360 Fatty acids and cystic fibrosis

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Aims: To assess evolutive changes in EFA profile in a cohort of CF patients and to investigate its potential correlations with clinical and nutritional changes.
Methods: 24 patients were studied over a 8-year time span. A control group of 83 non-CF patients undergoing minor surgery was included.
Results: Mean age of study group at the onset was 7.8±3.9 years and 14±3.6 years at follow-up. 95.4% were PI. 5 had liver disease and 4 diabetes at the onset of the study and 9 and 6 at follow-up. There was a significant increase in BMI over the study, 17.1±2.1 kg/m^2 at the onset vs 19.4±3.1 kg/m^2 at follow-up. There was no significant change in mean FEV_1%. There was a significant evolutive increase in saturated, monoinsaturated EFA, DPA, MeadAcid/AA, and dihomo-γ-linoleic (DHGLA) serum levels and a significant decrease in PUFAs, w3, w6, linoleic (LA), lignoceric, DHA, and LAxDHA in patients as compared with controls. There was also a significant increase in DHGLA and decrease in LA and lignoceric serum levels in study patients at follow-up as compared with baseline. We found some significant correlations between EFA profile and nutritional variables. Weight at the onset and at follow-up, and BMI at follow-up had all a negative correlation with baseline LA serum levels. Patients with liver disease at baseline had significantly increased AA and at follow-up significantly decreased w3.
Conclusions: Study group had abnormalities in EFA profile at baseline, with evolutive changes at follow-up. Significant decrease in w6, especially LA which correlated with nutritional impairment. DHA was decreased at baseline, and at follow-up with no correlation with the degree of fat malabsorption.

361 A fat lot of good. An 8 year longitudinal investigation of fat intakes in a paediatric CF population

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Background: Reducing total and saturated fat intake is recommended for the general population. High fat intakes are still advised for those with CF but it has been suggested that the quantity and quality of fat intake be monitored closely.
Aim: To describe changes in macronutrient and fat intake over an 8 year period.
Method: Three-day food diaries were completed by patients with CF during annual review and nutrient composition was analysed using Compeat (Nutrition Systems, UK). The influence of year on % energy by type (fat, CHO, protein) and % energy by fat component (SFA, MUFA, PUFA) was examined by linear regression (SPSS v17.0, Chicago, USA).
Results: 134 food diaries were reviewed in 28 CF subjects (10 males) age range 1 to 18 years. Over the study period % energy from fat decreased slightly and % energy from protein increased slightly but these trends were not significant (protein $p = 0.06$, CHO $p = 0.44$, Fat $p = 0.07$). The % of energy derived from SFA, MUFA and PUFA also remained statistically unchanged (SFA $p = 0.10$, MUFA $p = 0.20$, PUFA $p = 0.15$). Saturated fat consistently contributed the most: 13–18% of total energy (>120% of reference requirement), whilst MUFA contributed 10–13% and PUFA 4–6% (<100% of reference requirement) of total energy respectively.
Conclusion: Macronutrients and fat source are not significantly changing in our population but there is an imbalance of fat-sources. With longer life expectancy more emphasis is needed on re-distributing fat sources to avoid the potential for hyperlipidaemia. Larger scale studies are needed to investigate fat intakes in CF patients to guide possible new approaches and clearer advice regarding appropriate sources of fat.

362 A real-life glucose tolerance test in children to screen for CFRD

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Introduction and Aim: From the age of 10–12 yrs, a yearly oral glucose tolerance test is advised to diagnose CF-related Diabetes (CFRD). This test does not reflect a real life situation, is disliked by patients and not fully adhered to. The aim of this study is to test the acceptance and results of a real life glucose tolerance test (RLGTT) from Sept 2008-Dec 2009.
Materials and Methods: For the yearly check up all 27 children with CF of 12–17 yrs, not already diagnosed with CFRD (3), were admitted. The carbohydrates of the meal are registered according to the Dutch Food Composition Table 2006. The RLGTT consists of a 4 hour fasting period followed by eating a minimum of 1.25 g carbohydrates/kg bodyweight in a regular meal, with a maximum of 1.75 g/kg or 75 g carbohydrates. A glucose sample was taken before and 2 hours after the meal. A 2 hour glucose of >9 mmol/L after 1.50–1.75 g/kg or >8 mmol/L after 1.25–1.50 g/kg is considered abnormal. Stricter cut-off values in comparison to OGTT were set, because the use of a meal instead of glucose.
Results: We did 33 tests in 27 patients. All patients easily accepted the test in this design. No impaired fasting glycemia was found. In 4/33 tests (3/27 patients) results were abnormal with a mean postprandial glucose of 11.9 mmol/L (9.4 to 16.1 mmol/L). 4/27 Patients had an impaired glucose tolerance (7–8.3 mmol/L) but no other symptoms. Intensive monitoring of the blood glucose followed in 3/27 patients. CFRD was subsequently diagnosed in 1 patient.
Conclusion: The RLGTT is easily accepted and implemented in regular care. An abnormal RLGTT should be followed by intensive monitoring of blood glucose.

363 Prevalence of cystic fibrosis related diabetes (CFRD) in an Australian adult cystic fibrosis centre

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Prevalence of abnormal glucose tolerance in patients with CF has been documented to be as high as 50–75% with approximately 15% having CFRD requiring treatment with insulin. CFRD is multifactorial and is associated with weight loss and decreased lung function which has been shown to improve with insulin treatment. A CFRD screening programme was introduced at our CF Centre in 2000.
The aim of this audit was to review the prevalence of CFRD in 2009 at the Prince Charles Hospital Adult CF centre and compare to previous audits in 2005 and 2001.
A retrospective chart audit of 212 patients was completed to evaluate data including patient demographics, documented glucose tolerance from screening, nutritional status, CFRD treatment and CFRD complications.
As the adult CF population has increased from 2001 to 2009 two fold, the number of patients with abnormal glucose tolerance has also increased two fold; however the overall prevalence rate has remained stable at approximately 23–28%. When comparing the clinical parameters of the 2009 normal and abnormal glucose tolerance groups, the only statistically significant differences are seen when comparing age and pancreatic sufficiency, as expected those with abnormal glucose tolerance group are older and more likely to be pancreatic insufficient. Screening for CFRD is recommended as per the Australasian Clinical Practice Guidelines for Nutrition in Cystic Fibrosis (2005) to identify at risk individuals, promote early intervention, to improve health outcomes and reduce health care costs.