Research Article

Assessment of Growth and Psychosocial Problems of Children with Bronchial Asthma

V. Remya[1], P. Deepa[2]

[1]Department of Child Health Nursing, Government College of Nursing, Thiruvananthapuram, Kerala, India, [2]Department of Child Health Nursing, Government College of Nursing, Alappuzha, Kerala, India

Abstract

Aim: The aim of the study was to assess the growth and psychosocial problems of children with bronchial asthma.

Background: India establishes 3–5% of the global burden on childhood asthma. Psychosocial problems such as emotional, behavioral, and educational problems are highly prevalent among children and can severely interfere with everyday functioning.

Methods: A descriptive cross-sectional study design was used. It was conducted among 140 children with bronchial asthma between the age group of 4–12 years and their caregivers who satisfied the sampling criteria. The tools used were socio-personal and clinical data sheet, an anthropometric measurement sheet, and Pediatric Symptom Checklist.

Results: In growth monitoring, 11.4% of children had stunting, 6% of children were above the 97th percentile of height, 7.1% of children were underweight and 1.5% of children were above the 97th percentile of weight. It was found that 4.3% of children were having difficulty in psychosocial functioning. It was also seen that 12.9%, 4.3%, and 5% of children were having difficulty functioning in the domains of internalizing, attention, and externalizing, respectively.

Conclusion: Early detection and management of growth problems and psychosocial dysfunction are essential to prevent growth faltering and abnormal psychosocial development of children with bronchial asthma.

Keywords: Children with bronchial asthma, growth, psychosocial functioning

Introduction

Bronchial asthma is one of the most common chronic illnesses during childhood. Studies have shown that emotional and behavioral disorders are more common in children with bronchial asthma. Psychosocial problems such as emotional, behavioral, and educational problems are highly prevalent among children and can severely interfere with everyday functioning. Only a minority of the children with such problems receive special attention and care.[1]

A retrospective study was conducted in Russia in 2017 to identify the severity of asthma on physical development among children. A total of 1042 children with bronchial asthma were evaluated in comparison with a healthy population. All children underwent a standard examination in a clinical setting, including anthropometric measurements. The study showed that 63.5% of children with bronchial asthma had normal physical development. Decreased body height is revealed in 10.1% of patients, among them, 1.6% had low tallness. Boys have decreased body height in 9.2% of cases and low tallness was revealed in 1.4% of cases. Among girls, decreased level of physical development was seen in 12.7% of patients, among

Date of Submission: 14-11-2022
Date of Revision: 22-11-2022
Date of Acceptance: 25-11-2022

Access this article online
Website: http://innovationalpublishers.com/Journal/ijns
ISSN No: 2454-4906
DOI: ***

Address for Correspondence:
Dr. P. Deepa, Department of Child Health Nursing, Government College of Nursing, Alappuzha, Kerala, India. E-mail: babaji2006@hotmail.com

them, 2.2% of them had significantly low tallness and 5.8% cases show underweight as per their age.[2]

In another study done in Calicut to identify the nutritional status of children with bronchial asthma, it was concluded that the nutritional assessment of the children is important to prevent growth problems at the early stages. The study revealed that 75% of children with bronchial asthma had a history of poor weight gain and nutritional insufficiency due to severity of symptoms and exacerbation of asthma.[3]

A study conducted in Maharashtra, India to assess the psychosocial impairment among children with bronchial asthma revealed that, out of 70 participants, 21 (30%) had psychosocial impairment. On further analysis of individual items in the standardized tool, various aspects of psychosocial impairment were highlighted. It was found that 59% had complaints of aches and pain, 56% of participants got tired easily, 59% got easily distracted, 47% manifested with easy irritability, 45% showed features of regression in developmental age, and 49% had self-centered attitude.[4]

A comparative study conducted in Calicut, Kerala, to find out the temperamental traits and psychological problems of children with bronchial asthma revealed that 69% of children in the study group showed significantly more behavior problems, conduct problems, anxiety, depression, and emotional problems compared to children in the control group.[5]

