

Are we screening appropriate age group for early diagnosis of Cystic Fibrosis Related Diabetes (CFRD)?



P1-205

Arundoss Gangadharan^{1*}, Claire Berry², Ruth Watling², Sue Kerr³, Kevin Southern², Senthil Senniappan¹

¹ Department of Endocrinology, ² Department of Respiratory Medicine, ³ Department of Diabetes, ^{1,2,3} Alder Hey Children's Hospital, Liverpool, UK

**Disclosure:
Nothing to disclose**

Background:

- ❖ Nutrition plays a pivotal role in long-term survival in Cystic Fibrosis (CF)¹
- ❖ Early insulin treatment for glucose intolerance promotes anabolism and stabilises lung function²
- ❖ Variation in CFRD screening across centres (recommended age for start of CFRD screening varies between 10-12 years as per CF trust, CFF & ISPAD guidelines)^{3,4}

Aims:

- ❖ To assess if early screening of glycaemic status helps in early identification of glucose abnormalities in CF
- ❖ To assess correlation between OGTT and glycosylated haemoglobin (HbA1c)

Methodology:

- ❖ Retrospective data on OGTT, HbA1c and patient demographics were collected on all CF patients in a tertiary paediatric hospital (n=84, 35M)
- ❖ Patients were categorised as <10, 10 to <12 & ≥12 years
- ❖ Data analysed to assess the incidence of glucose intolerance and to compare OGTT & HbA1c

Results:

- ❖ 127 OGTT carried out in 35 CF patients with median age of 13 years (3 -17.3) and median follow up period of 4 years (0.8 -11.1)

❖ OGTT: [Table 1]

- 11/84 (13%) were diagnosed with CFRD requiring various forms of insulin therapy including insulin pump
- OGTT undertaken in symptomatic children <10 years of age and identified one CFRD patient (aged 9.4 years)
- Five eligible patients (≥10 years of age) did not undergo OGTT

❖ HbA1c: [Table 2]

- Total of 89 HbA1c analyses was undertaken along with simultaneous OGTT
- HbA1c was ≤42mmol/mol in patients with IGT and >42mmol/mol in patients with postprandial hyperglycaemia.

Age groups in years	Age in years Median (range)	OGTT			
		Total	Normal	Abnormal (details)	Patients diagnosed
<10	6.7 (3- 9.8)	24	23	1 (PP-1)	1
10 - <12	10.9 (10-1 1.7)	16	12	4 (F-2, PP-2**)	3
≥12	13.8 (12- 17.3)	87	68	19 (F-2, PP-7, IGT-10)	7
Total		127	103	24	11

OGTT	HbA1c (mmol/mol)		Total
	≤42	>42	
Normal	63	6	69
Abnormal	12 (F-2, IGT-10)	8 (F-1, PP-7)	20
Total	75	14	89

Fasting Hyperglycaemia (F)= Plasma glucose (PG) >7.0mmol/l, Postprandial Hyperglycaemia (PP)= PG ≥11.1mmol/l, Impaired Glucose tolerance (IGT)= post prandial PG 7.8-11.0 mmol/l.
** same patient had 2 abnormal OGTT.

Conclusions:

- ❖ Application of CFF/ISPAD guideline (CFRD screening ≥10 years of age) promotes early diagnosis and management of CFRD
- ❖ OGTT may not be routinely needed in children <10 years of age unless there are strong clinical indications
- ❖ There is no correlation between HbA1c and OGTT in the diagnosis of CFRD

References:

- 1) Bmj, 316 (7147): 1771-1775,
- 2) Pediatric diabetes 2009: 10: 162-167)
- 3) Pediatric Diabetes 2014: 15 (suppl. 20): 65- 76
- 4) www.cysticfibrosis.org.uk/the-work-we-do/clinical-care/consensus-documents