290 Oral DHA supplementation in children with cystic fibrosis: a randomized placebo-controlled study

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Background: Low docosahexaenoic acid (DHA) plasma concentration was reported in CF patients. Arachidonic acid (AA) is associated with increased proinflammatory eicosanoids, whereas DHA provides antinflammatory products.
Aims: To evaluate biochemical and clinical effects of one year DHA supplementation in CF patients.
Methods: A multicenter double-blind placebo-controlled study was performed. Thirty-four CF patients aged 6 to 10 years were randomized to receive DHA (100 mg/kg/die in the first month and 1 g per day thereafter) or placebo (germ oil in identical capsules). Plasma fatty acids concentrations were determined by GLC. Clinical (pulmonary function and anthropometry) and biochemical data (standard biochemistry, inflammatory cytokines, liposoluble vitamins, steatocrit) were collected every 6 months.
Results: Five patients dropped-out. In the treatment group, but not in the control group, a significant DHA enrichment in plasma (median % of plasma FA from 1.40 up to 4.5%) and a decrease in AA/DHA ratio were documented after 6 months. Interleukin-8 decreased significantly after 6 months but this finding was not consistently maintained. No changes in respiratory function, nutritional status and other biochemical parameters were detected in both groups.
Conclusions: DHA supplementation for one year did not induce any relevant improvement in CF patients.

291 Home enteral nutrition support in children with cystic fibrosis. Are all patients the same?

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Objectives and Study: The aim of this study was to analyze the results of the NEPAD register, a Spanish multicentre on-line register of home enteral nutrition (HEN), regarding to patients with cystic fibrosis (CF).
Methods: Recompilation of the data from the NEPAD register from January 2003 to October 2010.
Results: 49 patients were included. The median age of HEN support was 3.16 years (y) (IQR 0.74–9.7). The first enteral access was the nasogastric tube (NGT) in 49% of the children followed by gastrostomy (G, 42.9%). Children with NGT were significant younger at the beginning of HEN than patients with G ($p = 0.01$). 85.7% of the children used enteral nutrition pumps. The cyclic administration method was the most frequent (65.3%). Homemade food was used in 14.3% of the patients with G and in 5.3% of the cases with NGT (χ^2, $p < 0.001$). Enteral formulas were used in 91.8% of the patients, only 11% of patients received enteral formula and homemade foods; the most common formula (30.6%) was paediatric polymeric followed by adult formula. Nutritional support concluded in 61.2% of the patients [median 1.03 y (IQR 0.13–2.30)], in 60% of the cases the cessation was because transition to oral feeding. The mean duration of HEN was significantly higher in patients with G versus NGT carriers ($p = 0.0001$).
Conclusion: CF patientsrequiring nutritional support are clearly divided into 2 populations: younger patients tend to use NGT for a short period of time and in older patients the G is often used for more prolonged periods of time. The cyclic administration method is the most frequent used in these patients in order to preserve the oral feeding. Most patients used enteral formulas.

292 A retrospective audit of growth and lung function in patients with cystic fibrosis (CF) undergoing gastrostomy insertion with fundoplication over a 10 year period

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Poor nutrition and gastro-esophageal reflux are significant problems in some children with CF. Gastrostomy feeding is often used to provide long term nutritional support, however in some patients, problems with reflux can compromise safety, lung function and weight gain. In Leeds all children referred for a gastrostomy are routinely investigated for evidence of reflux and if present a fundoplication is advised. The aim of this study is to investigate the change in growth and respiratory function (RF) in patients before and following these procedures.
Method: Retrospective Wt, Ht, BMI Standard Deviation Scores (SDS) and RF data was collected for all children with CF who had a gastrostomy and fundoplication between May 1996 and May 2007. Data was collected at six monthly intervals 18 months prior to surgery, at surgery and at six monthly intervals for 36 months post surgery.
Results: 16 patients (8M), mean age at surgery 10.3 years (4.7–15.4) had both a gastrostomy and fundoplication. Growth data was available for all 16 children. The mean change in Wt and Ht SDS per month post surgery was significantly better than the change per month prior to surgery. (Mean monthly change in Wt and Ht SDS pre surgery $-0.01, -0.01$ and post surgery $0.02, 0.01$. $p < 0.01$, $p < 0.05$ respectively.) The change in BMI did not reach significance ($p = 0.057$) For the 12 children RF data were available, there was no significant change in mean lung function per month in the 36 months post surgery when compared to the 18 months prior to surgery.
Conclusion: Gastrostomy and Fundoplication in children with CF significantly improves weight and height gain but does not significantly improve BMI or % predicted RF.

293 Administration of CREON® pellets via gastrostomy tube (G-Tube) without loss of gastric resistance or lipase activity

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Objective: In clinical practice, the need often arises to administer CREON (capsules containing pancreatin gastro-resistant pellets) by G-tube. Our aim was to identify G-tubes that allow administration of CREON pellets without clogging, sticking, pellet damage, or loss of integrity.
Methods: In this in vitro study, CREON capsules were opened, pellets sprinkled onto baby food pH <4.5 (applesauce and bananas of 2 different brands), stirred gently, then using a syringe pushed slowly (~15 cc in 10–15 s) through G-tubes of different types/sizes. G-tubes were visually inspected for clogging, sticking, and pellet damage. If there was none with all 4 foods, pellet integrity (gastric resistance, lipase activity) was tested by an in vitro dissolution method modified from USP and PhEur monographs (2-h gastric simulation step). Integrity was considered maintained at ⩾80% actual lipase activity per capsule at end of this step.
Results: There was no clogging, sticking, or visible pellet damage, and integrity was maintained when administering CREON through these G-tubes: Kimberly-Clark MIC Bolus® size 18 Fr and MIC-KEY® 16 Fr; Bard® Tri-Funnel 18 Fr and Button 18 Fr. Released lipase activity exceeded the pre-determined threshold in all cases (>80% relative to actual lipase activity), with no differences vs untreated pellets. The results are applicable to all CREON capsule strengths as composition and quality are identical.
Conclusion: CREON pellets can be mixed with baby food pH <4.5 and administered via the following G-tubes without loss of gastric resistance or lipase activity: Kimberly-Clark MIC Bolus ⩾18 Fr and MIC-KEY ⩾16 Fr; Bard Tri-Funnel ⩾18 Fr and Button ⩾18 Fr.
Funded by Abbott