364 **Creation of CF growth charts: a multi-centric Italian study**

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Background: Cystic Fibrosis (CF) is a chronic disease characterized by an increased energy demand. Despite an improvement in nutritional status during the last decades, malnutrition remains a problem for many CF patients.

Aim: To compare growth charts of Italian CF patients and normal subjects.

Patients and Methods: We studied 892 CF patients aged 0–18 years (M 50.7%, mean age 9.2 ± 6.4 yrs) followed-up in 10 Italian Reference Centres. Height-for-Age percentile (HAP), Weight-for-Age percentile (WAP) and BMI were calculated in all patients and used to draw the correspondent growth charts in two sexes. We compared the course of 50th percentile (pc) in CF patients and normal subjects (CDC 2000).

Results: HAP, WAP and BMI 50th pcs in CF patients were lower than normal subjects, in both sexes and at all ages considered.

Conclusions: Our results show that Italian CF children have subnormal growth at all ages. Nutritional management is difficult for several clinical and psychosocial reasons but an early detection of malnutrition is essential for a better prognosis.

365 **Body mass index and dairy intake in children with cystic fibrosis**

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Background: Milk intake seems to increase growth hormone levels in children after controlling for macro-nutrient intake[1]. We recommend 3 dairy servings per day if under 11 years and 4 if over 11 years to meet calcium requirements. Aim: A preliminary analysis, looking for any association between dairy intake and nutritional parameters to determine the feasibility of studying the effect of dairy intake on BMI prospectively in CF children.

Methods: Anthropometrical measurements were made on all children who attended the King's CF regional centre for annual review in 2007. Daily dairy servings were averaged from yearly, three day, non-weighed food diaries for 2007 and as many previous years as were available. BMI, weight and height centiles were correlated to mean daily dairy servings using Kendall's rank correlation.

Results: 115 children, 60 males with median age (range) 10 (2–16) years, attended for annual review. 12 were excluded from analysis; 2 due to nutritionally relevant co-morbidity and 10 because they were receiving supplementary tube feeding. The mean$\pm$SD number of days available for analysis was 11.8 ± 6.7. Mean dairy servings per day were 3.6 ± 1.67. 32% of our under 11 year and 74% of our over 11 year children did not meet our target for daily dairy servings. There was a weak but significant positive correlation between daily dairy servings and BMI, ($r=0.205$, 95% CI: 0.004–0.39). Total dairy intake was not correlated with weight or height centiles.

Conclusion: This data suggests that dairy intake may have a positive influence on BMI in children with CF. We plan to target our patients who do not meet our dairy intake targets to see if dairy intake can be improved in this group and if so, whether success improves BMI.

Reference(s)

[1] Rich-Edwards JW, et al. Nutr J 2007;6: 28.

366 **Nutritional status in Turkish cystic fibrosis patients**

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Objectives: The aim of this study was to determine nutritional status based on energy intakes and anthropometric measurements in Turkish cystic fibrosis patients.

Methods: This cross-sectional study was conducted on 77 patients, aged between 2–32 years (36 boys, 41 girls), with cystic fibrosis at Hacettepe University Pediatric Pulmonology Unit, between February and December 2007. Height, weight, mid-upper arm circumference (MUAC), triceps skinfold thickness (TSFT) were measured, body mass index (BMI), z-scores and energy balance were calculated, the 24-h food intake and physical activity level of each patient was recorded. For statistical analysis "Pearson Correlation Test" was used.

Results: The percentage of the preschool children (1–5 years) ($n=31$) whose weight for age, height for age, weight for height and BMI for age had lower than -2 SD were 6.5%, 45.2%, 3.2%, 6.5% respectively. There was a positive correlation between total energy intake and height for age z-score ($p=0.085$) in those children. The percentage of the patients whose BMI for age had lower than fifth percentile was 30.4%. Based on the calculation of energy intake and energy expenditure values, it was shown that 32.5% of the patients had positive energy balance. There was a positive correlation between total energy intake and BMI ($p=0.196$), MUAC ($p=0.008$), TSFT ($p=0.355$).

Conclusion: Anthropometric measurements and energy intakes of the cystic fibrosis patients should be evaluated regularly. We suggest that yearly anthropometric assessments of body composition and dietary recall in patients with cystic fibrosis could be effective.

367 **Comparison of nutritional status and lung function in CF patients in R.Macedonia**

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Introduction: Chronic bacterial infection and inflammation in cystic fibrosis (CF) lead to progressive worsening in lung function and nutritional status.

Aim: To define correlation among chronic infection, nutritional status and pulmonary function in CF patients.

Material and Methods: The study included 49 CF patient aged 6–25 years (mean 16.9 ± 3.01). Weight for age (W/A), percent of ideal weight for height (% IWH), z-score body mass index (z-BMI); forced expiratory volume in one second (FEV1) and Schwachman score were analyzed. Patients with H/A <5 percentile, %IWH < 90% and BMI <10 percentile were defined as malnourished.

Results: The study shows that 21% were malnourished. Strong correlations were found between FEV1 and W/A ($r=0.55$); with % IWH ($r=0.54$) and with z-BMI ($r=0.45$). Schwachman score was compared with W/A ($r=0.62$), with % IWH ($r=0.52$) and with z-BMI ($r=0.46$). Patients with malnutrition had significantly lower mean values of FEV1 and Schwachman score ($p < 0.05$).

Conclusions: Close relationship was found among nutritional status and pulmonary function in CF patients. Malnourished patients need better dietary intake with more aggressive nutritional interventions, adequate doses of pancreatic enzymes and treatment for bacterial infections.