International Journal of Contemporary Pediatrics
Xavier G et al. Int J Contemp Pediatr. 2025 Jan;12(1):24-27
http://www.ijpediatrics.com
pISSN 2349-3283 | eISSN 2349-3291

DOI: https://dx.doi.org/10.18203/2349-3291.ijcp20243849

Original Research Article

Clinical and sociodemographic profile of asthma and attitude of parents towards inhaled corticosteroid use in children

Gibi Xavier*, O. Jose

Department of Paediatrics. Govt T. D. Medical College Alappuzha Kerala, India

Received: 09 September 2024
Revised: 11 October 2024
Accepted: 21 November 2024

***Correspondence:**
Dr. Gibi Xavier,
E-mail: gibisebi@gmail.com

ABSTRACT

Background: To find out the clinical and socio demographic profile of asthma in 6–12-year-old children and also to understand the knowledge, attitude and practices of parents regarding the ICS use in a tertiary care centre, Alappuzha Kerala.
Methods: Hospital based cross-sectional study, over a period of 1 year. Ethical committee clearance obtained. 141 children were selected from the asthma clinic, based on Inclusion and exclusion criteria. Questionnaire was given to parents, and methods of using MDI checked and corrected.
Results: Most common reason for exacerbation of asthma are exposure to indoor air pollutants and viral infections. A major share of parents showing reluctance for using ICS due to fear of side effects. So usually using for a short course only, not as prescribed.
Conclusions: The adherence of using ICS can be improved by parent-doctor communication and demonstrating the use of inhaler and its importance in asthma.

Keywords: Asthma, Inhaled corticosteroids, Cross-sectional study

INTRODUCTION

Bronchial asthma is a chronic inflammatory condition of the lung airway, which cause hyperresponsiveness leading to recurrent episodes of wheezing, breathlessness, chest tightness and cough.[1,2] In children it leads to exercise limitation, school absenteeism and can add to the economic burden at the family. To control this burden of asthma, many efforts are going on worldwide, GINA publishing management guidelines annually.[1] The management of asthma depends on drugs as well as non-pharmacological management (avoidance of triggers, compliance to drugs). The recommended drugs for treatment are inhaled corticosteroids. But most parents are not preferring ICS for their children, may be due to misconceptions about the use. This study aims at finding out the sociodemographic profile of asthma in patients attending Asthma clinic of Govt T.D. Medical College, Alappuzha and also find out the cause of reluctance of parents to use ICS, which can reduce compliance and can lead to persistent or recurrent disease.

METHODS

Study design

Hospital based cross sectional study.

Study place

Govt. T. D. Medical College, Alappuzha. Asthma clinic, pediatric department.

Study duration

The study period was of 1 year after obtaining ethical committee clearance from May 2018 to April 2019.

Procedure of study

After obtaining ethical committee clearance started the study in 2018 may. The samples selected were the children attending the asthma clinic in Government T.D. Medical College Alappuzha. 170 children were registered in the asthma clinic at that time.141 children were selected from the asthma clinic, based on Inclusion and exclusion criteria.

Inclusion criteria

Children aged 6-12 years, Using inhaled corticosteroids, Parents and children are willing to take part in the study

Exclusion criteria

Children with cardiac diseases, renal diseases, obesity, immunodeficiency, chronic lung diseases other than asthma were excluded.

The clinical and sociodemographic details are collected with the help of questionnaire and physical examination of subjects. Anthropometric variables were measured using weighing machine ,non stretchable tape and stadiometer. Knowledge, attitude and practice regarding inhaler use is assessed by questionnaire and direct observation.

Statistical analysis

Data presented in tables and pie charts and assessed using chisquare test. SPSS software was used for data analysis.

RESULTS

The children included in the study are aged between 6-12 years, were categories based on their age of disease on set. Most of them had onset of asthma before 3 years of age early onset wheezers (61%). When categorized according to the gender of the study population, almost equal incidence noted.50.4% were males and 49.6% were females. Among the triggers for asthma exacerbation, viral infection was found to be the most common trigger among the study population, which includes about 81% of patients. When classified according to the severity of symptoms, most common type of asthma among our study population is mild persistent asthma which constitute around 59% of study population. 98% population of the study have past history of hospital admissions at least once for respiratory symptoms.

All children included in the study are taking inhaled corticosteroids, most of them are using it for 3-6 months, only 13% of the study population are using it for more than one year. Most of the children included in the study were term babies at birth, pre terms constitute only 18%. Most of the children included in the study had a normal birthweight, 60% had weight between 2.5-4 kg, 36% of the study population was low birthweight babies. A major share children included in the study had an uneventful perinatal period,16% were low birthweight and 13% required ICU admission.62% of the study population were exclusively breast fed during the first 6 months of their life. Out of the total 141 study population 111 children had a family history of asthma.

Table 1: Severity of symptoms of asthma.

