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Clinical effects of probiotic supplementation in patients with cystic fibrosis in the Republic of Macedonia

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Cystic fibrosis (CF) is multisystemic disease characterized with pulmonary exacerbations, decline in lung function, intestinal inflammation and microbial dysbiosis.

Aim: To assess the effects of the probiotics for improving health outcomes in children and adults with CF.

Methods: 40 patients with CF (1–38y, mean age 16.2 ± 4.2), who regularly visited the CF Center at the Institute for respiratory diseases in Skopje, received probiotic Lactobacillus reutter on-off, washout period was 6 months. Anthropometric parameters (weight, Hight, BMI) and FEV_1 (forced expiratory volume) and FVC (forced vital capacity) were measured.

Results: In the study, FEV1 and FVC were measured before and after CF patients (>6y) received the probiotic for 6 months. We found significant difference for FEV1first measure (58.55%) versus FEV1 second measure (70.23%); ($p < 0.05$) and FVC first measure (67.31%) versus FVC second measure (77.3%); ($p < 0.05$), in both children and adolescents with reduced number of pulmonary exacerbations and hospitalizations. There were changes in weight (32.6 versus 34.1 kg) and nutritional parameters (BMI 17.9 versus18.5) despite no significant difference.

Conclusions: Probiotic administration showed beneficial effects on pulmonary function and pulmonary exacerbations, and also improved weight gain in younger CF patients.

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Effects of Mediterranean diet in cystic fibrosis: a randomised clinical trial pilot study

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Objective: To assess the effect of Mediterranean diet in pediatric patients with cystic fibrosis (CF).

Methods: Randomized controlled clinical trial carried out in 35 pediatric patients with CF that were allocated to intervention or control group. Both groups received multiple nutritional consultation sessions. The intervention group was encouraged to adopt a Mediterranean diet and received a food kit with olive oil, nuts, tuna or sardines. Mediterranean Diet Quality Index (KIDMED), anthropometric and clinical data, cystic fibrosis quality of life questionnaires, walk test, and spirometry were completed at the beginning and at the end of the study. Analysis of variables over time was performed by generalized estimating equations.

Results: 35 patients were included in the study: 19 participants were allocated to the intervention group and 16 to the control group. The mean age was 157.2 months (±SD 35,19), and 20 (57.1%) were females. The KIDMED score increased in the intervention group ($\beta = 3.18$ CI95% 2.50 to 3.86; $p < 0.001$), indicating successful alteration of dietary behavior. Body mass index percentile decreased ($\beta = -5.33$ CI95% −10.48 to −0.18; $p = 0.042$) in intervention group. Statistically, nonsignificant improvements were seen in spirometry, clinical and cystic fibrosis quality of life subdomains in the two groups.

Conclusion: This study has successfully altered the dietary behavior among pediatric cystic fibrosis patients. The use of the Mediterranean diet to treat cystic fibrosis is feasible but it is necessary a larger study to examine clinical outcomes.

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Breastfeeding in a paediatric cystic fibrosis network

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Objectives: Exclusive breastfeeding in Cystic Fibrosis (CF) may be protective against decline in pulmonary function. European CF Society guidelines recommend exclusive breastfeeding for infants with CF (Turck et al 2016). Optimum growth in CF infants is associated with positive respiratory outcomes (Colombo et al 2007). There are unique aspects of breastfeeding requiring specific advice to support growth. These include determining pancreatic enzyme dosing, administration of sodium chloride and maintaining lactation at a time of stress. The objective of this study was to determine nutritional outcome in a cohort of breast fed infants.

Methods: A retrospective audit of infants diagnosed with CF between 2015 and 2018 who were exclusively breastfed for a minimum of 4 months. Infants were excluded if factors were present that would influence nutritional outcome. Exclusion criteria were pancreatic sufficiency, Meconium Ileus, prematurity or use of parenteral nutrition.

Weights at birth, 4, 8 12 and 16 weeks of age were obtained from clinical records and z scores calculated.

Results: In the study period 91 infants were diagnosed with CF, 10% (n = 9) who met the inclusion criteria were exclusively breastfed for at least 4 months. Infants with CF who were exclusively breastfed for a minimum of 4 months had mean weight z scores at birth,4,8,12 and 16 weeks of 0.2, −0.8, −0.8, −0.5, −0.2 respectively.

Conclusions: The rate of exclusive breastfeeding appears low, this merits further study.

Support and advice must be provided to promote exclusive breastfeeding at the time of diagnosis as this can support good nutritional outcomes and may protect against decline of pulmonary function.

Good nutritional outcomes are regularly achieved in CF infants who are exclusively breastfed without the use of supplementary feeding.

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The development of a nutrition education and social session for families with children with cystic fibrosis: "work in progress"

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Objectives: Nutrition is crucial in the management of cystic fibrosis (CF). Children with CF require approx 110–200% of usual energy requirements. Growth is often impaired, therefore focusing on what is eaten is essential to improving overall health.

Due to the risk of cross infection, young people with CF cannot meet in person; parents talk about feelings of isolation because of this. The objective was to create a space where parents can meet for support and benefit from targeted, specialist support in relation to diet and nutrition.

A CF "Coffee, Chat and Cook group" has been trialled to provide additional CF education for families of our cohort of paediatric patients with pancreatic insufficiency, under the age of 10 years.

Methods: Families are invited to attend the group via email or written invite. The group meets once a month in community centres in the Bristol area. The session lasts 2hrs and run by 2 members of the team (CF Dietitian and CF Social worker).

Simple and practical nutrition advice, including recipe ideas and cooking demonstrations are provided by members of the Specialist CF team in an informal setting.

Other areas of CF care are also targeted, utilising members of the specialist CF team. Informal discussions around specific aspects such as physio and schooling are delivered.

Results: The group started in June 2018, delivering 6 sessions so far. The average attendance has been 6–8 families. We have observed parents gaining confidence around nutrition and ways to increase the fat in their child's diet. Parents are showing increased confidence in talking about difficulties and share worries and talking about the benefits of getting ideas to make positive changes.