



A PROSPECTIVE STUDY ON EARLY VERSUS LATE ENTERAL FEEDING IN GASTRO INTESTINAL SURGERIES IN TERTIARY CARE CENTRE

Surgery

Dr. Mohd. Abdul Rehman

MS (Gen. Surg), FMAS, FIAGES. Associate Professor, Department of General surgery. Osmania Medical College, Hyderabad, Kaloji Narayana Rao University Of Health Sciences, Telangana, India.

Dr. Arra Priyanka

MS (Gen. Surg.) Assistant Professor, Department Of General Surgery, Osmania Medical College, Hyderabad, KNRUHS, Telangana, India.

Dr. B. Ravi Teja

Senior Resident, Surgical Oncology, Nizams institute of medical sciences. Hyderabad, Telangana.

ABSTRACT

Aim: Study of early versus late enteral feeding in gastro intestinal surgeries. **Objectives:** To study whether early enteral feeding within 48 hours of bowel surgeries is tolerable to the patient irrespective of bowel sounds To study whether early enteral feeding within 48 hours of bowel surgeries is beneficial to the patient irrespective of bowel sounds To study complications associated with early and late feeding in bowel surgeries. **Materials & Methods:** Patients who underwent gastrointestinal surgeries in Osmania general hospital and Nizam institute of medical sciences both in emergency and elective setup like anastomoses, primary repair or modified grahams patch repair or Cellan jones repair, hemicolectomy, Frey's procedure, whipple's procedure, stoma reversal were selected who met the inclusion criteria. Subjects were divided randomly into cases and control group. Patients in cases group were started oral sips of fluids within 48 hours of surgery initially with clear liquids, fruit juices, tender coconut water, milk later gradually increased the feeds then started on soft diet after 24 hours of starting oral sips of fluids then high protein diet. Ryles tube removed after 24 hours in study group and enteral feeds given through oral route in sitting position. Patients in control group were given maintenance fluids with dextrose, normal saline and ringers lactate and also TPN in some cases. **Conclusion:** In this study rate of surgical site infection, pulmonary infections, fever is less in the early feeding group. Duration of the hospital stay is reduced, appearance of bowel sounds, passage of flatus and stools is early in the early feed group when compared to the patients who were on conventional feeds. There is no significant difference between the two groups in terms of anastomotic leak, emergency and elective type of operation, benign or malignant pathology, mortality, ileus and distension, nausea and vomiting and presence of gangrenous gut.

KEYWORDS

Early enteral feeding, gastrointestinal surgeries.

INTRODUCTION

Gastrointestinal surgeries are one of the most frequently performed surgeries which includes anastomoses, stoma and repair. Anastomoses includes either end-end or side-end or end-side or side-side anastomoses. Stoma may be either end or loop stoma, small bowel or large bowel stoma, temporary or permanent stoma. Repair may be either Primary repair or Grahams patch or Cellan Jones repair which are performed both in emergency and elective setups. Indications for performing these procedures include perforation (benign, malignant, traumatic and some other inflammatory conditions) or obstruction. The concept of enhanced recovery after surgery depends upon multiple components where early feeding is one of the most important component. Generally, in emergency condition bowel is edematous and ischemic so many of the surgeons will keep the patient's nil by mouth till the appearance of bowel sounds as a conventional practice. Most of the surgeons believe that keeping the patient nil by mouth results in rest to the bowel and thus protects anastomotic site but daily gastric and intestinal secretions accounts for 5-7 liters which is tolerating by patient. Poor nutritional status results in less collagen deposition which further results in delayed wound healing either to anastomoses or to rectus or to skin. To maintain the nutrition in early post op period in gastrointestinal surgeries TPN is advocated which has its own demerits of electrolyte imbalance, metabolic disturbances, infective complications, immunosuppressive effects and increased cost. Normally there is gut dysmotility in post op period up to 4-6 hours for small bowel, 24-48 hours for stomach and large bowel. so we can start feeding within 48 hours irrespective of bowel sounds. Starvation increases the insulin resistance and there by changing body metabolism with reducing muscle function like respiratory resulting in alveolar collapse and pneumonia.

