

# TIMELY ADMINISTRATION OF SYSTEMIC CORTICOSTEROIDS IN CHILDREN WITH ASTHMA EXACERBATIONS AT EMERGENCY DEPARTMENT: A MULTICENTRIC RETROSPECTIVE STUDY

## Background

Asthma stands as the most prevalent chronic respiratory condition in children globally, often leading to visits to Emergency Departments (ED) due to exacerbations [1, 2]. Various international guidelines, including the GINA guidelines, outline the management of such asthma exacerbations in children. [3]. Timely administration of systemic corticosteroids (SCS) within the first hour of ED admission is crucial for managing moderate to severe asthma exacerbations. [3, 4]. Insight into the compliance of healthcare providers with this recommendation remains scarce. Furthermore, there is a need for studies investigating the consequences and predictors of (non-)timely SCS administration in children.

## Aim(s)

As part of a quality improvement project, this study aimed to (I) assess and compare the timing of SCS administration, in children with moderate- to severe asthma exacerbations, to the standard of 60 minutes after ED admission, (II) examine the correlation between SCS administration timing with the length of stay and duration of oxygen therapy, and (III) explore patient-related characteristics that could predict timely SCS administration.

## Methods

This retrospective multicentre observational study collected data using an electronic medical records (EMR) review. Children under 18 years of age with moderate- to severe asthma exacerbations, visiting EDs between January 1, 2019, and December 31, 2020, were included. The study encompassed seven EDs within hospitals comprising the Antwerp Paediatric Asthma Network.

## Results

The study included a sample of 205 patients presenting with asthma exacerbations at the ED. Merely 28 patients (13.7%) received SCS within 60 minutes of their ED arrival. The median time to administer SCS was 169 minutes (Q1 92-Q3 380). A moderate correlation was observed between the timing of SCS administration and the duration of oxygen therapy (n=117) ( $r=.363$ ,  $p < 0.001$ ), as well as the length of stay ( $r=.368$ ,  $p < 0.001$ ). No patient characteristics were identified as predictors for timely SCS administration.

## Discussion

The timing of SCS is a predicting factor for LOS and need for oxygen. The later patients received the SCS the longer they were hospitalised and the longer they were dependent on oxygen.

## Implications and future perspectives

This study revealed that approximately 75% of children presenting with moderate to severe asthma exacerbations at the ED did not receive SCS within the first hour of initial presentation. A delayed administration of SCS was associated with a prolonged length of stay and an increased need for oxygen support. A following study will be performed to determine if education of ED healthcare workers can improve the timely administration of SCS.

## References

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