765986 - Plant-based Enteral Nutrition Tolerance and Benefit in Pediatric Crohn's Disease: A Case Series

Daniel Orellana, MD[1]; Natasha Avila, RD[2]; Melissa Bailey, MS, RD, CNSC, LDN[3]; Karla Au Yeung, MD[2]
[1]Valley Children's Hospital, Fresno, California; [2]Valley Children's Hospital, Madera, California; [3]Kate Farms, Philadelphia, Pennsylvania

Purpose: Exclusive enteral nutrition (EEN) for 6-8 weeks with polymeric formula as a sole source of nutrition induces remission in up to 70% of pediatric inflammatory bowel disease (IBD) patients. Partial enteral nutrition (PEN) with Crohn's disease exclusion diet (CDED) has also been shown to induce remission in pediatric IBD patients with better tolerance. The CDED is a plant-based diet restricting dairy, emulsifiers, and animal fats. A plant-based diet has been shown to promote mucosal healing, decrease inflammation and growth of healthy gut bacteria. At our institution, we use CDED and PEN with a pediatric peptide plant-based enteral nutrition (PPBEN) 1.5 kcal/mL to provide 80% daily caloric needs including 1-1.5 g/kg/day of protein.

Methods: We present a case series of three pediatric Crohn's Disease patients (CD) patients in clinical remission who were started on PPBEN in conjunction with CDED 3-7 months prior to follow-up visit. All patients were either taking casein-based pediatric peptide EN or elemental formula before trial of PPBEN. Two received PPBEN by gastrostomy tube (GT) and one took it orally. Questionnaires were conducted and labs were analyzed. Anthropometrics were measured.

Results: All three patients preferred the PPBEN over their previous formula. All patients experienced less bloating, gas and fullness after feeds. They also endorsed less gastroesophageal reflux symptoms. With improved tolerance of PPBEN, all patients received the prescribed volume more routinely. All three patients gained weight [+1.1, +0.4, +2.5 (kg)] and increased body mass index (BMI) Z-scores (+0.07, +0.03, +0.25) with PPBEN. Weight-for-age Z-scores increased for Patient 1 & 3, but decreased slightly for Patient 2 despite increase in weight and BMI (+0.02, -0.05, +0.17). (Table 1 & 2) Patient 2 & 3 had Harvey-Bradshaw scores of 2 (symptomatic remission). Patient 1 is status post ileocectomy and has more frequent stooling at baseline since surgery (6/day) with Harvey-Bradshaw 7. Patient 1 labs: CRP remained within normal limits at < 0.1 mg/dL before and after starting PPBEN. ESR remained stable at 4mm/hr. Patient 2 labs: CRP was normal at 0.2 mg/dL at initiation of PPBEN; patient gained weight due to better tolerance of nocturnal GT feeds. Patient 3 labs: ESR, CRP and stool calprotectin decreased. The ESR prior to PPBEN was 75mm/hr and decreased to 47 mm/hr over 7 months. CRP dropped to 1.7mg/dL from 2.7 mg/dL. Stool calprotectin (880 ug/g to 820 ug/g) did not improve as much although patient denied diarrhea or abdominal pain.

Conclusion: This case series supports that PPBEN is an alternative nutritional therapy preferred by pediatric Crohn's patients due to less bloating, gas, and fullness. Patients tolerated the formula, overall felt better, and gained weight. One patient had a decrease in inflammatory markers. Studies are needed to determine the long-term benefit of plant-based enteral nutrition with CDED in pediatric Crohn's disease.

Table 1: Anthropometrics for patients before and after plant-based nutrition initiation. Duration on plant-based nutrition: **Patient 1 & 2**: three months. **Patient 3**: seven months.

	Weight (kg) / Z-score Before	Weight (kg) / Z-score After
Patient 1	60.9 / 0.84	62.1 / 0.86
Patient 2	37.6 / -0.24	38.3 / -0.29
Patient 3	57.9 / 0.24	60.4 / 0.41

Anthropometrics for patients before and after plant-based nutrition initiation.

Table 2: Anthropometrics for patients before and after plant-based nutrition initiation. Duration on plant-based nutrition: **Patient 1 & 2**: three months. **Patient 3**: seven months

	BMI Z-score before	BMI Z-score after
Patient 1	0.77	0.84
Patient 2	-0.54	-0.47
Patient 3	0.30	0.55

Anthropometrics for patients before and after plant-based nutrition initiation.

(2020), Plant-based Enteral Nutrition Tolerance and Benefit in Pediatric Crohn's Disease: A Case Series, Orellana, D., Avila, N., Bailey, M., Au Yeung, K., ASPEN NUTRITION SCIENCE AND PRACTICE CONFERENCE: Tampa, Florida, March 28 – 31, 2020. Journal of Parenteral and Enteral Nutrition, 44(3): 190-191.doi.org/10.1002/jpen.1813