Enteral nutrition can be achieved by: 1) conventional Oro gastric tube 2) fine bore feeding tube 3) gastrostomy either surgical or percutaneous endoscopic type 4) post pyloric feeding utilizing NJ tube 5) jejunostomy either Witzel and stam type. Choice of the method is determined by the patient preference and the circumstances and duration of feeding required. Conventionally 20-30 ml of feeds are started initially and gradually the feeds are increased to the desired rates by 2-3 days. In most of the times the feeding is stopped fortnightly to regain the pH normal which helps in the reduction of the incidence of aspiration and nosocomial pneumonia. In these cases aspiration should

be done regularly and if aspirate is more than 200 ml in any 2 hour period feeds are stopped temporarily and decrease the feed rate. If solidification of diet is there we can use agents like chymotrypsin to clear the tube which can salvage the partially obstructed tube. Enhanced recovery is an approach to the perioperative care of the patient undergoing the surgery which is designed to speed the clinical recovery of the patient and decreasing the hospital stay and morbidity of the patient. It is achieved by optimizing the health of the patient before surgery and delivering the evidence based medical care in the perioperative period. Strategies advocated by the enhanced recovery protocols include early planned physiotherapy and mobilization, early oral hydration and nourishment, opioid sparing analgesia regimens that include the use of regional blocks, regular NSAIDs and paracetamol, discharge planning is started before the patient is admitted to hospital and involves support from the stoma care nurses, physiotherapists and other community care providers.

MATERIALS & METHODS

Inclusion Criteria: 15 to 65 years of age Written and informed consent patients who underwent bowel surgeries both in emergency and elective setup

Exclusion Criteria: Age less than 15 and more than 65 Pregnant females Diversion ileostomy Diversion colostomy Diabetics, hypertensives and stroke patients Chronically malnourished Patients on steroids.

RESULTS

Of the 50 patients who underwent gastro intestinal surgery, 25 patients were started on early enteral feeding and 25 on conventional feeding methods based on bowel sounds and passage of flatus and stools. The patients who were started on early enteral feeding are considered as cases and the patients who were started on conventional feeding are considered as controls. Of the 50 patients in the study 2 had clinical leakage. 1 in cases group and 1 in control group. It is observed that the % of clinical leakage in both the groups were same and with p value 1.

Age: Mean age among the cases group is 39.44 Mean age among the controls group is 42.28 It is observed from the age distribution that most of the patients belongs to 50-60 years of age group among cases and 30-40 years of age group among the control group with p value 0.2.

Sex: It is observed that there are 64% of males and 36% of females

among cases group and 60% of males and 40% of females among controls group with a p value 0.7

Type of Procedure: It is observed that the % of emergencies and elective operation among cases group is 76 and 24 percent respectively and percentage of emergencies and elective operation among control group is 56 and 14 percent respectively with p value 0.1

Based on Pathology: It is observed that the % of benign and malignant among cases group is 92 and 8 percent respectively and 88 and 12 percent respectively among control group with p value 0.6

Presence of Gangrenous Gut: It is observed that only one case has gangrenous gut among controls and no gangrenous gut among cases.

Bowel Sounds: Mean time of appearance of bowel sounds in cases is 33.6 hours. Mean time of appearance of bowel sounds in controls is 40.32 hours. It is observed from the above study that mean time of appearance of bowel sounds among cases is more earlier than control group with p value 0.04

Surgical Site Infection: It is observed that the % of surgical site infection among cases is 20% and 48% among control group with p value 0.03

Duration of Hospital Stay: Mean duration among cases is 7.8 days and 9.9 days in control group with P value 0.04

Ileus: It is observed that the % of ileus among cases are 8% and 20% among controls with P value 0.2

Pulmonary Complications: It is observed that the % of pulmonary complications among cases group is 8% and among controls group is 32% with P value 0.03

Nausea & Vomiting: It is observed that % of nausea and vomiting among cases is 8% and 16% among controls group with P value 0.3

Fever: It is observed that the % of fever among cases is 16% and among control group is 44% with P value is 0.03

Passage of Stools and Flatus: Mean time for passage of flatus and stools among cases is 38.8 hours and among controls is 49.92 hours with P value 0.008

Mortality: It is observed from the above data that the percentage of mortality among cases is 0% and among controls is 12%.

CONCLUSION

In this study rate of surgical site infection, pulmonary infections, fever is less in the early feeding group and there is significant difference between the two groups. Duration of the hospital stay is reduced among the early feeding group. Appearance of bowel sounds and passage of flatus and stools is early in the early feed group when compared to the patients who were on conventional feeds. There is no significant difference between the two groups in terms of anastomotic leak, emergency and elective type of operation, benign or malignant pathology, mortality, ileus, nausea and vomiting and presence of gangrenous gut.

DISCUSSION

Most of the surgeons as a conventional practice used to follow practices where nil by mouth till the appearance of bowel sounds and passage of flatus and stools in the gastro intestinal surgeries even today. According to them they believed that post operatively because of anaesthesia and bowel surgery results in the ileus and feeding causes the anastomotic leak whereas the complete gut rest results in anastomotic healing. In this study a total of 50 patients were taken and divided randomly into two groups and were given enteral feeds either by oral route or ryles tube or jejunostomy feeds with clear liquids, juices, coconut water and gradually escalated to soft diet in cases group and conventional feeding in the control group. The mean age in the cases group is 39.44 and the mean age in the controls group is 42.28 and there is no significant difference between the two groups. Of the 50 patients 19 were females and 9 patients were given early feeds and among 9 patients who were given early feeds 1 patient has bilious output from the drains which was managed conservatively. 31 patients were males and 16 patients were given early feeds with no one had

