OBSERVATIONS

Glucose Derangements in Very Young Children With Cystic Fibrosis and Pancreatic Insufficiency

Cystic fibrosis–related diabetes (CFRD) is considered the most common comorbidity in patients affected by cystic fibrosis (CF), with a prevalence increasing with age (1). Recently, more attention has been turned to other less severe glucose metabolism derangements (GMD), since prediabetes may be related to increased morbidity (1), and early treatment may improve the clinical course in patients with CF (2). According to recent guidelines released by the Cystic Fibrosis Foundation, the American Diabetes Association, and the Pediatric Endocrine Society, the oral glucose tolerance test (OGTT) is recommended yearly in patients with CF over 10 years of age (3). Some authors recommend annual OGTT after the age of 6 years in CF patients with pancreatic insufficiency (4).

In order to compare the prevalence of GMD in CF patients with pancreatic insufficiency by age, OGTT was performed in all CF patients >2 years of age, excluding those with pancreatic sufficiency in regular follow-up at the CF Care Center of Federico II University in Naples in 2011. The study population was represented by 157 patients: 84 male, 73 female; mean age 10.5 ± 3.95 years (range 2.4–18.0); forced expiratory volume in the 1st second 88 ± 28 (range 28–180; $n = 113$); 5 subjects were excluded because of noncompliance to OGTT. Therefore, 152 patients were effectively studied. The study was approved by the local ethics committee of the University Federico II of Naples. GMD were classified into three categories: CFRD (glycemia ≥11.1 mmol/L at time 120 min [T120']), impaired glucose tolerance (IGT, glycemia ≥7.7 mmol/L at T120'), and indeterminate glucose tolerance (INDET, glycemia ≥11.1 mmol/L at T30' and/or T60' and/or T90' of OGTT but <7.7 mmol/L at T120'). Prevalence of GMD was compared among three age groups: between 2.4 and 5.9 years ($n = 24$), between 6 and 9.9 years ($n = 42$), and ≥10 years ($n = 86$). Among patients aged <6 years, 2 were CFRD, 4 were IGT, and 2 were INDET (GMD 33.3%); among patients aged 6–9.9 years, 1 was CFRD, 7 were IGT, and 2 were INDET (GMD 23.8%); and among patients aged ≥10 years, 7 were CFRD, 22 were IGT, and 9 were INDET (GMD 44.2%); $P = 0.025$ between groups aged 6–9.9 years and ≥10 years.

Our results confirm the high prevalence of GMD in CF patients with pancreatic insufficiency between 6 and 10 years (4) and provide new information on the presence of a consistent number of GMDs even in patients <6 years of age, therefore we suggest that the screening of GMDs may be indicated from the youngest age at least in those with pancreatic insufficiency (4,5). It is questionable if OGTT is the most appropriate screening method in the youngest age. Further longitudinal studies are needed to evaluate the prognostic role of very early diagnosis of GMD in CF.

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