Prevalence of Overweight/Obesity in a Largely Hispanic Pediatric Cystic Fibrosis Center

Radhika Pillai, MD[1], Wouter Koek, PhD[1], Maria Rayas, MD[1]

[1]University of Texas Health San Antonio

UT Health San Antonio

Introduction

- Historically, cystic fibrosis (CF) has been characterized by malnutrition and pulmonary decline. [1,2]
- Recent advances in CF care, including genetic modulator therapies such as elexacaftor/tezacaftor/ivacaftor (ETI), have improved nutrition and lung function.[1,2]
- An unexpected consequence has been the rise in overweight/obesity among patients with CF.[1,2,4]
- Although Hispanics are at greater risk of developing overweight/obesity compared to non-Hispanic whites (NHW),[3] ethnic differences regarding the prevalence in CF are unknown.

Objective

- To determine the prevalence of overweight and obesity in Hispanics versus NHW pediatric patients with CF at the University of Texas Health San Antonio (UTHSA) Cystic Fibrosis Center.

Methods

- Retrospective cross-sectional chart review of patients 2-17 years of age at UTHSA CF center.
- Demographics, socioeconomic status, CF-related variables, and cardiometabolic risk factors were extracted from the electronic health record.
- Patients stratified into 2 groups based on BMI:
  - Adequate (5-84%ile)
  - Overweight/Obese (≥ 85%ile)
- Baseline characteristics were analyzed using chi-square and independent t-tests.
- Overweight/obesity data analyzed by logistic regression using the following independent variables:
  - Ethnicity
  - Age in January 2023
  - Sex assigned at birth
  - Average household income
  - ETI therapy
  - Supplemental feeding (oral and/or gastrostomy)
  - Pancreatic sufficiency

Baseline Characteristics

	Adequate BMI	Overweight/Obese BMI	P-value
N	44 (65%)	24 (35%)	
Age (y)	11 ± 4	10 ± 4	NS
Ethnicity			NS
Hispanic	20 (45%)	11 (46%)	
Non-Hispanic white	24 (55%)	13 (54%)	
Female	25 (57%)	10 (42%)	NS
Severe mutation class (I-III)	40 (95%)	17 (74%)	0.012
ETI therapy	31 (78%)	14 (67%)	NS
Pancreatic sufficiency	2 (5%)	8 (24%)	0.001
Supplemental feeds	28 (64%)	6 (25%)	0.002
A1c%	5.8 ± 0.7	5.4 ± 0.4	0.024
FEV1%	99 ± 16	102 ± 13	NS
Systolic BP%	78 ± 20	87 ± 14	0.05
Diastolic BP%	79 ± 19	79 ± 19	NS
Public insurance	28 (64%)	12 (52%)	NS
Annual income <$30K	18 (41%)	5 (21%)	0.09
Family history of diabetes mellitus	20 (45%)	12 (50%)	NS

Data presented as n (%), mean ± SD; ETI, elexacaftor/tezacaftor/ivacaftor; BP, blood pressure; NS, non-significant.

