



Clinical Profile of Persistent Asthma in Children Attending Tertiary Care Academic institute In South India

Bindusha. S

Associate Professor, Department of Pediatrics, Govt. Medical College, Thiruvananthapuram

Susy Joseph

Associate Professor, Department of Pediatrics, Government Medical College, Thiruvananthapuram, Kerala

Vijayakumar. B

Additional professor, Department of Pediatrics, Government Medical College, Thiruvananthapuram, Kerala

ABSTRACT

Objectives: To study the clinical profile of children with persistent asthma and the response of persistent asthma to inhaled corticosteroids. **Methods:** Descriptive study done among children with persistent asthma, who were using inhaled steroids for at least 6 months at the time of study. **Results:** 185 children with persistent asthma were studied. 116 were male and 69 were females. Mean age was 7.2 ± 3.12 years, height 1.18 ± 0.2 metres and BMI 15.2 ± 2.4 . Mean age of onset of asthma symptoms was 2.3 years. 70% had onset of asthma symptoms before the age of 3 years. Allergic rhinitis was the most common association found. 67% needed only inhaled corticosteroids for control of their disease, whereas 33% required additional drugs for control. The mean duration of inhaled steroids use was 2.2 years. 84.9% required inhaled steroids ≥ 400 mcg/day for the control of symptoms. 93% of children had good control of their asthma symptoms.

KEYWORDS : Pediatric asthma, persistent asthma, asthma control, inhaled steroids.

Asthma is the most common chronic inflammatory disease of childhood. The prevalence and incidence of asthma is increasing over years. It is the most common cause for emergency room visits and missed school days. Asthma is a clinical diagnosis made on the basis of patient's medical history, physical examination, assessment of the reversibility of airway obstruction, and exclusion of alternative diagnoses that mimic asthma¹. Persistent asthma is defined by NAEPP by presence of asthma symptoms and need for reliever drugs on more than 2 days per week, night time awakenings and interference with normal activity. Severity of the asthma is the factor that determines the response to medicine. Asthma which responds to low dose of inhaled steroids will be less severe than one which needs medium dose inhaled steroids for control.

Materials & Methods

Objective:

To study the clinical profile of children with persistent asthma
To study the response of persistent asthma to inhaled corticosteroids.

Study period:

1 year; July 2012 – July 2013

Setting:

Asthma clinic of a tertiary care academic institute

Study Population:

Children between 1 – 14 years of age attending the asthma clinic

Inclusion criteria:

Children with persistent asthma in the age group of 1 – 14 years, who are on inhaled steroids for 6 months or more at the time of study.

Exclusion criteria:

Children with intermittent asthma, Children with asthma who are on inhaled steroids for less than 6 months duration, Children who have other co morbidities Infants and children above 14 years

Study design:

Descriptive study
Children attending the asthma clinic, who satisfied the inclusion criteria, were examined and their parents were interviewed with the help of a predefined proforma. Parents of all children had received a standard asthma education during the initial visit in the clinic, which

is reinforced at subsequent visits. They were also given the asthma action plan and a standard symptoms diary. Control of asthma symptoms was analyzed by examining the symptoms diary maintained by the parents. GINA definition of asthma control was used to determine the disease control. The observations were analyzed using SPSS version 20.

The study was conducted after obtaining the approval of Institutional Ethics Committee.

Observations & results

185 children with persistent bronchial asthma, who were on inhaled corticosteroids for more than 6 months, were studied. The study group consisted of 116 boys and 69 girls. Mean age was 7.2 ± 3.12 years. Mean height was 1.18 ± 0.2 metres, and BMI was 15.2 ± 2.4 .

Mean age of onset of asthma symptoms was 2.3 ± 2.25 years. 73 children (39.5%) had onset of disease in their infancy, 63 children (34%) had onset of disease between 1- 3 years. 36 children (19%) had onset of symptoms between 3-6 years of age and 13 children (7%) beyond 7 years of age. 136 children had onset of symptoms (73.5%) below 3 years of age.

44 children (23.7%) had mild persistent asthma, 137 (74%) had moderate persistent asthma and 4 children (2.3%) had severe persistent asthma. 124 children (70%) did not have any other allergic disease. 55 children had allergic rhinitis (30%). 11 children had allergic conjunctivitis in addition to rhinitis (6%) and 5 had atopic dermatitis in addition to rhinitis (2.7%) 98 children (53.6%) did not have any family history of allergic diseases. 77 children (41.6%) had at least one first degree relative with asthma. 27 children (14.6%) had family history of allergic rhino conjunctivitis. 7 children (3.8%) had family history of atopic dermatitis. 18 children (9.7%) had family history of both allergic rhinitis and asthma. 5 children (2.7%) had family history of asthma, rhinitis and atopic dermatitis.

