EVALUATION OF CONTINUOUS GLUCOSE MONITORING IN CYSTIC FIBROSIS PATIENTS

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INTRODUCTION
The oral glucose tolerance test (OGTT) is the accepted method of screening for cystic fibrosis-related diabetes (CFRD). However, the results are not always sufficiently sensitive and specific. Use of continuous glucose monitoring (CGM) as a diagnostic tool for CFRD is receiving increasing attention.

AIMS
1. Describe the glucose profile in cystic fibrosis (CF) in patients over 10 years of age by CGM
2. Compare CGM and OGTT results
3. Evaluate lung function and nutritional status changes during the year prior to evaluation

PATIENTS AND METHODS
Prospective study of CF patients aged ≥ 10 years
OGTT and CGM (Ipro2TM) were performed
(2012 – May 2014)

Changes in BMI standard deviation score (SDS) and percent forced expiratory volume in 1s (%FEV1) in the year preceding both tests were evaluated: Δ SDS BMI and Δ % FEV1 respectively (current-1 year ago)

RESULTS

PATIENTS

n=21
Mean age: 15.4 (±1.88 SDS)
Tanner mean 4 (2.5)
(70% vs 30%)

SEX

F 43%
M 57%

GENOTYPE

F508del heterozygous 48%
F508del homozygous 38%
Others 14%

GLUCOSE PROFILE IN CGM

Episodes Median IQR
Max glucose 191 (179-201) 5 (3-8.5)
Min glucose 59 (47.5-66.5)
%>140mg/dl 0 12 57.1
%<80mg/dl 9 42.9
%>200mg/dl postprandial 0 15 71.4
%100-126mg/dl FBG 6 28.6
%>126mg/dl FBG 26 (4-50)
%ALC>140mg/dl 1 (0.5-1.4)
Peaks >200mg/dl 2 14.2
≥2 3 14.2

CGM SENSITIVITY AND SPECIFICITY FOR CHANGES IN BMI AND FEV1

GLUCOSE ABNORMALITIES DURING CGM AND CHANGES IN LUNG FUNCTION AND NUTRITIONAL STATUS IN THE PREVIOUS YEAR

CONCLUSIONS
1. CGM is a useful tool for diagnosing and managing carbohydrate metabolism in patients with CF.
2. CGM is more specific and sensitive for CFRD diagnosis when deterioration in lung function or nutritional status was greater during the previous year.
3. CGM seems to reveal early glucose tolerance abnormalities that remain undiagnosed by OGTT screening and are correlated with clinical abnormalities.