Prevalence of Overweight/Obesity
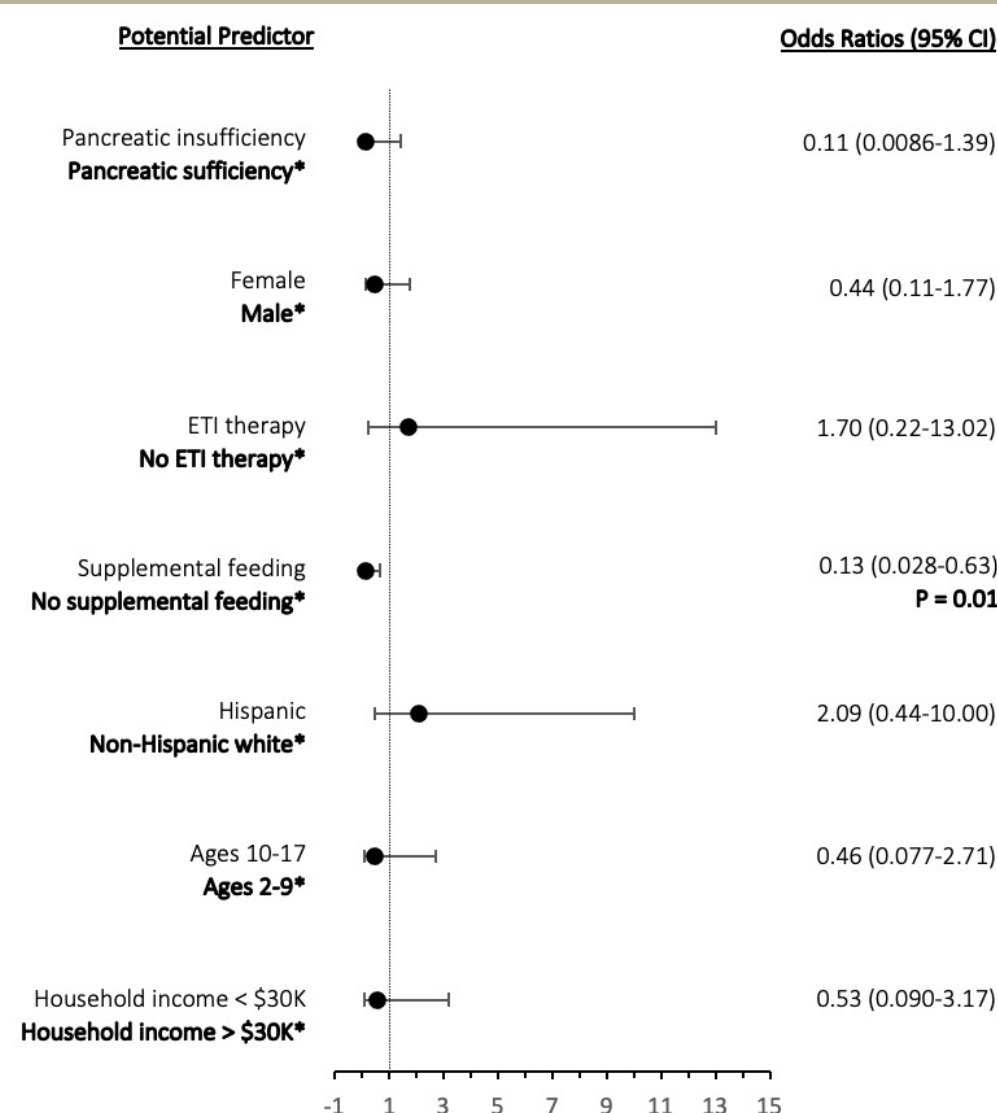
Multivariable analysis of obesity/overweight prevalence. Forest plot of odds ratios reported. * **Reference group.** Lines represent 95% CI.

Results

- Sixty-eight children with CF (46% Hispanic, 51% female, ages 10 ± 4 years, 74% on ETI) were assessed.
- Twenty-four (35%) children were overweight/obese (11 Hispanic).
- No ethnic differences were apparent.
- When analyzed univariably, overweight/obesity was associated with less supplemental feedings (odds ratio [OR] 0.19, 95% CI 0.063 to 0.58, P = 0.003) and more pancreatic sufficiency (OR 10.50, 95% CI 2.01 to 54.84, P = 0.005).
- Multivariable analysis revealed overweight/obesity was only associated with decreased odds of supplemental feedings (OR 0.13, 95% CI 0.028 to 0.63, P = 0.01).

Conclusions

In our ethnically diverse CF center, overweight/obesity is prevalent in 1 in 3 children and associated with higher systolic blood pressure. Prospective, longitudinal multi-center studies performed in diverse CF populations are warranted to identify factors associated with overweight/obesity to inform management and obesity-related screening for children with CF.

References

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