

Enteral Nutrition Therapy

Trainee Award

1367288 - The Use of Peptide-Based Diet in Enteral Nutrition Therapy: A Retrospective Cost Analysis

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Background: Home enteral nutrition (HEN) is increasingly used to provide long-term nutrition therapy. Despite advancements in the field, enteral feeding intolerance (EFI) remains prevalent and often necessitates transition to hydrolyzed formula like peptide-based diet (PBD). However, there is a paucity of data regarding the economic impact of using specialized formulas for patients and health systems.

Methods: A retrospective analysis of cost of care for patients who transitioned to peptide-based diet while receiving HEN therapy between October 2018 and August 2020 was conducted. Patients with research authorization were included. Demographic data, enteral nutrition (EN) regimen, complications as well as categorized cost of care data were collected until October 2020 or termination of HEN. Cost of care was categorized into emergency department visits (ED), inpatient care (IP), and outpatient care (OP). Total cost (TC) defined as all cost of care while on EN. Descriptive analysis of changes in cost between before and after transition was performed.

Results: Sixty patients were included (mean age 53.5 ± 20.7 years; 55% female; mean BMI at EN initiation 23.4 ± 7.1). Cancer was the leading pathophysiological underlying mechanism noted (43.3%) followed by hepato-biliary/pancreatic conditions (15%). HEN was indicated for dysphagia/odynophagia and malnutrition/failure to thrive in 36.7% and 30% of patients respectively (Table 1). Before transition to PBD, 43.3% of patients reported EFI. However, after transition, EFI prevalence was reduced to 21.6%. In the 4 weeks preceding the transition, patients in this cohort collectively had a total of 90 (ED:27; IP:44; OP:19) unique HEN related encounters within our health system. After transition, the number of encounters plateaued at 95 (ED:32; IP:46; OP:17) for the immediate 4 weeks (week 1 to 4) following the transition. A noticeable drop was seen in the number of encounters to 49 (ED:13; IP:21; OP:15) for the second 4 weeks after transition (week 5 to 8). The average total cost of care per patient for the last 4 weeks before transition to PBD was \$38,774, which has reduced to \$33,944 for the first 4 weeks and \$21,129 for the second 4 weeks after transition. This trend was also noted for individual categories including ED, IP, and OP (Figure 1).

Conclusion: Despite advancements in management of HEN, EFI remains a challenge that can be improved using specialized enteral formulas like PBD. The change in cost of care is an important consideration for patients, their families, and health care systems. This review shows reduction in overall and itemized total cost of care within our health system with transition to PBD.

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Table 1. Baseline Characteristics (n = 60).

Age at EN initiation, Y, mean \pm SD	53.5 \pm 20.7
Gender, %	
▪ Male	45.0
▪ Female	55.0
Weight	
▪ Weight at initiation of EN, Kg, mean \pm SD	64.0 \pm 25.2
▪ BMI at initiation of EN, kg/m ² , mean \pm SD	23.4 \pm 7.1
Patho-Physiological Mechanism (Disease Process), %	
▪ Malignancy	43.3
▪ Hepato-biliary/Pancreatic	15.0
▪ Mucosal Disease	10.0
▪ Non-Malignant Mechanical Obstruction	8.4
▪ Bariatric Surgery	8.4
▪ Gastro-intestinal Dysmotility	6.6
▪ Neuro-degenerative/Developmental Delay	6.6
▪ Functional Disorder	1.7
Indication of EN, %	
▪ Dysphagia/Odynophagia	36.7
▪ Malnutrition/Failure to Thrive	30.0
▪ Nausea/Vomiting	13.5
▪ Fistula/Bowel Perforation	6.6
▪ Inadequate Oral Intake	6.6
▪ Obstruction/Stricture	6.6
EN Clinical Data PRE- and POST-Transition to PBD	
Pre-Transition to PBD	
▪ Estimated calories need, kcal/d, mean \pm SD	1650.9 \pm 384.7
▪ Calories provided by EN formula, kcal/d, mean \pm SD	1657.2 \pm 372.7
Pre-Transition EN Complication, %	
▪ Overall	53.3
▪ Tube-related	20.0
▪ Enteral Feeding Intolerance	43.3
▪ Metabolic (Electrolytes Disturbance)	3.3
Post-Transition to PBD	
▪ Estimated calories need, kcal/d, mean \pm SD	1630.1 \pm 329.0
▪ Calories provided by EN formula, kcal/d, mean \pm SD	1608.2 \pm 336.6
Post-Transition EN Complications, %	
▪ Overall	48.3
▪ Tube-related	28.3
▪ Enteral Feeding Intolerance	21.6
▪ Metabolic (Electrolytes Disturbance)	10.0
Remained on HEN by End of Study, %	20.0
BMI at termination of HEN, kg/m², mean \pm SD	22.9 \pm 5.4