	Frequency	%
Intermittent	9	6.40
Persistent -mild	83	58.90
Persistent-moderate	41	29.10
Persistent-severe	8	5.70
Total	141	100

Table 2: Comorbidities of asthma.

	Frequency	%
GERD	20	14.2
Allergic rhinitis	98	69.5
Sinusitis	60	42.6
Obesity	21	14.9
Anxiety and depression	4	2.8
No comorbidities	19	13.5

Table 3: Knowledge regarding the use of inhaler.

	Frequency	%
Inhaler with spacer	94	66.7
Explanation by doctor	111	78.7
Changing inhaler device	86	61
2 Different medicines	53	37.6
ICS better	52	36.9

Table 4: Reason for not using inhalers.

Reason	Frequency	%
Fear of side effects	57	45.6
Difficulty in using	24	19.2
Thinking it is not needed during disease free periods	67	53.6
Cost	4	3.2
Social stigma	35	28

Table 5: Assessment of practice of using ICS.

	Yes		No	
	Frequency	**%**	**Frequency**	**%**
Step A	112	79.4	29	20.6
Step B	120	85.1	21	14.9
Step C	57	40.4	84	59.6
Step D	19	13.5	122	86.5
Step E	120	85.1	21	14.9%
Step F	91	64.5	50	35.5%
Step G	50	35.5	91	64.5%

Table 6: Association between father's education and reluctance to use ICS.

		Reluctance to use ICS		Total
		Yes	No	
Father's education	Below SSLC	44	1	45
	SSLC	42	13	55
	Plus, Two/ITI/ITC	38	2	40
	Degree/Diploma	1	0	1
Total		125	16	141

Table 7: Association between mother's education and reluctance to use ICS.

		Reluctance to use ICS		Total
		Yes	No	
Mother's education	Below SSLC	38	2	40
	SSLC	42	9	51
	Plus, Two/ITI/ITC	26	5	31
	Degree/Diploma	19	0	19
Total		125	16	141

The most common comorbidity among the study population is allergic rhinitis, followed by sinusitis. 65% of the study population are coming from low-income families, that is below poverty line according to the national standards. Most of the male guardians of children studied up to secondary school or below it. Mothers have a better educational qualification than fathers of children included in the study, but even then, most of them are studied up to senior secondary or below it.

The location of the child's house is important because it constitute an important factor called outdoor pollutants, most of the houses of the study population are located near the road or railway line, thus dust may be a major trigger Among the study population agarbathi smoke exposure followed by firewood smoke exposure are the important indoor air pollutants, most of the study population had multiple indoor triggers. Most of the parents included in the study (69.5%) are thinking that ICS is used as a reliver of acute asthma exacerbations, they don't think it can be used to prevent frequent exacerbations.

111 among the study population give a history that a doctor/health care provider explained them about the method of using inhaler,94 people are using inhaler along with a spacer as prescribed, 86 of them are changing their inhaler devices periodically, but almost half of them are not thinking that ICS is better than other drugs in asthma control, and almost half doesn't know that two different medications are used in acute exacerbation and regular asthma control. Most of the parents are thinking that oral medication is better than ICS in asthma control, only 40% are having a favorable attitude towards the inhaled corticosteroids. Most of the parents of children included in the study were not willing to use ICS when prescribed for the first time.

Most of the parents included in the study are thinking that inhaler devices are meant to be used only when the child have breathing difficulty, they are not willing to use it during disease free periods.

Most of the parents are worried about the side effects of ICS, they think that it can cause short stature and decreased bone strength. A major share of parents (44.7%) thinks that using corticosteroids, even as inhaled medication causes short stature and 32.6% people think that it will cause increased weight gain, and reduced bone strength (22.7%). 8.5% people think that continuous use may lead to addiction.

Step a) shaking the inhaler device before fixing it into spacer. Step b) tightly fixing the mask/spacer on to the child's mouth (covering the nose and mouth with mask completely). Step c) after spraying the inhaler to keep the spacer or mask in the same position for at least 30 seconds or until slowly counting up to ten. Step d) if more than one puff is needed take out the mdi an shake it before every puff needed. Step e) clean the device at least once in a month in running tap water and drip dry it. Step f) are you using any detergent or soap to clean the device.

For assessment of method of using the inhaler, the steps are explained as mentioned above. each parent/child were asked to demonstrate the use of MDI. The results were as mentioned in Table 4. When asked about the compliance to medication,57.4% of the study population are giving a history that they are not using ICS regularly as prescribed by the doctor, they stopped it before the prescribed time period or using it intermittently only.

According to chi-square test $p=0.003<0.05$, so there is statistically significant association between father's education and reluctance to use ICS.

According to chi-square test $p=0.08>0.05$, so there is no statistically significant association between mother's education and reluctance to use ICS. According to chi-square test $p=0.002<0.05$, so there is statistically significant association between father's education and compliance to use medication. According to chi-square test $p<0.0001$, so there is statistically significant association between mother's education and compliance.

