Cystic Fibrosis Related Diabetes in Adolescents

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Background: Cystic fibrosis related diabetes (CFRD) is a combination between reduced insulin secretion and peripheral insulin resistance that only people with cystic fibrosis can get. CFRD is associated with a decline in lung function, poor nutritional status and high mortality rate.

Aim: Study of the clinical course and therapeutic management in adolescents with CFRD.

Methods: We present 2 cases of CFRD in a female patient (15 years old) and a male patient (17 years old) hospitalised at the CF Centre. The diagnosis of CF was confirmed by positive sweat test (Macroduct USA), identification of CFTR mutation (F508del/F508del), small amounts of elastase in stool. Confirmation of diabetes was achieved by a blood glucose test, blood glucose profile, glycosylated Hb, C peptide, glucose and ketones in urine.

Results: On the background of pulmonary exacerbation, both patients had hyperglycemia (9.8/14.1 mmol/l). Subsequently, it triggered clinical syndromes suggestive for diabetes - polydipsia, polyuria, weight loss. Glycemic profile variations 7.8–15.8 mmol/l in boy and 10.4–21.0 mmol/l in girl. Glycosylated Hb values were high (7.3/14.1%) and C-peptide values were low (0.624/0.513). Confirmation of diabetes was achieved by a blood glucose test, blood glucose profile, glycosylated Hb, C peptide, glucose and ketones in urine. Diabetes treatment was performed with Insulin (Glargine, Aspart, Human), which produced clinical benefits by achieving glycemic and clinical syndromes control.

Conclusions: Patients with CFRD shows a specific clinical framework and require a strict medical diet control and surveillance of the insulin therapy, case that differs from the other types of diabetes. If early introduced, it significantly improves life expectancy towards these patients.

Vitamin D Status in Children with Type 1 Diabetes

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Background and aims: Serum vitamin D (sVD) deficiency may contribute to the development and progression of diabetic nephropathy (DN). Research has shown urinary vitamin D binding protein (uVDBP) excretion is increased after renal injury, and is associated with tubulointerstitial damage. Animal studies suggested that sVD deficiency may be associated with urine loss due to kidney damage. The aim was to test associations of sVD with levels of uVDBP, urinary vitamin D (uVD).

Methods: 42 children aged 6–17 years with type 1 diabetes were examined: 24 normoalbuminuric patients (1st group) and 18 microalbuminuric (2nd group). 15 healthy children were included in controls. We measured serum and urine 25(OH)D levels, uVDBP concentrations and tested their correlations.

Results: sVD levels were decreased in the patients of the 1st and 2nd groups, compared with controls (22.03 (17.23; 24.44) and 14.42 (12.02; 19.63), compared with 30.65 (28.45; 35.05) ng/ml, respectively) (p < 0.001)). uVD levels were elevated in the patients of the 1st and 2nd groups, compared with controls ((179.5 (174.0; 189.0) and 219.0 (216.0; 222.0), compared with 125.0 (116.5;136.0) ng/mg, respectively) (p < 0.001)). uVD levels were increased in the patients of the 1st and 2nd groups, compared with control group ((3.2 (2.9; 3.3) and 3.9 (3.7; 4.1), respectively) (p < 0.001)).
**CIRCULATING OXIDISED LDL AND INSULIN RESISTANCE AMONG OBESE SCHOOL STUDENTS**

These data suggest that, theoretically, one of the causes of VD deficiency in patients with DN is a urine loss.

**Methods**
Study is cross-sectional consisted of 68 obese children, mean age 9.96 ± 1.32. Each underwent a complete physical examination; blood pressure (SBP, DBP) and anthropometric measurements (weight, height, BMI; waist, hip circumferences, waist/hip ratio), biochemical tests of fasting blood glucose (FBG), insulin levels; lipid profile (TC, LDL, HDL, TG) and ox-LDL; calculated HOMA. Sample was classified according to waist/hip ratio into: group I with and group II without central obesity.

**Results**
ox-LDL showed significant positive correlation with LDL and TC in all groups of obesity. After adjustment for age and sex, significant positive correlation was detected between ox-LDL and TC, LDL, HDL, TG and ox-LDL; calculated HOMA. Sample was classified according to waist/hip ratio into: group I with and group II without central obesity.

**Conclusions**
ox-LDL as a marker of oxidative stress is not correlated with BMI among all studied obese children (aged 6–12 years). Increased oxidative stress has causal effects on insulin resistance in obese children without central obesity and on fasting blood sugar in those with central obesity. These findings emphasise the importance of obesity during childhood and suggest that the metabolic complications of obesity and body fat distribution are detectable early in life.

**WITHDRAWN**

**IMPROVING METABOLIC MEMORY WITH INTENSIVE EARLY MANAGEMENT IN NEWLY DIAGNOSED TYPE 1 DIABETES IS A FOUNDATION TO IMPROVE SHORT AND LONG TERM CONTROL**

Objective
To demonstrate variations in Hba1C (glycosylated haemoglobin) levels between two paediatric cohorts with different approach in diabetes management in blood glucose monitoring (routine and intense) and insulin administration.

Design
A follow up cohort study of 34 children and adolescents in a large district hospital with diagnosis of type 1 diabetes between 2005 and 2011.

**Results**
In the first group (G1=14), without intensive blood sugar monitoring, mean Hba1C post diagnosis was 8.67% (95% CI 7.87–9.48%).11 out of 14(79%) of them had Hba1C above target level (7.5%). In the second group (G2=20) with intensive monitoring, mean Hba1C post diagnosis was 7.87% (95% CI 7.29–8.44%). 12 out of 20 (60%) had Hba1C above target level (7.5%).

**Conclusions**
No significant difference of Hba1C in two groups post diagnosis; mean Hba1C level (p = 0.082). Comparing the changes over time in the two groups, an increase of Hba1C of 1.78% (Table2) percentage points in G1 (without intensive monitoring) was significantly greater than the decrease of 0.06 percentage points in G2 (p = 0.008).

Discussion
Intensive initial management of type 1 Diabetes can significantly reduce future Hba1C. We aim to follow G2 over next 5 years to establish that an improved metabolic memory could reduce Hba1C levels over longer periods.