Utilization of Peptide Based Diets in Severely Ill Patients

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BACKGROUND

- Enteral tube feeding (ETF) is a life-sustaining therapy in patients with compromised volitional intake.[1]
- Specialty ETF are formulated with ingredients to support different aspects of clinical care, aiding in the medical management of various disease conditions.
- Up to 75% of critically ill patients on ETF experience gastrointestinal (GI) intolerance, compromising nutrient delivery and adequacy of feeding. [2,3]
- 100% whey peptide-based ETF (WPBD) are nutritionally-complete formulas wherein the protein has undergone hydrolyzation for more efficient absorption and medium chain triglycerides have been added for enhanced digestibility and tolerance.

OBJECTIVES

- The primary objective of this observational, retrospective study is to identify characteristics of hospitalized patients receiving WBPD and standard intact protein formulas (SETF), using real world evidence (RWE) data.

METHODS

PREMIER

- Premier Healthcare Database, a hospital administrative database, was utilized in the study.
- Adult patients (≥ 18 years) receiving WBPD or SETF through ETF for any condition during acute hospitalization in the United States from October 1, 2015 through October 31, 2019.
- Patients who received WBPD or SETF for 3 consecutive days or 3 of 5 consecutive days were identified from the database, based on text string searches in billing descriptions from the hospital charge master file.
- Patients with more than one ETF product billed during same inpatient stay were excluded.
- The differences in the distribution of characteristics and outcomes between WPBD and SETF patients were tested using Wilcoxon Rank Sum tests (for continuous variables), and Chi-square tests (for dichotomous or categorical variables).
- Gastrointestinal (GI) intolerance was defined as presence of one or more of the following symptoms using ICD-10-CM discharge diagnosis codes: abdominal distention, abdominal pain, constipation, diarrhea, nausea and vomiting.

RESULTS

- A total of 28,476 patients were included, obtaining data from patients treated across 79 hospitals, wherein 27 hospitals had both types of ETF formulas, 50 had only SETF and 2 WPBD exclusively.
- Overall, gender distribution was 46% female and median age was 68 (25th, 75th percentiles: 57, 77) years, with patients receiving WBPD significantly younger [64 (53, 74) years] than those receiving SETF [68 (58, 78) years] p<0.0001.
- 3M™ All Patient Refined™ Diagnosis Related Group (APR-DRG) severity of illness (SOI) and risk of mortality (ROM) were significantly different between groups (p<0.0001), with ROM classified as extreme for 58% of patients receiving WBPD and 39% for patients receiving SETF.
- Clinical characteristics including mechanical ventilation, critical illness myopathy, pneumonia, septicemia, liver disease, and obesity were statistically significantly higher in the WBPD group.
- Patients receiving WBPD spent more days in a critical or intensive care unit (ICU) [median = 9 (6, 15) days] than those receiving SETF [7 (3, 12) days] p<0.0001.

Table 1. Demographics

Characteristic	Peptamen® WPBD (N=3883)	SETF (N=24593)	p-value
Age, years, %			<.0001
18-34	7.6%	4.5%	
35-49	12.2%	8.6%	
50-64	31.0%	27.1%	
65-79	35.2%	38.6%	
80+	14.1%	21.2%	
Sex, %			0.24
Female	44.9%	46.2%	
Male	55.1%	53.8%	
Race, %			<.0001
White	83.3%	77.5%	
Black	8.4%	14.7%	
Other	8.3%	7.8%	

Figure 1. APR-DRG Severity of Illness

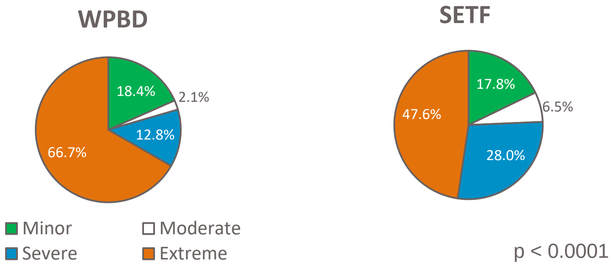

Figure 2. Clinical Characteristics and Comorbidities by ETF Formula Group

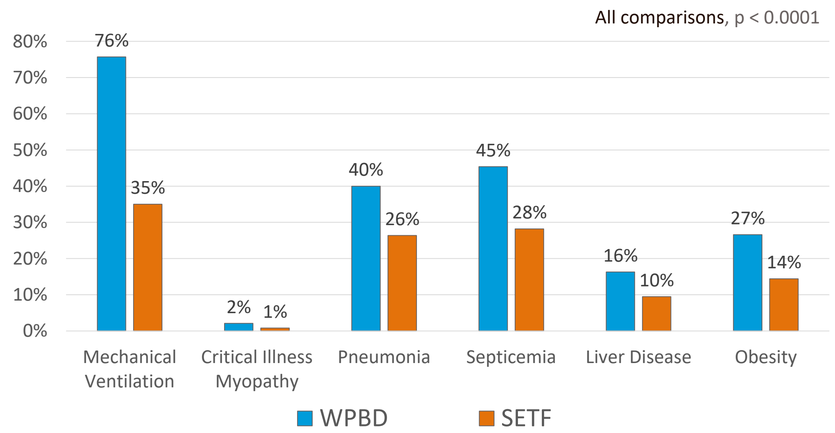

Table 2. ETF, ICU, and Tolerance

Characteristic	WPBD	SETF	p-value
Days of ETF, Median (25th, 75th)	5 (4, 9)	5 (4, 9)	0.364
Admitted to ICU, %	83.5%	54.2%	< 0.0001
Nausea & Vomiting, %	1.4%	2.0%	0.012
Abdominal Pain, %	0.6%	1.0%	0.015
GI Intolerance, %	14.2%	17.3%	< 0.0001

CONCLUSION

- **This retrospective descriptive analysis shows that WBPD is used more often in critically ill patients with higher SOI and ROM.**
- **Higher ETF tolerance, with less nausea, vomiting and abdominal pain was observed with the use of WBPD.**
- **Historically, tolerance of ETF is associated with more adequate nutrient provision.[4] Initial use of WPBD in those patients with the highest severity of illness may lead to more adequate nutrient provision and decreased incidence of GI intolerance.**

References:
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