REAL WORLD EVIDENCE

Nestlé HealthScience

A National Retrospective Multicentre study to Monitor Gastrointestinal Feed Tolerance in Children who have Switched to a tube feed containing food-derived ingredients (COMPLEAT® paediatric)

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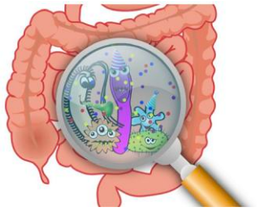
Reference: Nutrition In Clinical Practice 2021

Background: enteral tube feeding intolerances, such as loose stools are one of the many complications reported in children. In the paediatric population, interest is growing in the use of blended diets for the management of enteral feeding intolerances. However, blended diets may not be suitable for use in intensive care or other acute clinical settings due to the perceived risk of microbial contamination and variability in micronutrients and electrolytes.



Fibre within a blended diet stimulates the growth of beneficial gut bacteria, which in turn produce short chain fatty acids, which are utilised as energy substrates for enterocytes. An enteral formula manufacturer has responded to this trend towards so-called "real food" blended diet and developed an enteral formula with food derived ingredients – COMPLEAT® paediatric*.

Aim: to collect data relating to feed tolerance in children who had switched to COMPLEAT® paediatric.

Methods: retrospective, multi-centre study that monitored feed tolerance in children who have switched to COMPLEAT® paediatric (Nestlé Health Science) a nutritionally complete enteral tube feed (containing 13.8% food derived ingredients in the form of rehydrated chicken, rehydrated vegetables (peas & green beans), peach puree, and orange juice, providing 1g fibre).

Data was collected by paediatric dietitians from dietetic records and inputted to a Microsoft form to capture anthropometric and gastrointestinal outcomes over a month period when children were switched to an COMPLEAT® paediatric.

Demographic, primary medical diagnosis, anthropometric and feeding history data are provided in Table 1.

Table 1. Characteristics of the 43 participants involved in the study

Gender	**n (%)**
Male	28 (65)
Female	15 (35)
Age in years, median (IQR)	6 (4; 8)
Weight (kg), median (IQR)	18 (12; 26)
Primary Diagnosis	
Neurological/ Neurodisability	20 (47)
Genetic syndrome	9 (21)
Ear, nose, throat complication	3 (7)
Haematology/ Oncology	3 (7)
Disordered eating	4 (9)
Renal disease	1 (2)
Respiratory disease	3 (5)
Sepsis	1 (2)
Weeks on formula before switching to an enteral formula with real food ingredients, median (IQR)	52 (24; 120)
Type of feed before switch	
Standard whole protein (1kcal/ ml)	10 (23)
Whole protein high energy (1.5-2.4kcal/ml)	13 (30)
Low energy whole protein (0.7kcal/ ml)	2 (4)
Partially Hydrolysed (1kcal/ml)	4 (9)
Partially Hydrolysed high energy (1.5kcal/ml)	3 (7)
Amino acid	5 (11)
Blended diet	5 (11)
Parenteral Nutriton	1 (2)

Results:

Forty-three medically unwell children were recruited between March 2021 to July 2021. Significant gastrointestinal improvements were reported in children who had switched to COMPLEAT® paediatric (Table 2). These improvements in gastrointestinal symptoms were reflected in weight gain during the one month period measurements were collected (p=.002). Our national multi-centre, retrospective study found children who had switched to an 'enteral formula with food derived ingredients' reported a significant improvement in gastrointestinal symptoms, including a reduction in loose stools, retching, flatulence and vomiting.

Furthermore, after one month switching to COMPLEAT® paediatric, seven children reduced the quantity or frequency of constipation medication with one child stopping medication altogether. Dietitians reported clinical improvements within the first week of switching to the new enteral formula which was sustained throughout the study period.

Children admitted to hospital are most needing of a high fibre nutritionally complete formula to minimise intestinal dysbiosis from the barrage of intravenous antibiotics often administered in an acute settings.

Therefore, in an acute clinical setting having an alternative such as a nutritionally complete 'enteral formula with food derived ingredients' may serve as a compromise to a blended diet, bridging the gap between a full blended diet and a standard enteral formula, thus facilitating relationships and engagement between parents and healthcare professionals.

Table 2. Study results: change in symptoms after switching to COMPLEAT® paediatric

Gastrointestinal Symptom	Reported number of children with symptoms	Post formula switch reported improvement n (%)
Retching, n (%)	18	17 (95)
Vomiting, n (%)	13	11(85)
Flatulence, n (%)	8	6 (75)
Loose stools,n (%)	11	10 (90)
Constipation,n (%)	11	10 (90)

Summary

Given the growing interest among caregivers to trial blended diets and 'enteral formula with food derived ingredients' we urge that the healthcare community better understand this practice. We have observed the beneficial outcome of switching to COMPLEAT® paediatric within a wide range of medically complex children.

Our data should motivate health care professionals to engage and embrace this cultural shift, implementing more research, to better evaluate the clinical impact and mechanisms of action of blended diets and 'enteral formulas with food derived ingredients'.

References: 1. Bastarache, J.A., et al., Markers of inflammation and coagulation may be modulated by enteral feeding strategy. JPEN J Parenter Enteral Nutr, 2012. 36(6): p. 732-40. 2.Batsis, I.D., et al., Efficacy and Tolerance of Blended Diets in Children Receiving Gastrostomy Feeds. Nutrition in Clinical Practice, 2020. 35(2): p. 282-288. 3.Eveleens, R.D., et al., Definitions, predictors and outcomes of feeding intolerance in critically ill children: A systematic review. Clin Nutr, 2020. 39(3): p. 685-693. 4. Lordani, C.R., et al., The knowledge of intensive care professionals about diarrhea. Rev Bras Ter Intensiva, 2014. 26(3): p. 299-304. 5. Yagmurdur, H. and F. Leblebici, Enteral nutrition preference in critical care: fibre-enriched or fibre-free? Asia Pac J Clin Nutr, 2016. 25(4): p. 740-746. 6. Dickinson, B. and C.M. Surawicz, Infectious diarrhea: an overview. Curr Gastroenterol Rep, 2014. 16(8): p. 399.

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