DISCUSSION

The study was conducted in Govt T.D. Medical College, Vandana, Alappuzha from April 2018 to April 2019. 141 children were included in the study, all are aged below 12 years and are using ICS. 61.7% of children have disease onset before 3 years of age. Study shows almost equal

Male to female ratio. Previous studies show a male predominance up to 2:1, but the ratio reverses in adults.[10]

Previous studies suggest that preterm delivery is significant risk factor in childhood asthma.[8] In the present study 18.4% are preterm babies. Preterm babies need more hospital admission compared to term babies.[8] In this study, low socio-economic status and low education and status of parents found to have statistically significant association.

High socio-economic status is also a risk factor in some studies.[9] Father's education, have a statistically significant association to the reluctance to use of ICS. Fathers and mother's education have statistically significant association to the compliance to medication. 78.7% of children have family history of asthma and 62.4% have family history of allergic rhinitis.

114 children give a history of dietary restriction due to asthma most are restricted on milk and milk products, egg, Fruits like orange.[6] Rural residency or dirty area is a significant risk factor for asthma.[4] In our study, 27.7% of children are living in houses in which wall not plastered well, the most common location of house near road/railway line. Agarbathi, mosquito coil smoke and passive smoking are major indoor pollutants.

About the knowledge of using ICS most of parents think ICS is used as reliever only, not as controller which is to be used regularly (70%) (61). Only 66.7% are using spacer as prescribed. Only 37.6% of study population know there are two different medicines (SABA and ICS). 36.9% only think that ICS is a better medicine in control of asthma. 76.8% of parents give history of doctor or health worker explained them about using ICS. This is high compared to previous studies.[4]

Only 39.7% think that ICS are better than oral medication is controlling asthma, and 67% still prefer oral drugs.[3] 53.6% think that continuous ICS use is not needed, as it may lead to side effects. Social stigma is the next most common cause, followed by cost of inhaler. According to the study by chan et al, the most common factors of not using inhaler medications among parents are fear of side effects, inhaler dependency and cost of inhaler.[4]

About practice, most of them are shake devices before fixing to spacers (79.4%) and using proper size masks (85.1%). But around 60% are not keeping it over face for 30 sec or slowly counting up to 10. About 65% of them are cleaning inside of spacer with soap and water (65%) or wiping inside with cloth (35.5%). The wrong practices in ICS can affect the quality of treatment.[7]

Sample size limited. No significant association between perinatal history such as low birth weight and perinatal oxygen requirement to asthma obtained, may be due to limited sample size.

CONCLUSION

Indoor air pollutants and viral infections and most common triggers of asthma. A major share of parents are not thinking that ICS is a good mode of treatment and are feared of the side effects, not using ICS in disease free periods. Educational of status of parents is very important in adherence to treatment, less educated parents are more reluctant. Regular follow up and regular review of technique of ICS use is as important as prescribing ICS, otherwise it will affect treatment quality.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Pocket guide for Asthma Management and Prevention-Global initiative for asthma –GINA.
2. Andrew H. Liu, Joseph D. Spahn, Spahn, Scott H. Sicherer. Nelson textbook of paediatrics. 21st ed; 2014: 1186-209.
3. Rosas-Salazar C, Ramratnam SK, Brehm JM, Han Y-Acosta-Pérez E, Alvarez M. Parental numeracy and asthma exacerbations in Puerto Rican children. Chest. 2013;144(1):92-8.
4. Chan PW, DeBruyne JA. Parental concern towards the use of inhaled therapy in children with chronic asthma.Pediatr Int Off J Pediatr Soc. 2000;42(5):547-51.
5. Partridge MR, Hill SR. Enhancing care for people with asthma: the role of communication, educat ion, training and self-management. 1998 world asthma meeting education delivery of care working group. Eur Respir J 2000;16(2):333-48.
6. McKeever TM, Britton J. Diet and Asthma. Am J Respir Crit Care Med 2004;170(7):725-9.
7. Agarwal R, Aggarwal AN, Gupta D, Jindal SK. Inhaled corticosteroids vs placebo for preventing COPD exacerbations:a systematic review and meta regression of randomised controlled trials. Chest. 2010;137(2):318-25.
8. Jaakkola JJK, Ahmed P, Ieromnimon A, Goepfert P, Laiou E, Quansah R, et al. Preterm delivery and asthma: a systematic review and meta-analysis. J Allergy Clin Immunol. 2006;118(4):823-30.
9. Bhalla K, Nehra D, Nanda S. Prevalance of bronchial asthma and its associated risk factors in school-going adolescents in Tier –III North Indian City.J Family Med Prim Care. 2018;7(6):1452-7.
10. Losappio. Characteristics of patients admitted to emergency department for asthma attack: a real-life study". BMC. 2019;19:107.

Cite this article as: Xavier G, Jose O. Clinical and sociodemographic profile of asthma and attitude of parents towards inhaled corticosteroid use in children. Int J Contemp Pediatr 2025;12:24-7.