PRELIMINARY STUDY ON CONTROL OF ASTHMA IN CHILDREN

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Objectives
1. To determine the level of asthma control based on the National Asthma Education and Prevention Program (NAEPP) guidelines and patient’s self-report of exacerbation during the 4 weeks prior to the visit at the Emergency Department (ED) for an acute exacerbation of asthma.
2. To determine underlying reasons, if any, for the treatment failure. We aimed to determine if the variation in treatment failure was the result of an incomplete asthma treatment plan (if available), compliance with the treatment plan of medications and vaccinations with appointments with primary care providers or if the patients themselves attempted to determine if the prescribed treatment protocol was achieving adequate control in the weeks prior to the ED visit based on previous history. We will follow up with the family by telephone one month following the ED visit to determine if the patient has had further exacerbation with their primary care physician (PCP). We will determine if adjustments in medication levels and/or number were made, along with recommendations in the national guidelines for medication adjustments when disease control has determined.

Methods:
In a prospective study, we recruited patients with asthma during the ED visits to our ED from January 1, 2012 to April 15, 2012. We conducted a preliminary study on children 2 to 18 years old who presented to ED for an acute exacerbation of asthma. The study was approved by the institutional review board. A total of 57 children of whom 28 were males and 29 females were included. The exclusion criteria were the patients not able to answer the survey. All the patients were interviewed by the investigator. All the patients were evaluated by the ED physician. We collected the patient’s demographic information. The level of asthma control was identified by the NAEPP level of asthma control guidelines. The analysis of the patient’s level of asthma control and the corresponding demographic data were performed using the chi-square test with the help of the computer program SPSS.

Results

**Among the patients with moderate exacerbation 7 patients were initiated on controller medications, 3 were stepped up and 2 were maintained on the same dose of controller medications as one of these 2 patients stepped taking his controller medication a week prior to ED visit.

The study demonstrated with 7 patients were initiated on controller medications and 10 were stepped up. At one month telephone follow-up which has been done by only 30 patients so far, for the remaining 8 it is still not possible to perform the follow-up. In ED visit 23 (75%) of the patients were found to have failed the interview and/or ACT score (2.71-4.97 (mean 4.32) of those patients who were initiated on controller medications, 24.7% (5) did not follow with their primary care physician (PCP). There were 26.8%(27) patients no reason for exacerbation was identified. Among 9 patients two patients were followed up with their primary care physicians, 2 patients were stepped up and 3 were maintained on the same level of medications. However, Out of these 3 patients, 1 was non-compliant, one had raised exacerbation and 1 had uncontrolled exacerbation only after a day he was stepped up. As per patient report 42.1% of the patients had their asthma controller 4 weeks prior to ED visit; however as per the ACT scoring 76.5% of the patients were not controlled. On one hand other parents perceived 57.9% of the patients as controlled whereas as per the ACT scoring system 21.5% of the patients were not controlled. At ACT score of >9 there was a 100% agreement between the parent perception and the satisfaction with the ACT scoring system with p value of 0.003, 4. At higher level of parental education there was 60% agreement against 12% agreement at lower level of parental education with p value of 0.591. No specific trend identified for diagnosis and different types of parent, p value being 0.135.

Conclusions
Majority of our participants in our study have uncontrolled asthma that is not under the proper parent perception of control.

Description of study

This is an ongoing prospective, cohort study being conducted in the ED. Patients aged 6-11 years old who present to the ED for acute asthma exacerbation (AAE) Symptomy were done on all patients. Participants answered the Asthma Control Test (ACT) and questionnaires about demographics and perception of asthma control in the last 4 weeks.

**Results:** Majority of patients who report the ED were not controlled 4 weeks prior to visit based on NAEPP guidelines. About 65% expect to be on controller medication prior to visit at the ED and 70% of these patients have never tried to contact their PCP as per the pharmacy refill records. Adjunctive treatment in asthma in ED was appropriate for all patients of exacerbation. Adjustment in medication by primary care provider (PCP) at follow-up was appropriate in 44.8% of patients who were followed up, 27% of patients had to have treatment failure. There is big disagreement between the patient perception of control of the level of asthma control per NAEPP guidelines at low ACT scores.

**Conclusion:** Majority of our patients in our study have uncontrolled asthma that is not under the proper parent perception of control.

**Inclusion criteria:**
Definition of an acute asthma exacerbation for the purposes of this study was defined as: 1. a symptom score of 10 over a 24-hour period, documented in Peak Flow of <80% of the child’s best predicted value, or FEV1 < 12% following treatment with a bronchodilator.

**Exclusion criteria:**
Children aged 6-11 years of age who presents with: Asthma, COPD, Cystic Fibrosis, Congenital heart disease with acute CHF, and Cardiac output and cardiac function.

**Participants:**
Consecutive patients with a diagnosis of asthma or ASTHMA were approached in the ED for follow-up. Those patients who were not controlled were followed up with their primary care provider. The overall level of asthma control was measured.

**Methods:**
We received 355.3% males and 44.7% females. Per ACT score 23.7% of our patients were discharged and 76.3% are not controlled. 42.1% of the patients had history of ED visits and 23.7% had hospitalizations for asthma exacerbation or in ED visit. 52.3% patients had usual asthma during past 6 months. As per parents report 42.1% of the patients expect to be on controller medications at the time of ED visit, however as per the pharmacy records 65% of the patients were not on controller medications when they presented to the ED visit. 31.5% patients presented in the ED with severe exacerbation (ACT score >9), 47% patients presented in the ED with moderate control (ACT score 4-9), 5% patients with mild exacerbation were managed on the same dose of controller medications 1 stepped up and 1 patient was initiated on the controller.

**Discussion:**
Patients had to be on controller medications a week prior to ED visit. However, there were 5 patients who were not controlled. As per the parents report 42.1% of the patients had their asthma controller 4 weeks prior to ED visit; however as per the ACT scoring 76.5% of the patients were not controlled. On one hand other parents perceived 57.9% of the patients as controlled whereas as per the ACT scoring system 21.5% of the patients were not controlled. At ACT score of >9 there was a 100% agreement between the parent perception and the satisfaction with the ACT scoring system with p value of 0.003. At higher level of parental education there was 60% agreement against 12% agreement at lower level of parental education with p value of 0.591. No specific trend identified for diagnosis and different types of parent, p value being 0.135.

References

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