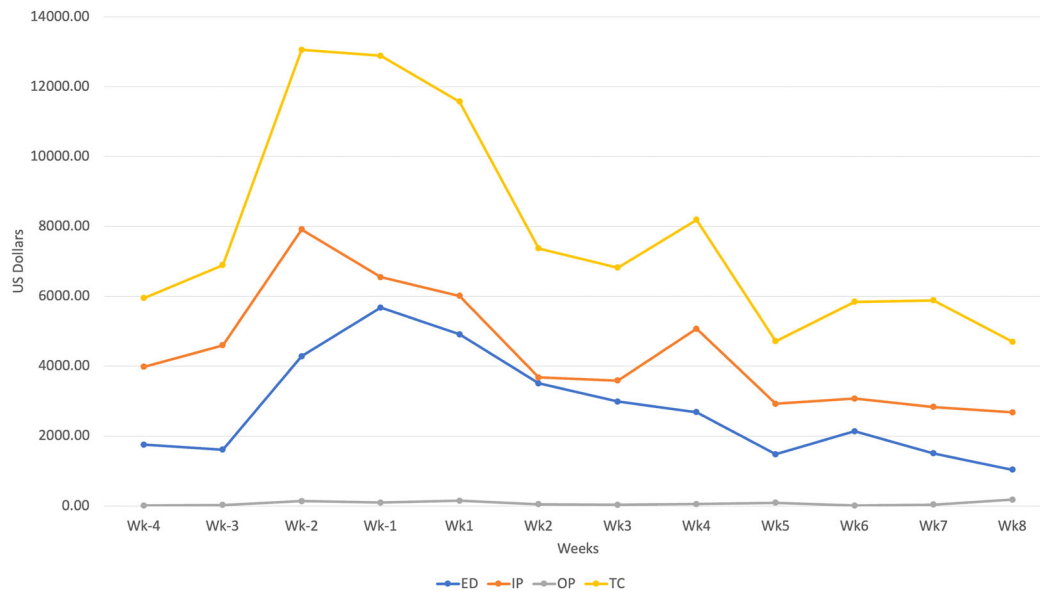


Figure 1. Cost of Care per Patient.

1367281 - Routine Registered Dietitian Intervention in Esophagectomy Patients Improves Weight Maintenance, Readmissions, and Time to Jejunum Tube Removal

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Background: Malnutrition is prevalent following esophagectomy surgery for esophageal cancer and is associated with increased post-operative complications and decreased survival. Often jejunostomy feeding tubes are utilized in this population to secure a feeding route and provide reliable access for nutrition and hydration. Routinely utilizing registered dietitians (RDs) for their expertise in this complicated, nutritionally at-risk patient population should be standard of care, but often this is not the case. This study examined esophagectomy patients in a thoracic surgery clinic before an RD was available to consistently follow patients. This group was then compared to patient outcomes after a full-time nutrition support RD was added to the thoracic surgery team. Weight loss, readmissions, jejunostomy tube duration and complications were evaluated.

Methods: All patients who underwent esophagectomy surgery with a jejunum tube placement at the University of Virginia Health System were included in the study. The total time of data collection was May 2015 through October of 2019. A total of 111 patients were included that met these criteria. The groups were divided as of mid-October 2017, with the inclusion of an RD who began providing routine nutritional intervention to all esophagectomy patients. These two groups were retrospectively compared based on data collected from their electronic medical records. Data collected included extent of disease, presence of neoadjuvant therapy, surgical date, discharge date, surgical method performed, surgical complications, 30-day readmission rate, jejunum tube placement date, and removal date.

Results: At the time of surgery, patients had lost an average of 10.6% from their usual body weight. Most patients (31%) were classified as severely malnourished at time of admission to hospital for esophagectomy (Table 1). Post-operative weight loss at 1 month, 3 months, and 6 months found improvement in weight maintenance in patients with dedicated RD follow up (Table 2). This also showed improvement when compared to literature reported average post-op weight loss. Additionally, tube feeding duration was an average of 8.2 days shorter and tube device removal was 15.2 days earlier, with intervention of a dietitian. Patient readmission rates were also 7% lower in the dietitian intervention group. Overall jejunostomy complications were reviewed, although there was no intervention done between the two groups to improve jejunostomy outcomes. Overall, we found tube complications occurred in 42 patients (38%). The majority were minor: clogging 5.4%, dislocation 16.2%, leaking 27.9%. One jejunum tube did require reoperation. We found our complication rates similar to those reported in the literature: 15%-40% overall, 0%-15% clogging, 0%-11% dislocation, and 3%-76% leaking, 1%-17% serious complications.