India establishes 3–5% of the global burden toward childhood asthma. About 139.45 billion Indian rupees have been estimated for asthma treatment per year, while it is 802.02 billion Indian rupees for nutrition deficiency management. Nutrition appears to be the governing factor of asthma. Over one-third of child mortality is due to undernutrition and is strongly associated with the increased severity of the disease. The combined burden of chronic illness, psychosocial impairment, and poverty in our country has an impact on the quality of life of these children and their families. Hence, these findings clearly suggest a need for an early biopsychosocial approach to care for these vulnerable children with bronchial asthma.[6]

Research studies among children with bronchial asthma are relevant and early detection of complications in growth and psychosocial aspects of children will help to initiate nursing strategies in levels of the primary or secondary prevention.

Objectives

The objectives are to assess the growth and psychosocial problems of children with bronchial asthma. The researchers also intend to find out the association of growth and psychosocial problems, with sociodemographic and clinical variables of children with bronchial asthma.

Material and Methods

A quantitative approach with a cross-sectional survey design was adopted for the study. The sample included 140 children with bronchial asthma and their caregivers attending the pediatric asthma clinic of a tertiary care center in Alappuzha. Children diagnosed with bronchial asthma whose caregivers were willing to take part in the study were included in the study. Children diagnosed with bronchial asthma having comorbidities – mentally challenged, autism, congenital heart diseases, seizure disorders, cerebral palsy, and cancer, having a history of previous intracranial infections, having a history of premature birth, and who were not cooperative for assessment were excluded from the study.

A socio-personal and clinical data sheet were used to collect the demographic data by interviewing caregivers of children with bronchial asthma and reviewing clinical records. Anthropometric measurement sheets and WHO 2006 and IAP 2015 combined growth charts were used to collect the weight and height of the children. A weighing machine and stature meter were used. The Pediatric Symptom Checklist-17 (PSC-17) which was originally developed by Jellinek *et al*. in 1988 and created by Gardner and K Kelleher, in 1999, was used to collect the psychosocial problems of children as self-report from mothers.

A pilot study was done among 14 children and minor modifications were done in the socio-personal and clinical data sheet.

Permissions were obtained from the Scientific Review Committee, Institutional Ethics Committee, and the hospital authorities. Children and their caregivers were selected based on the inclusion and exclusion criteria. The assent was obtained from children above 7 years. The purpose of the study was explained to the caregivers. The children and caregivers were seated comfortably in the outpatient department. The signed consents were obtained from caregivers of children with Bronchial asthma. Socio-personal and clinical data were collected by interviewing the caregivers and by reviewing the clinical records. It took 8–10 min. The height and weight of the children were measured by a stature meter and weighing machine, respectively. It took 5–10 min for a child. PSC-17 was used to assess the psychosocial functioning of children by self-report from caregivers and it took around 15–20 min. The time taken for data collection for each child and caregiver was 30–40 min. The data were entered in SPSS and analyzed. The weight and height were categorized as per IAP growth charts.

Statistics

Socio-personal and clinical data were analyzed using frequencies and percentages. Association of growth and psychosocial problems with sociodemographic and clinical variables was analyzed using Chi-square test.

Results

It was found that 45.7% of the children belonged to the age group of 4–6 years and 37.9% of the children were in the age group of 7–9 years. The mean age of the children was 7.10 years with a standard deviation of 2.09 years. It was clear that 60 % of children were males. It was found that 62.9 % of the children belonged to families with BPL status.

It was found that 48.6% of children were having a mixed diet and 25% of children were taking a pisco vegetarian diet. Regarding the system of medicine adopted, 68.6 % of children were taking medicines other than modern medicine.

Among the 140 children, 76.4 % of children had 1–3 years of disease duration. It was also observed that 72.1% of children had a history of bronchial asthma in their family.

