Screening for and Monitoring of CFRD During Acute Pulmonaray Exacerbation

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BACKGROUND

- Cystic Fibrosis (CF) is caused by a genetic mutation in the cystic fibrosis transmembrane conductance regulator protein. One of the complications that develop with this mutation is pancreatic insufficiency making CF patients prone to developing cystic fibrosis related diabetes (CFRD)
- The screening and monitoring for diabetes in people with cystic fibrosis (PWCF) has been established by the US Cystic Fibrosis Foundation (CFF), the American Diabetes Association (ADA) and Pediatric Endocrine Society.
- During an acute pulmonary exacerbation (APE), glucose levels should be monitored for the first 48 hours using fasting and 2-hour postprandial plasma glucose levels. The diagnosis of CFRD can be made in PWCF during an acute illness when fasting plasma glucose levels ≥ 126 mg/dL or 2-hour postprandial plasma glucose levels ≥ 200 mg/dL persist for more than 48 hours.

OBJECTIVE

- To evaluate the screening for and monitoring of diabetes in patients with CF during an acute pulmonary exacerbation

METHODS

Study Design: Retrospective, file review of CF patients

Study Population: All patients with CF cared for at CGCH with an acute pulmonary exacerbation in 2018 and 2019 were included and the electronic medical record was reviewed.

Study Measures

Dependent Variable: BMI %, glucose level and insulin dose

Independent Variable: Age, Gender

- Genetics
- Corticosteroid and insulin use
- Enteral feeding and duration

Statistical Analysis:

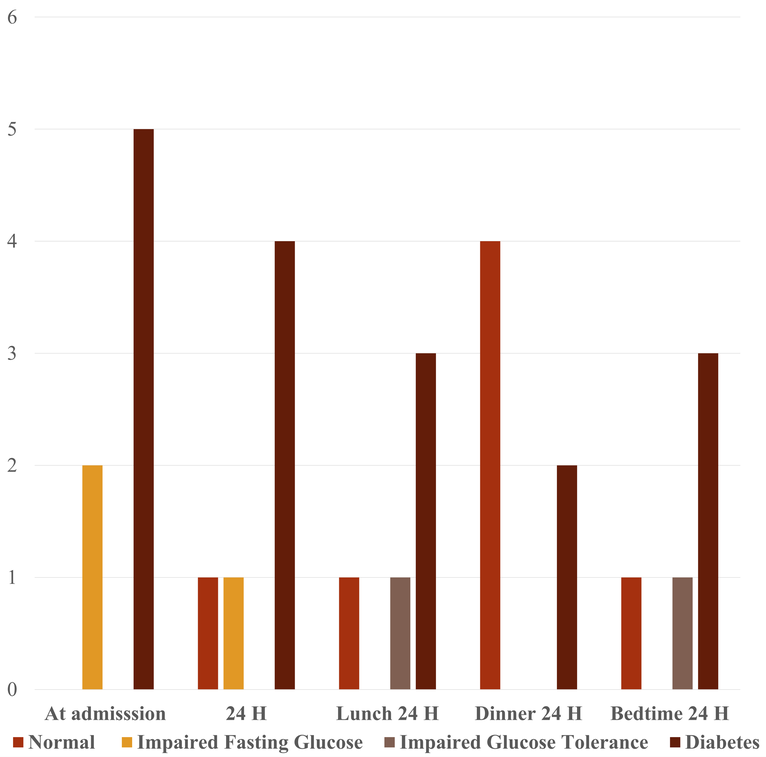
- Descriptive statistics used in this study include means, percentages, and standard deviations
- All analyses were completed using data analysis functions accessible in Microsoft Excel

RESULTS

Table 1: Demographics

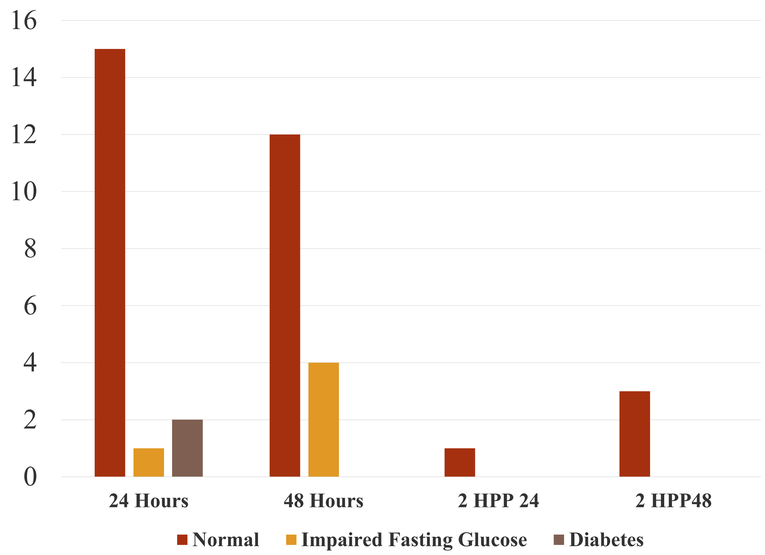
Variable	CFRD	No CFRD
Age (mean, SD)	19.1, 2.8	14.7, 3.3
Genetic; total, (%) **Homozygous F508del** **Heterozygous F508del** **Other**	 8, (100%) 0 0	 16, (59.3%) 11, (40.7%) 0
BMI (Mean, SD)	59.6, 25.3	51.8, 24.6
Overnight enteral feeding; total, (%)	3, (42.8)	3, (11.1)
Corticosteroid use; total, (%)	4, (57.1)	13, (48.1)

Figure 1: Glucose Frequency in Patients with CFRD



RESULTS

Figure 2: Glucose Frequency in Patients without CFRD



DISCUSSION

- **There were 33.3% and 40.7% of the total patients without CFRD lacking appropriate monitoring on day1 and day2, respectively.**
- **There were 14.8% of the total patients without CFRD who were impaired on day 2 and needed close follow up.**
- **There were 57.1 % of the total patients with CFRD who had appropriate monitoring during the admission**.
- Patient with CFRD were older
- No difference in terms of BMI
- Limitations include small sample, single center and missing data,

CONCLUSION

- The screening for diabetes in patients without CFRD was appropriate in more than half patients.
- Monitoring for patients with CFRD at Cardinal Glennon's children hospital was mostly appropriate.