Original Research Article

Early enteral nutrition versus parenteral nutrition after resection of esophageal cancer

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Abstract

Background: Esophagectomy for esophageal cancer is one of the most invasive procedures among gastrointestinal surgeries, and patients undergoing esophagectomy are unable to gain nutrition by mouth within the first few days after surgery. The present study compared early enteral nutrition versus parenteral nutrition after resection of esophageal cancer. **Materials & Methods:** 52 cases of esophageal cancer of both genders were divided into EEN group and PNgroup. Each group Comprised of 26 each. Factors such as site of lesion, pathologic stage, time to first fecal passage, post-operative albumin infusion, differences of serum albumin value, hospital stay, systematic inflammatory response syndrome (SIRS) duration and mortality was recorded. **Results:** Group I comprised of 18 males and 8 females and group II 14 males and 12 females. Site of lesions was upper thoracic in 12and 11, middle thoracic in 9 and 10 and lower thoracic in 5 and 5 in group I and group II respectively. Pathologic stage was 0 seen in 1 and 2, I in 4 and 6, II in 12 and 10, III in 6 and 6 and IV in 3 and 2 in group I and group II respectively. Preoperative adjuvant therapy was neoadjuvant in 15 and 16 and chemoradiotherapy in 11 and 10 in group I and group II respectively. The mean preoperative serum albumin (g/L) was 33.5 and 34.2, first fecal passage (day) was 2.7 and 3.8, hospital stay (day) was 16.2 and 18.7, albumin infusion (g) was 30.5 and 40.3, SIRS duration (day) was 3.4 and 4.7 and in-hospital mortality was seen in 1 and 2 in group I and group II respectively. The difference was significant (P< 0.05). **Conclusion:** Early EN is safe, economic, and superior for promoting early recovery of intestinal movement.

Keywords: Esophageal cancer, Upper thoracic, Chemoradiotherapy

Introduction

Esophageal cancer is the seventh leading cause of cancer death in men in the United States. Nearly 90% of patients with this malignancy will eventually die of the disease[1]. Even after treatment with curative intent, recurrence often develops in patients[2]. Regular follow-up after definitive treatment is believed to be an important component of cancer care, potentially allowing for earlier detection and better management of recurrences[3]. Scant evidence exists on the optimal follow-up regimen and its impact. As a result, guidelines differ on the method and interval of follow-up for posttreatment surveillance[4].

Esophagectomy for esophageal cancer is one of the most invasive procedures among gastrointestinal surgeries, and patients undergoing esophagectomy are unable to gain nutrition by mouth within the first few days after surgery[5]. Thus, postoperative enteral nutrition (EN) and/or parenteral nutrition (PN) have become routine management in such cases, and recent studies demonstrated that EN initiated within 24–48 hours after esophagectomy reduced the length of hospital stay, post-operative morbidity, and the rate of life-threatening complications[6]. However, because some studies have not shown any clinical benefits with postoperative early enteral nutrition (EEN) after esophagectomy over PN and indicated the importance of PN after esophagectomy as a nutrition therapy, so the superiority of EEN afteresophagectomy has remained debated[7]. The present study compared early enteral nutrition versus parenteral nutrition after resection of esophageal cancer.

Materials & Methods

The present study comprised of 52 cases of esophageal cancer of both genders. All were included after obtaining written consent from all patients.

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Data such as name, age, gender etc. was recorded. Patients were divided into EEN group and PNgroup. Each group Comprised of 26 each. Factors such as site of lesion, pathologic stage, time to first fecal passage, post-operative albumin infusion, differences of serum albumin value, hospital stay, systematic inflammatory (SIRS) duration and mortality was recorded. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

Results

Table 1: Distribution of patients

Total- 52		
Groups	**Group I**	**Group II**
Method	Early enteral nutrition	parenteral nutrition
M:F	18:8	14:12

Table I shows that group I comprised of 18 males and 8 females and group II 14 males and 12 females.

