

G-eP-016

### Lipid spectrum in paediatric patients with cystic fibrosis

Dorothea A. Schulkes<sup>1</sup>, Cornelis K. van der Ent<sup>2</sup>, Roderick H.J. Houwen<sup>3</sup>, Janna W. Woestenenk<sup>4</sup>

<sup>1</sup>University Medical Centre Utrecht, Department of Paediatric Gastroenterology, Utrecht, Netherlands

<sup>2</sup>University Medical Centre Utrecht, Department of Paediatric Pulmonology and Cystic Fibrosis Centre Utrecht, Netherlands

<sup>3</sup>University Medical Centre Utrecht, Department of Paediatric Gastroenterology and Cystic Fibrosis Centre Utrecht, Netherlands

<sup>4</sup>University Medical Centre Utrecht, Internal Medicine and Dermatology, Dietetics and Cystic Fibrosis Centre Utrecht, Netherlands

**Objectives and study:** Current recommendation for dietary fat intake in children and adolescents with cystic fibrosis (CF) is as high as 35-40 energy percent (En%) to meet the advised 120% energy intake and thereby compensate for malabsorption and high resting energy expenditure. This will generally result in a high saturated fat intake, which was found to be well above the advised limit of 10 En% for healthy counterparts. This might cause abnormalities in serum lipids and therefore an increased risk on developing cardiovascular disease later in life. Whether the high (saturated) fat intake in children and adolescents with CF is indeed associated with an abnormal serum lipid spectrum is unknown. So we aimed to investigate this in a paediatric CF patient population and describe the lipid spectrum, expressed as total cholesterol, low-density lipoprotein cholesterol (LDL-cholesterol), high-density lipoprotein cholesterol (HDL-cholesterol) and triglycerides, and the triglycerides to HDL-cholesterol ratio (TG/HDL-ratio) as well as the correlation between the lipid spectrum and dietary fat intake and nutritional status.

**Methods:** Between March 1<sup>st</sup> 2013 and August 31<sup>st</sup> 2015 we randomly collected 112 fasting measurements of the lipid spectrum in paediatric patients with CF (aged 14.0±2.4 years, 55 girls). We obtained 73 corresponding completed 3-day dietary food records with calculated fat intake (En%) and saturated fat intake (En%). As a measure of nutritional status we included z-scores body mass index (BMI). Data of lipid spectrum were compared with those of healthy controls according to age and gender and were presented as percentage of the reference values (% ref val). Correlations between the lipid spectrum, dietary fat intake and nutritional status were studied by using the Spearman's rank correlation coefficient.

**Results:** In our study sample we found relative low levels of cholesterol, LDL-cholesterol and HDL-cholesterol and high levels of triglycerides compared to healthy controls (Table). In 21% of the patients, we found a TG/HDL-ratio ≥1.3, which is considered to be a risk factor for the development of cardiovascular disease. Furthermore we found a significant correlation between HDL-cholesterol and total fat intake (r 0.38, p<0.01) and HDL-cholesterol and saturated fat intake (r 0.25, p<0.04) as well as between TG/HDL-ratio and total fat intake (r -0.34, p<0.01). No other correlations between the lipid spectrum and dietary fat intake or nutritional status as such were found (p≥0.08).

**Table:** Lipid spectrum of 112 paediatric patients with CF (55 girls).

Lipid spectrum	Median (range) expressed as % ref val
Total cholesterol	79 (68-91)
LDL-cholesterol	70 (57-78)
HDL-cholesterol	85 (72-101)
Triglycerides	125 (94-172)

**Conclusion:** We described low levels of total cholesterol, LDL-cholesterol and HDL-cholesterol and high levels of triglycerides in children and adolescents with CF, although we found no clear correlations between the lipid spectrum and dietary fat intake. Additionally we found an increased TG/HDL-ratio in 21% of our paediatric patients with CF. This might point to an increased risk of cardiovascular disease in patients with CF.

**Disclosure of interest:** None Declared.