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Characteristics of High-Acuity Patient Transfers to the PICU for Status Asthmaticus

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Background

- PICU admission for status asthmaticus is associated with increased mortality¹
- Risk factors for PICU admission have been well studied; less is known about the reasons for PICU transfer from the inpatient unit
- As part of a quality focused review, we noted an unexpectedly high number of transfers from the inpatient floors to the PICU within 24 hours of hospital admission. This trend was concerning for inappropriate disposition of patients from the Emergency Department or referring outside facility
- A study was done to better characterize this cohort. We hypothesized that most of these transfers would include patients with moderate persistent to severe asthma with prior hospitalization

Methods

- We defined high acuity transfers (HATs) as transfers from the inpatient floors to the PICU within 24 hours of hospital admission
- Retrospective chart review from January 2018 to January 2020 identified 55 HATs
- 32 patients met inclusion criteria of suspected or known diagnosis of asthma
- Patients with chronic respiratory failure requiring tracheostomy or positive pressure ventilation were excluded

Results

- Median patient age: 5 years
- 59% of patients (19) had prior asthma diagnosis
- 52% of patients (17) had prior PICU admissions for respiratory insufficiency

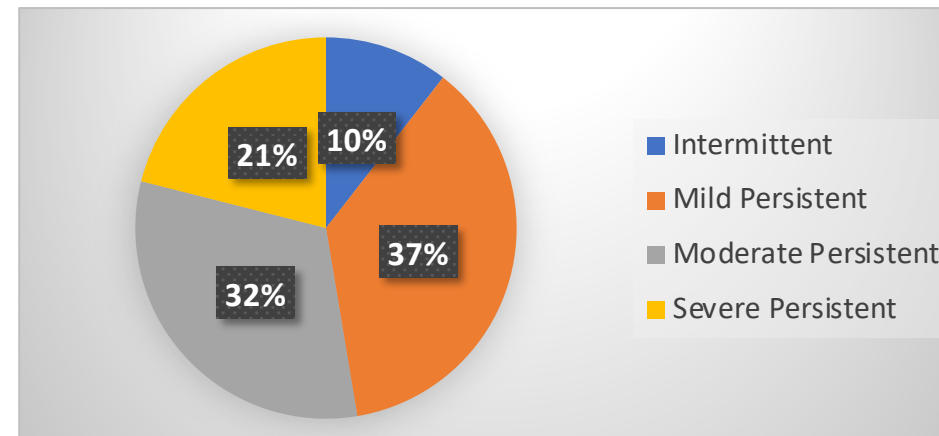


Figure 1. Most of the patients with a known diagnosis of asthma had mild disease.

Severity of Disease vs Hours of Continuous Albuterol Before ICU Transfer

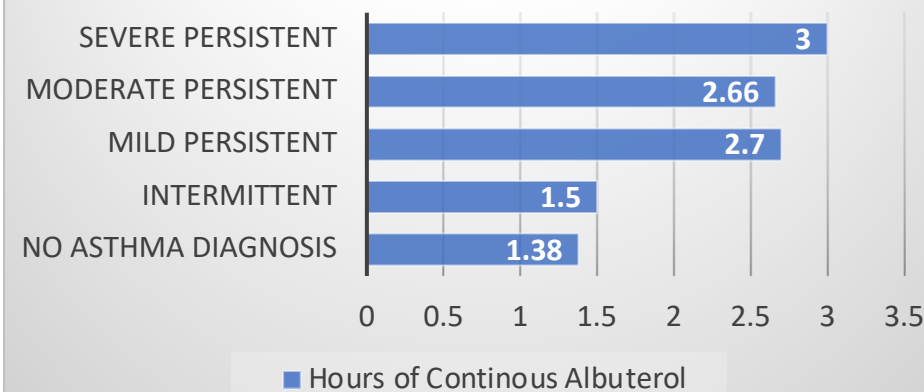


Figure 2. Patients with no prior diagnosis of asthma received less continuous albuterol prior to arrival to the ICU compared to those with known disease.

Results

- Patients with no prior diagnosis of asthma accounted for over one third of the HATs (n= 13, 40%)
- These HATs with no prior diagnosis of asthma were less likely to receive IV magnesium (30% versus 60%) or systemic steroids (61.5% versus 94.7%) during initial evaluation
- PICU transfer was initiated by rapid response or code blue in 3 cases, including one on a patient with no prior diagnosis of asthma

Conclusions

- Findings suggest that this group is systemically undertreated, possibly due to provider discomfort in using asthma medications in a patient without a known diagnosis of asthma.

Future Interventions

- Implementation of visual alerts to flag patients with prior PICU admission for asthma exacerbation, as well as those requiring frequent oral steroids
- Advocate for early and aggressive use of continuous albuterol, magnesium and systemic steroids for suspected asthma exacerbation to reduce unanticipated transfers to the PICU

References

1. McDowell KM et al. Medical and Social Determinants of Health Associated with Intensive Care Admission for Asthma in Children. Annals of the American Thoracic Society. 2016 Jul;13(7):1081-1088. DOI: 10.1513/annalsats.201512-798oc. PMID: 27144510; PMCID: PMC5015749.