Table 2:Patient characteristics

Parameters	Variables	Group I	Group II	P value
Site of lesions	Upper thoracic	12	11	0.05
	Middle thoracic	9	10	
	Lower thoracic	5	5	
Pathologic stage	0	1	2	0.02
	I	4	6	
	II	12	10	
	III	6	6	
	IV	3	2	
Preoperative adjuvant therapy	Neoadjuvant	15	16	0.05
	Chemoradiotherapy	11	10	

Table II, graph I shows that site of lesions was upper thoracic in 12 and 11, middle thoracic in 9 and 10 and lower thoracic in 5 and 5 in group I and group II respectively. Pathologic stage was 0 seen in 1 and 2, I in 4 and 6, II in 12 and 10, III in 6 and 6 and IV in 3 and 2in group I and group II respectively. Preoperative adjuvant therapy was

neoadjuvant in 15 and 16 and chemoradiotherapy in 11 and 10in group I and group II respectively. The difference was significant (P< 0.05).

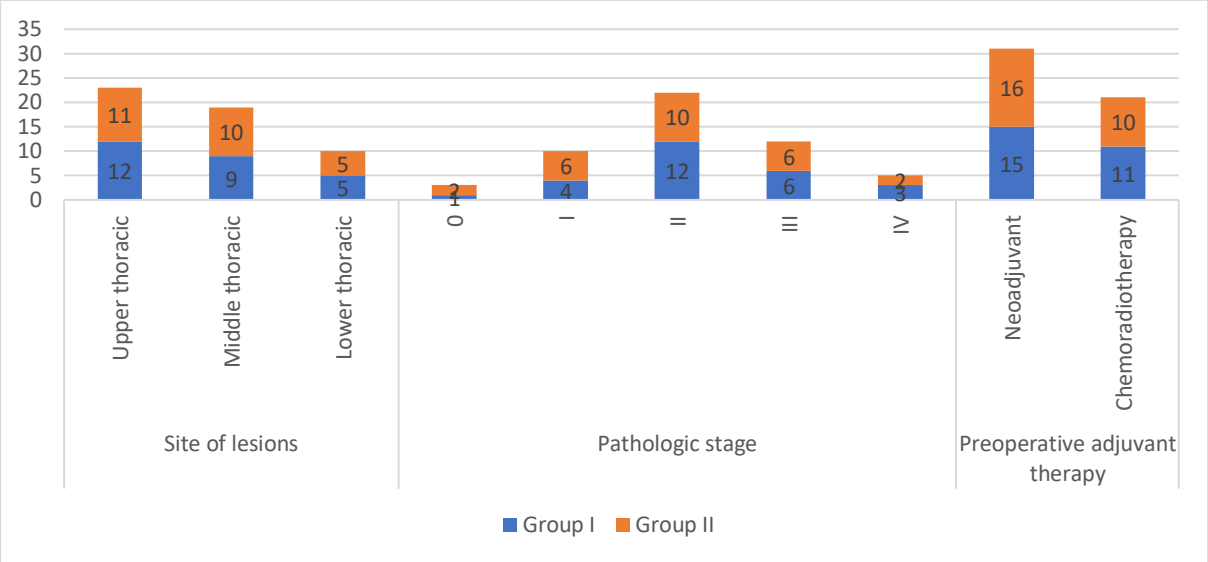

Fig 1:Patient characteristics

Table 3:Comparison of parameters

Parameters	Group I	Group II	P value
Preoperative serum albumin (g/L)	33.5	34.2	0.53
First fecal passage (day)	2.7	3.8	0.03
Hospital stay (day)	16.2	18.7	0.01
Albumin infusion (g)	30.5	40.3	0.04
SIRS duration (day)	3.4	4.7	0.02
In-hospital mortality	1	2	0.05

Table III, graph II shows that mean preoperative serum albumin (g/L) was 33.5 and 34.2, first fecal passage (day) was 2.7 and 3.8, hospital stay (day) was 16.2 and 18.7, albumin infusion (g) was 30.5 and 40.3, SIRS duration (day) was 3.4 and 4.7 and in-hospital mortality was seen in 1 and 2in group I and group II respectively. The difference was significant (P< 0.05).