anastomotic leak and 15 were given conventional feeds out of which 1 patient has bilious leak from the drains and expired because of covid complications. There is no significant difference between the two groups. Mean duration of the hospital stay among cases group who were given early feeds is 7.8 days and among controls group who were given late feeds is 9.9 days. The duration of hospital stay is reduced in cases group and there is significant difference from each other. Incidence of surgical site infection among the cases group is 20% and among controls group is 48%. Incidence of fever among the cases group is 16% and among the controls group is 44%. Incidence of pulmonary among the cases group is 8% and among controls group is 32% and hence there is significant difference.

Incidence of distension and ileus among cases group is 8% and 20% among control group and there is no significant difference between the two groups. Incidence of nausea and vomiting among the cases group is 8% and 16% among control group and there is no significant difference between the two groups. Incidence of fever among cases group is 16% and among control group is 44% and there is significant difference between the two groups. Mean time of passage of stools and flatus among the cases group is 38.8 hours and 49.92 hours. Only 2 cases have evidence of clinical leakage among them one is managed conservatively and the other patient expired due to covid complications re exploration not done in any cases. Of the 50 patients only 3 patients expired from the control group one is due to the covid complications and the other one is due to the haemorrhagic shock and the other one is due to respiratory failure and no patients expired from the cases group and there is significant difference between the two groups. Mean time of the appearance of the bowel sounds among the cases group is 33.6 hours and 40.32 hours among the control group. Of the 50 patients in the study only 1 patient has gangrenous gut in controls group. The incidence of malignant pathology in cases group is 8% and among controls group is 32%. The % of emergency surgeries among the cases group is 24% and among controls group is 44%. This study shows that the early enteral feeding is beneficial in gastrointestinal surgeries when compared to conventional feeding.

REFERENCES

- 1: Azhar RA, Bochner B, Catto J, Goh AC, Kelly J, Patel HD, Pruthi RS, Thalmann GN, Desai M. Enhanced recovery after urological surgery: a contemporary systematic review of outcomes, key elements, and research needs. *European urology*. 2016 Jul 1;70(1):176-87.
- 2: Aichbichler BW, Zerr CH, Santa Ana CA, Porter JL, Fordtran JS. Proton-pump inhibition of gastric chloride secretion in congenital chloridorrhea. *New England Journal of Medicine*. 1997 Jan 9;336(2):106-9.
- 3: Reavis KM, Chang EY, Hunter JG, Jobe BA. Utilization of the delay phenomenon improves blood flow and reduces collagen deposition in esophagogastric anastomoses. *Annals of surgery*. 2005 May;241(5):736.
- 4: Arunsenthilnathan K. A Comparative study of Efficacy of Staplers Versus Hand Sewn Anastomosis in Bowel Surgeries (Doctoral dissertation, Madurai Medical College, Madurai).
- 5: Older R, Smith R, Courtney B, Hone R. Preoperative evaluation of cardiac failure and ischemia in elderly patients by cardiopulmonary exercise testing. *Chest*. 1993 Sep 1;104(3):701-4.
- 6: Coats KG, Morgan SL, Bartolucci AA, Weinsier RL. Hospital-associated malnutrition: a reevaluation 12 years later. *Journal of the American Dietetic Association*. 1993 Jan 1;93(1):27-33.
- 7: Stone BG, Van Thiel DH. Diabetes mellitus and the liver. In: *Seminars in liver disease* 1985 Feb (Vol. 5, No. 01, pp. 8-28). © 1985 by Thieme Medical Publishers, Inc..
- 8: Pagnotta A, Milligan CL. The role of blood glucose in the restoration of muscle glycogen during recovery from exhaustive exercise in rainbow trout (*Oncorhynchus mykiss*) and winter flounder (*Pseudopleuronectes americanus*). *Journal of Experimental Biology*. 1991 Nov 1;161(1):489-508.
- 9: Williams NS, Bullstrode CJ, O'Connell PR. Bailey & Love's short practice of surgery. *Annals of the Royal College of Surgeons of England*. 2010 Mar;92(2):178.
- 10: Nelson N. A photometric adaptation of the Somogyi method for the determination of glucose. *Journal of biological chemistry*. 1944 May 1;153(2):375-80.
- 11: Jeejeebhoy KN. Permissive underfeeding of the critically ill patient. *Nutrition in clinical practice*. 2004 Oct;19(5):477-80.
- 12: Bouillanne O, Hay P, Liabaud B, Duché C, Cynober L, Aussel C. Evidence that albumin is not a suitable marker of body composition-related nutritional status in elderly patients. *Nutrition*. 2011 Feb 1;27(2):165-9.