Issues in the Treatment of Mild-Persistent Asthma Among Homeless Children

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Background

This study looks at 200 children with asthma who are enrolled in the Children's Health Fund's Childhood Asthma Initiative (CAI). The CAI is a multidisciplinary asthma program serving homeless and medically underserved families in New York City. Patients were followed for primary care in two programs in the Section of Community Pediatrics, Children's Hospital at Montefiore from 1998- 2003: the New York Children's Health Project (NYCHP) and the South Bronx Health Center for Children and Families (SBHCCF). The NYCHP is one of the nation's largest providers of health care for homeless children and families in the United States. Clinical care is provided to families in the New York City shelter system through mobile medical units and clinic spaces on-site at shelters. In the homeless population, an asthma prevalence of up to 40% has been described.[1] The SBHCCF is a fixed-site community health center in a medically underserved South Bronx community. The South Bronx has one of the highest pediatric asthma hospitalization rates in the country.

Methods

Only patients older than 36 months at time of initial assessment were included in these analyses. Data were collected using a two-page assessment designed by the CAI which adapts the NAEPP asthma practice guidelines for use in a busy primary care setting. Comparisons of severity at initial and follow up assessment (mean interval, 3.4 months) were made using NAEPP symptom criteria. Use of controller medication on intake, discharge and follow-up was also compared. Additional measures of asthma morbidity tracked include use of emergency department, hospitalization, and school attendance.

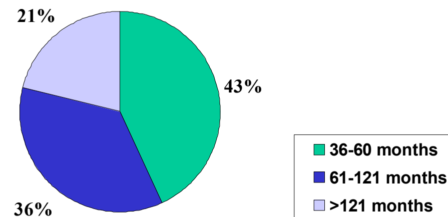
Results

The mean age of patients was 86 months (range, 37-224 months). At initial assessment, 21% of the patients were mild intermittent, 20% were mild persistent, 35% moderate persistent and 24% severe persistent. At follow up assessment, improvement was defined as a lowering of asthma step. A patient whose step remained the same was not considered to have improved. At follow up, the mild-persistent patients did not show the same rate of improvement as did patients with moderate- or severe-persistent asthma. These data are summarized in the table below:

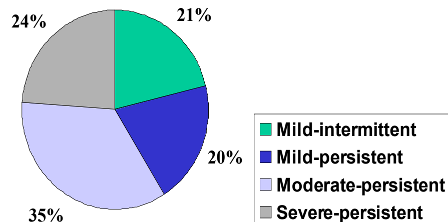
Asthma Step at Follow-up Visit, Patients with Persistent Asthma

	Follow-up			
Initial	1	2	3	4
2	38%	21%	18%	23%
3	39%	13%	42%	6%
4	24%	22%	25%	29%

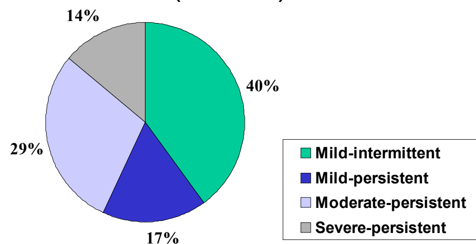
AGE AT INITIAL VISIT
(N=200, mean=86 months)



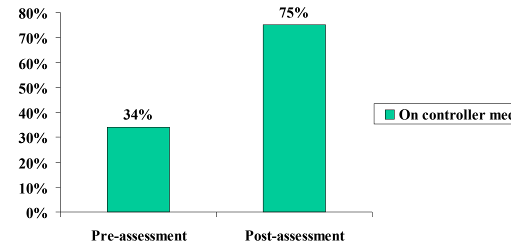
INITIAL ASTHMA SEVERITY
(N=200)



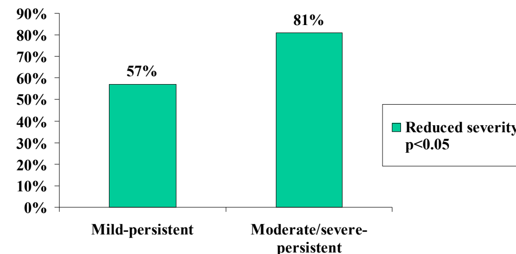
FOLLOW-UP ASTHMA SEVERITY
(N=200)



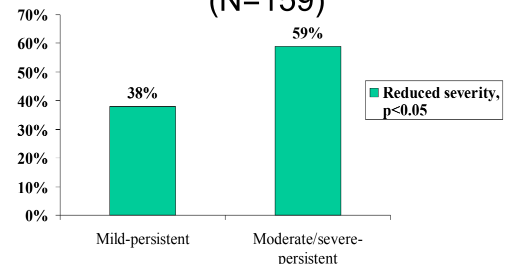
PERSISTENT ASTHMA: ON CONTROLLER, INITIAL VISIT
(N=159)



PERSISTENT ASTHMA: DISCHARGED W/ CONTROLLER, INITIAL VISIT (N=159)



PERSISTENT ASTHMA: IMPROVEMENT AT F/U
(N=159)



Results (cont'd)

Of the patients with persistent asthma (n=159), only 34% were adequately treated prior to CAI assessment. After the initial assessment, 81% of the moderate/ severe persistent group were prescribed controllers compared with only 57% of the mild persistent group. In the moderate/ severe group, 59% of patients improved while only 38% of the mild persistent patients showed improvement ($p<0.05$). The mild-persistent and moderate/severe-persistent groups were closely matched for age and follow up interval.

Conclusions

In our population, there appears to be a relationship between lack of a controller medication post-assessment and less improvement on follow up for patients with persistent asthma. We speculate that there is a reluctance on the part of the medical provider to prescribe controllers to patients with mild-persistent asthma. Reasons for this may include lack of familiarity with or failure to implement the current NAEPP guidelines. Alternatively, parents of children with mild-persistent symptoms may not perceive the asthma symptoms as serious and not administer medication. This may have potentially serious consequences for young children who will experience years of airway remodeling without the benefit of inhaled steroids. This is especially important in a homeless or other medically underserved population where there is often little continuity of care . With this trend, we might expect to see worsening symptoms as well as an increased frequency of emergency visits and hospitalizations in the mild persistent group over time.

Limitations

Limitations of this analysis include a short follow up interval of ~3 months. Emergency department and hospitalization use cannot be extrapolated for individual patients. Another limitation of the severity classification scheme is that spirometry data and beta agonist use are not incorporated into the assessment of severity

[1] DE McLean, S Bowen, A Rowe, P Sherman, K Drezner, S Schroeder, K Redlener, I Redlener. High asthma prevalence among homeless children in NYC. American Journal of Respiratory and Critical Care Medicine,1999;159(3), A 143.

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