124 children (67%) needed inhaled corticosteroids alone for symptom control; whereas 61(33%) needed inhaled steroids and long acting beta agonists for symptom control. 6 children (3.2%) were also on leukotriene receptor modifiers in addition to inhaled corticosteroids and Long acting beta agonists.

Median duration of inhaled steroid use was 2.2 ± 1.56 years. 53 children (28.6%) were using inhaled steroids for a duration between 6 months to 1 yr, 53 children (28.6%) were using inhaled steroids for

a duration between 1 to 2 years, 40 children (21.6%) 2 to 3 years, 19 children (10.2%) 3 to 4 years, 9 children (4.9%) 4 to 5 years. 7 children (3.4%) were using inhaled steroids for more than 5 years duration.

102 children (55.1%) were using inhaled steroids at a dose ≥ 400 mcg per day and 83 (44.9%) were using inhaled steroids below 400 mcg per day at the time of study. 28 children (15.1%) achieved symptom control on doses less than 400 mcg per day. 157 children (84.9%) needed inhaled steroids 400 mcg per day or more for control, among which 55 children (35%) were tapered to dose below 400 mcg per day.

Table 1. Age of onset, type of asthma and drugs needed for control

Age of onset of symptoms	N (%)
Infancy	73(40%)
1- 3 years	63(34%)
3 - 6 years	36(19%)
>7 years	13(7%)
Type of asthma	N (%)
Mild persistent	44 (23.8%)
Moderate persistent	137 (74%)
Severe persistent	4 (2.2%)
Dose of ICS needed for control	N (%)
> 400 mcg per day	102 (55%)
Tapered to <400 mcg per day	55 (29.7%)
controlled at < 400 mcg per day	28 (15.3%)
Drugs needed for asthma control	N (%)
ICS alone	124 (67%)
ICS + LABA	55(30%)
ICS + LABA+ Others	6(3%)

172 children (93%) did not have any exacerbation during the previous month, 13 children (7%) had recent exacerbations and 4 children (2.2%) needed systemic steroids within the previous one month. 163 children (88%) did not need reliever drugs in the previous month. 11 children (5.9%) needed reliever drugs up to 2days/week. 11 children (5.9%) needed reliever drugs for more than 2 days in a week.

168 children (91%) did not report any side effects after starting inhaled corticosteroids. 10 (5.4%) gave history of oral thrush and 6 (3.2%) gave history of hoarseness of voice.

Discussion:

Bąk-Walczak E. et al. (2011) studied 907 children between 5 – 18 years in Poland with persistent bronchial asthma. 62% of children had family history of atopy, 77% had allergic rhinitis and 49% had atopic dermatitis in their study. They also demonstrated a gradual decrease in the age of patients referred to the asthma clinic over years (Bąk-Walczak E. et al.2011) Gilbert A Friday et al. studied the clinical profile of children requiring emergency treatment of asthma in Pennsylvania. They found that two thirds of patients requiring emergency asthma treatment were younger than 5 years. 70% of these children also had a positive family history of bronchial asthma (Friday G A et al 1997). Family history of asthma and other allergic diseases, and co- occurrence of other allergic diseases were lesser in our study compared to these studies. This may be due to the younger age of our study population. 73% of children in the present study had onset of symptoms of asthma before 3 years of age. Some of our patients may belong to the ‘transient early onset wheezer’ group, which does not have a strong family history. Welch M J et al studied the clinical profile of children attending the asthma camps and found that 37% of children had inadequately controlled asthma (Welch M. J. et al 2007) They also found that children who had attended asthma camp the previous year reported better use of asthma management tools, were more likely to be using controller therapy, and had more responsibility for taking their medication. Gustafsson et al reviewed worldwide large population epidemiological surveys and clinical asthma studies involving more

than 20,000 children (Gustafsson P. M. et al 2006). They found that asthma control falls short of guideline recommendations in large proportions of children with asthma worldwide. They concluded that underuse of inhaled corticosteroids even in children with moderate or severe persistent asthma and over-reliance on rescue medication is prevalent worldwide. They also found that both parents and physicians generally overestimate asthma control and have low expectations about the level of achievable control. They found that many children with asthma are not being managed in accordance with guidelines, and asthma management practices vary widely between countries.

Present study was conducted among a group of children who regularly attend the asthma clinic in a tertiary level teaching hospital at 3 monthly intervals, and hence receive asthma education at least once in 3 months. Parents of all children enrolled for the study were maintaining symptoms diary, which is the tool used to assess asthma control. 93% of children in our study had good control of asthma symptoms. This demonstrates that most of the children with persistent asthma can attain good control of symptoms with inhaled steroids, if they are regularly followed up and given frequent asthma education including asthma action plan. Conclusion: Most of the children with persistent asthma can achieve good control of symptoms with inhaled steroids alone, if coupled with a good asthma education programme and adherence to asthma action plan.

References

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