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UNDER-RECOGNIZED PROBLEM IN CYSTIC FIBROSIS (CF): URINARY INCONTINENCE (UI)

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THE RELATIONSHIP BETWEEN EXERCISE CAPACITY AND GLUCOSE TOLERANCE IN A PEDIATRIC CF POPULATION NOT DIAGNOSED WITH CYSTIC FIBROSIS-RELATED DIABETES

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Background: Reduced exercise capacity (EC) and cystic fibrosis-related diabetes mellitus (CFRD) have been associated with a greater decline in lung function, nutritional status, and life expectancy in people with CF. Some research has shown that patients with CFRD have reduced EC, but to our knowledge no information is available on the relationship between EC and glucose tolerance in patients without CFRD.

Methods: In a retrospective study, we evaluated 70 maximal cardiopulmonary exercise tests (CPET) of 50 patients not diagnosed with CFRD.

Poster Session Abstracts

Two-hour oral glucose tolerance testing (OGTT) performed within one year of CPET were also evaluated. Patients were considered to have low EC if $VO_{2\text{ peak}} < 80\%$ of predicted.

Results: The Table 1 shows CPET and OGTT parameters in patients with low EC and normal EC. Patients with low EC had significantly higher two-hour glucose values compared to patients with normal EC (140.3 ± 76.2 vs 113.9 ± 32.7 mg/dL, $p = 0.0493$).

Conclusion: This study suggests that low EC is associated with decreased glucose tolerance on OGTT in a pediatric population not diagnosed with CFRD. Patients presenting with low EC should be evaluated for CFRD.

Table. CPET and OGTT parameters in patients with low and normal EC

Patient characteristics	All	Low EC	Normal EC
Patients, n	50	9	41
CPETs, n	70	15	55
Sex: male, n (% of CPETs)	39 (56)	9 (60)	30 (55)
Age (years)	14.2 \pm 2.9	15.5 \pm 2.9	13.8 \pm 2.9
Height (cm)	159.0 \pm 13.2	164.3 \pm 10.7	157.6 \pm 13.5
Weight (kg)	52.9 \pm 12.9	54.8 \pm 8.4	52.4 \pm 13.9
BMI (kg/m ²)	20.7 \pm 3.4	20.4 \pm 3.3	20.7 \pm 3.5
OGTT 0 min glucose (mg/dL)	89.3 \pm 14.3	94.3 \pm 26.8	87.9 \pm 8.2
OGTT 1 hr glucose (mg/dL)	172.3 \pm 43.8	186.6 \pm 69.0	168.4 \pm 33.8
OGTT 2 hr glucose (mg/dL)	119.5 \pm 46.2	140.3 \pm 76.2	113.9 \pm 32.7 *
FEV1 (%pred)	93.1 \pm 17.0	77.4 \pm 19.0	97.4 \pm 13.8 *
VO ₂ peak (L/min) (%pred)	96.9 \pm 19.8	70.1 \pm 8.6	104.3 \pm 15.1 *
Breathing reserve %	28.8 \pm 14.9	35.2 \pm 16.2	27.1 \pm 14.1
Watts peak (%pred)	86.8 \pm 16.5	72.9 \pm 14.1	90.5 \pm 15.1 *

All values are mean \pm SD unless indicated. * $p < 0.05$