Clinical Benefits of Real Food Tube Feeding Formulas Compared to Standard Tube Feeding Formulas in Post-Acute Care Pediatric Patients

Abstract No. 412

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BACKGROUND

- Enteral nutrition (EN) is crucial for the treatment of individuals with functional gastrointestinal (GI) tracts who are unable to consume adequate nutrients orally.[1-3]
- EN is often initiated in the hospital setting and may continue after discharge, as part of post-acute care.[4] The prevalence of home enteral nutrition (HEN) as part of post-acute care in the US has increased in recent decades.[5]
- Healthcare professionals, patients, and caregivers are increasingly requesting tube feeding formulas with easily recognized ingredients and containing more real food.[1,6]
- Commercial blenderized tube feeding (CBTF) formulas containing a variety of real foods are often preferred for patients who present with challenges tolerating standard tube feeding (STD-TF) formulas, including plant-based standard formulas that do not contain real food.[1]

OBJECTIVES

- The purpose of this study was to describe patient characteristics and clinical outcomes among pediatric patients who received CBTF compared to those receiving a plant-based STD-TF formula in post-acute care.

METHODS

- Retrospective observational study using a nationally representative US claims data obtained from the Decision Resources Group Real World Evidence Data Repository, which covers 98% of US health plans, including medical and pharmacy claims.
- Patients age 1-14 years, with a prescription of either CBTF (Compleat® Pediatric Organic Blends, Nestlé HealthCare Nutrition, US) or a plant-based STD-TF (Kate Farms® Pediatric Standard 1.2, Kate Farms, Inc., US) as sole-source of nutrition for ≥7 days in post-acute care were included.
- Patients treated for any medical condition between 1 January 2018 and 30 December 2020 were included.
- The index date was defined as the date of hospital discharge.
- Patient characteristics, concomitant medications use, GI intolerance symptoms, health care resource utilization (HCRU), and cost of care were recorded within one year before discharge and up to 84 days post-discharge.
- Demographics, clinical characteristics, and concomitant medications were analyzed using descriptive statistics (median, mean, and standard deviations) and the appropriate statistical test (chi-square, t-test, or non- parametric test) at the alpha=0.05 level of significance to compare the two groups.
- Outcomes were measured in the post-index period based on the last record in the study period at 84 days post discharge. GI intolerance symptoms were compared between CBTF and STD-TF group at 84 days post-index using chi-square test.

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Significant reductions in GI intolerance symptoms were observed among **children** receiving **real food tube feeding compared to a plant-based standard tube feeding formula**

Table 2: GI Intolerance Symptoms at 84 Days Post-Index

	CBTF N=469, n (%)	STD-TF N=595, n (%)	p-value†
Any intolerance symptoms	118 (25%)	292 (49%)	<0.001
Intolerance symptoms			
Constipation	68 (14%)	190 (32%)	<0.001
Nausea & vomiting	47 (10%)	129 (22%)	<0.001
Abdominal pain	9 (2%)	51 (9%)	<0.001
Diarrhea	13 (3%)	57 (10%)	<0.001
Flatulence	9 (2%)	31 (5%)	0.005
Abdominal distention	8 (2%)	28 (5%)	0.007
≥3 intolerance symptoms	11 (9%)	58 (20%)	<0.001

Abbreviations: CBTF, commercial blenderized tube feeding formula; STD-TF, standard tube feeding formula
†chi-square test, alpha=0.05 level of significance

CONCLUSION

- The use of CBTF containing a variety of real foods was well tolerated in pediatric patients compared to STD-TF formulas.
- Significant reductions in GI intolerance symptoms were observed among children receiving CBTF compared to STD-TF formulas, demonstrating clinical benefits of real food tube feeding formulas in post-acute care patients.

RESULTS – PATIENT CHARACTERISITICS (TABLE 1)

- Study included 1064 children (42% female; mean [standard deviation (SD)] age 5.05 [3.33] years) from all US regions.
- The most common diagnoses pre-index were diseases of the digestive system (83%), respiratory diseases (80%), and congenital conditions (72%).
- Overall, mean (SD) Charlson Comorbidity Index score was 1.7 (1.2) among patients with comorbidities.
- The most common comorbidities were chronic pulmonary disease (30%), paraplegia and hemiplegia (27%) and cerebrovascular disease (7%).
- No significant difference in concomitant medications use was observed for GI drugs (anti-diarrheals, anti-emetics, laxatives and others) and anti-infective agents between the groups.

RESULTS – GI INTOLERANCE SYMPTOMS (TABLE 2)

- Significantly fewer patients experienced any GI intolerance symptoms at 84 days post-index while receiving the CBTF formula (25%) than STD-TF (49%) (p<0.001).
- This reduction in GI intolerance was maintained for specific intolerance symptoms including constipation (p<0.001), nausea and vomiting (p<0.001), abdominal pain (p<0.001), diarrhea (p<0.001), flatulence (p=0.005) and abdominal distension (p=0.007) at 84 days post-index.

Table 1: Patient Characteristics (N=1064)

	CBTF N=469, n (%)	STD-TF N=595, n (%)	p-value†
Age, Mean (SD)§	5.17 (3.32)	4.96 (3.34)	0.292
1–3 years	185 (39%)	269 (45%)	0.059
4–8 years	195 (42%)	221 (37%)	0.141
9–13 years	89 (19%)	105 (18%)	0.577
Female	207 (44%)	238 (40%)	0.174
Comorbidities‡			
Chronic pulmonary disease	131 (28%)	183 (31%)	0.316
Paraplegia and hemiplegia	132 (28%)	158 (27%)	0.563
Cerebrovascular disease	33 (7%)	43 (7%)	0.905
CCI score, Mean (SD)§	1.6 (0.9)	1.8 (1.5)	0.016

Abbreviations: CBTF, commercial blenderized tube feeding formula; STD-TF, standard tube feeding formula; CCI, Charlson Comorbidity Index; SD, standard deviation
§ t-Test; †chi-square test, alpha=0.05 level of significance
‡ Assessed during the year prior to hospital discharge

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