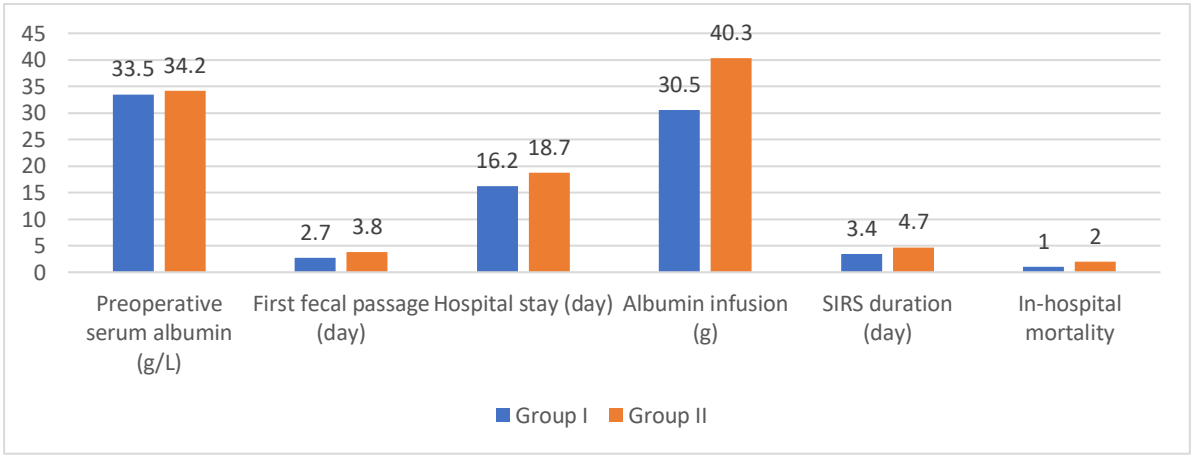

Fig 2: Comparison of parameters

Discussion

Esophageal cancer is an aggressive malignancy with high rates of recurrence, even after completion of therapy with curative intent[8]. Current National Comprehensive Cancer Network guidelines recommend more-frequent follow-up, with medical history and physical examination, during the first 5 years[9]. Surveillance modalities such as CT scans, laboratory tests, and upper endoscopies are recommended only as clinically indicated. Many institutions (including ours), however, perform routine imaging and endoscopic examinations for surveillance of asymptomatic patients[10]. The assumed value of a surveillance program is that the detection of recurrences at an earlier time might result in improved survival and quality of life. The benefits of intensive surveillance, however, must be weighed against costs and potential side effects[11]. The present study compared early enteral nutrition versus parenteral nutrition after resection of esophageal cancer.

In present study, group I comprised of 18 males and 8 females and group II 14 males and 12 females.Yu H et al[12] aimed to compare the clinical outcomes and hospitalization cost between early enteral nutrition (EEN) and parenteral nutrition (PN) after resection of esophageal cancer in 79 patients. They were divided into EEN group (n=39) and PN group (n=40) based on the nutrition support modes. The clinical factors such as time to first fecal passage, post-operative albumin infusion, differences of serum albumin value, hospital stay, systematic inflammatory response syndrome (SIRS) duration, complications, initial hospitalization cost, and mortality were retrospectively compared. The EEN group had a significantly shorter hospital stay, lower initial hospitalization cost, earlier first fecal passage, and shorter duration of SIRS than PN group.We found that site of lesions was upper thoracic in 12and 11, middle thoracic in 9 and 10 and lower thoracic in 5 and 5 in group I and group II respectively. Pathologic stage was 0 seen in 1 and 2, I in 4 and 6, II in 12 and 10, III in 6 and 6 and IV in 3 and 2 in group I and group II respectively. Preoperative adjuvant therapy was neoadjuvant in 15 and 16 and chemoradiotherapy in 11 and 10 in group I and group II respectively. Moore et al[13] showed that the incidence of infectious and non-infectious complications in trauma patients managed with enteral nutrition was significantly lower than in patients managed with parenteral nutrition.

We observed that mean preoperative serum albumin (g/L) was 33.5 and 34.2, first fecal passage (day) was 2.7 and 3.8, hospital stay (day) was 16.2 and 18.7, albumin infusion (g) was 30.5 and 40.3, SIRS duration (day) was 3.4 and 4.7 and in-hospital mortality was seen in 1 and 2 in group I and group II respectively. EN has been well recognized as an economical, safe, and effective nutritional support method that complies with the physiological state, helps to maintain the digestive tract morphology and function, operates in a simple way, and has few complications. In addition to these advantages, enteral nutrition during and after certain surgical insults has other benefits including inhibition of energy expenditure, the cytokine response, the secretion of stress hormones and bacterial translocation[14].

Conclusion

Authors found that early EN is safe, economic, and superior for promoting early recovery of intestinal movement.

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