22, or 26.2%). The small intestine was the intended organ of surgery for 51.2% of patients, with the colon coming in second for 38.1% of operations. Most patients (n=33, or 39.3 per cent) underwent fragmental resection through the primary anastomosis of the small bowel. Seventy-five patients (77.4 %) were fed orally, while the remaining 19 were fed through a tube (22.6 per cent). Among the 52 patients who encountered a postoperative complication, the most common ones were related to the wounds themselves, including infection and seroma. Twenty-five patients, or 29.8 per cent, developed some pulmonary problem; eight of these people developed atelectasis, two developed pneumonia, and 15 developed pleural effusion.

Group E consisted of 52.4%, or 44 patients, while group L included 40%, or 40 patients (47.6 per cent). Of the 36 patients in group E, 18 (or 40.9%) began eating within the first 24 hours. As many as 11 patients in group E (11.4%) and 12 in group L (12.5%) had to stop eating due to health complications. Included in this number were four occurrences of ileus and one example of a leaky anastomosis (four belongings of ileus, two diarrhoeas).

Table 1: reasons of operation

Causes	Group E(n=44)	Group L(n=40)	P value
Obstruction	10 (22.7)	12 (30.0)	0.212
Strangulation	81 (18.2)	1 (2.5)	
Perforation	19 (43.2)	18 (45.0)	
Trauma	31 (6.8)	4 (10.0)	
Bleeding	1 (2.3)	0 (0.0)	

Table 2: Locations of Activity(operation)

Sites	Group E(n=44)	Group L(n=40)	P value
Stomach	2 (4.5)	5 (12.5)	0.522
Duodenum	1 (2.3)	1 (2.5)	
Small bowel	22 (50.0)	21 (52.5)	
Colon	19 (43.2)	13 (32.5)	

Table 3: Modes of procedure

operation type	Group E(n=44)	Group L(n=40)	P value
Small bowel resection	10 (43.2)	12 (35.0)	0.103
colon resection	81 (20.5)	1 (25.0)	
bypass surgery	19 (11.4)	18 (15.0)	
gastrectomy	31 (2.3)	4 (12.0)	

Table 4: facts gleaned from clinical trials and surgical results

Inconstant	Assembly E(n=44)	Collection L(n=40)	P value
Age (yrs)	65.5 (16-92)	62.5 (32-102)	
Gender (male: female)	16:29	19:22	0.055
The gastric residual volume before feeding(mL/day)	95 (0-640)	140 (0-750)	
APACHE ii Score	14.0 (11-35)	18.5 (10-34)	
ICU care	35(69.2)	25(58.5)	
Vasopressor use	4(11.0)	5(18.4)	
MV	12(24.7)	11(32.0)	

DISCUSSION

This research aimed to determine whether or not, among patients, using steady hemodynamic condition and a successful anastomosis could safely begin eating soon after undergoing emergency gastrointestinal surgery. This study's results support the theory that resuming normal food intake quickly after undergoing emergency gastrointestinal surgery is safe. Although the early feeding group and the late feeding group saw equal total problem rates, the early feeding group had significantly reduced levy of pulmonary impediment and shorter hospital and intensive category care unit admissions [11].

Because it is standard practice to wait until bowel motility has been restored before beginning enteral feeding after elective GI surgery, the timing of the initiation of enteral feeding after an emergency operation on the GI tract is sometimes delayed[12]. Anastomosis healing is commonly delayed in patients undergoing emergency gastrointestinal surgery due to oedematous or ischemic bowel, which can result in anastomotic commotion or leakage. However, malnutrition or a delay in the formation of the gut mucosa due to inadequate enteral intake can increase postoperative morbidity and mortality[13].

Several studies have demonstrated that enteral feeding after gastrointestinal surgery improves nutrient absorption and decreases septic morbidity near the beginning [14]. Several recommendations state that enteral feeding favours parenteral nutrition whenever intestinal continuity is preserved following surgery.

Despite the benefits of early feeding, the ideal timing to start enteral feeding after emergency gastrointestinal surgery is still debatable. Although early enteral feeding has been shown to have beneficial effects, its efficacy has been the subject of very few

investigations. Immediate initiation of enteral nutrition following emergency gastrointestinal surgery has been studied for its potential implications resting on patients using peritonitis [15]. On the other hand, most of these patients had pricked gastric or duodenal ulcers, requiring the placement of a nasogastric or percutaneous jejunal tube to redirect food and fluids around the anastomosis. Since colon resection with anastomosis was performed on most of our patients, the majority (67%) required either per so feedings or feedings with the aid of a nasogastric tube surgically implanted in the stomach [16].

Abdominal pain, diarrhoea, and postoperative ileus are some of the issues that can arise from starting to eat too soon, and they were studied here. In the early feeding group, 23 of the 44 patients experienced problems, but they all recovered well with conservative treatment. The majority of complications were related to the wounds themselves. Except for pulmonary complications, there were no statistically meaningful differences between the two clusters with respect to other potential complications, such as infection or seroma [17].

It has been shown by Barlow et al. that patients who receive early enteral nourishment after major upper GI surgery have a lower risk of operative morbidity, which includes pulmonary problems following emergency surgery. A significant reduction in the likelihood of acquiring chest infections was experiential in this group of patients. In a meta-psychiatry of far above-the-ground risk surgical patients, Moore et al. set up a decrease in the occurrence of pneumonia and other septic sequelae. Our results confirmed what has been found elsewhere: premature infants who began solids at a young age had a significantly reduced risk of developing respiratory issues (pleural effusion was responsible for most pulmonary problems, which were drained through the percutaneous catheter). Since pleural effusion drainage via percutaneous catheter appeared to lengthen LOSs in the belatedly feeding cluster, we hypothesized that feeding contributed to enhanced fluid balance near the beginning. The reduction in intravenous fluid ingestion was associated with near the beginning enteral feeding, suggesting that this may be a key factor in preventing pleural effusion [18].

It's not common practice for patients to undergo emergency gastrointestinal surgery and begin enteral feeding immediately. In this investigation, enteral feeding was started soon after a flatus episode. However, after adopting ESPEN guidelines, both the schedule and the means of feeding were modified so that patients could begin eating as soon as following feasible stabilization or undergo enteral tube catheterization for major or upper gastrointestinal surgery.

Some encouraging findings were found in this study. However, there are also numerous important qualifications [19]. For starters, it's worth noting that this was a retrospective study, so there could have been some selection bias. Early feeding has been linked to a shorter LOS and a faster recovery to normal gastrointestinal motility compared to a later feeding time. Nonetheless, once the patient had demonstrated hemodynamic stability and a secure bowel anastomosis was performed, early feeding was initiated regardless of GI motility. In addition, we found no statistically significant changes in the pre-feeding residual volume of the stomach across the groups. Patients who resumed eating soon after surgery spent less time in ICU after surgery (group E vs group L; 1 day vs 2 days). Within the first 48 hours after surgery, we advocated for "early feeding," or the consumption of solid foods. Of those who underwent surgery, 40.9% started eating again within the first 24 hours, but this may not account for those who were transferred to the main ward before eating. More research is needed to assess the efficacy of early feeding on shortening LOSs in the ICU, particularly with severely sick patients who have lengthy LOSs in the ICU. Third, we did not investigate whether or not pre-meal consumption impacts thermogenesis and hydration [20]. This study's findings add credence to the call for a probable study to corroborate the valuable belongings of early feeding following emergency GI surgery on nutritional status and liquid balance.

CONCLUSION

According to this learning, the consequences of emergency gastrointestinal surgery were comparable for the early and late feeding groups. Our findings show that patients not in a severe state of shock or bowel anastomosis instability can safely begin feeding shortly after emergency GI surgery.

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