It was seen that 40.7 % of children had moderate persistent asthma and 11.4 % of children had severe persistent asthma. About 22.2% of children had PEFR values <60%.

Table 1 shows that 11.4 % of children had a height for age less than the 3rd percentile (Stunting) and 4.3% of children were above the 97th percentile of height.

From Table 2, it is clear that 7.1% of children were below the 3rd percentile (underweight) of weight and 1.5% of children were above the 97th percentile of weight.

The assessment of psychosocial functioning was done using PSC-17. A score of ≥15 is considered a positive (Difficulty in psychosocial functioning or presence of psychosocial problems) and a score of <15 is considered to be a negative score (No difficulty in psychosocial functioning or absence of psychosocial problems). It was found that the mean score of psychosocial functioning of children with bronchial asthma was 7.58 with a standard deviation of 4.32. The mean and standard deviation in the domain of internalizing in PSC-17 were 2.57 and 1.83, the mean and standard deviation in the domain of attention in PSC-17 were 2.47 and 1.85, and the mean and standard deviation in the domain of externalizing in PSC-17 were 2.52 and 2.18, respectively.

Table 3 illustrates that 4.3 % of children were having difficulty in psychosocial functioning (had psychosocial problems) as per PSC-17 total scores. It was also seen that 12.9% of children had difficulty in functioning in the domain of internalizing, 4.3% of children had difficulty in functioning in the domain of attention, and 5% of children were found to have difficulty in functioning in the domain of externalizing.

There was a significant association between the height categories of the children with bronchial asthma and their age. Moreover, weight categories of the children with bronchial asthma and their sociodemographic variables such as the type of food taken by the child and the education of the father. There was a significant association between psychosocial problems and their sociodemographic variables such as the occupation and education of mother. There was a significant association between psychosocial problems and medications prescribed for asthma. There was a significant association between externalizing domain of psychosocial functioning and PEFR value of children with bronchial asthma.

Table 1: Frequency distribution and percentage of children with bronchial asthma based on height for age (*n*=140)

Height for age	f	%
>97th percentile (tall)	6	4.3
3rd–97th percentile (normal)	118	84.3
<3rd percentile (stunting)	16	11.4

Table 2: Frequency distribution and percentage of children with bronchial asthma based on weight for age (*n*=140)

Weight for age	f	%
>97th percentile (over weight)	2	1.5
3rd–97th percentile (normal)	128	91.4
<3rd percentile (underweight)	10	7.1

Table 3: Frequency distribution and percentage of children with bronchial asthma based on PSC-17 total scores (Psychosocial problem) (*n*=140)

PSC-17 total scores	f	%
Difficulty in psychosocial functioning (≥15) – presence of psychosocial problem	6	4.3
No difficulty in psychosocial functioning (<15) – absence of psychosocial problem	134	95.7

Discussion

In the present study, 60% of children with bronchial asthma were male. The study findings are congruent with the study conducted in Ernakulam district to assess the prevalence and factors associated with bronchial asthma among higher secondary school children which revealed that 56.1% of children were male.[7]

It was observed in the present study that 11% of children had severe persistent asthma. However, this finding is inconsistent with the study conducted in Maharashtra which showed that only 2.86% had severe persistent asthma.[4] A study done in Calicut showed that only 4% of children were suffering from severe persistent asthma. This finding is inconsistent with the present study finding.[5]

In the present study, the investigator observed that 7.1% of children were underweight. These findings were not congruent with the findings of a study conducted in Maharashtra which revealed that 53% were underweight.[8] Another study done in South India indicated that the prevalence of underweight among children with bronchial asthma was 3 times higher than in the normal population.[9] Another study from Tamilnadu revealed that 39.8% of children in the age group of 2–15 years had undernutrition and 5% had obesity.[10] These findings are not congruent with the present study finding. In states other than Kerala, the prevalence of underweight among children with bronchial asthma was increased. This can be attributed to the better health-care facilities and health management in Kerala. A study conducted in Calicut to assess the nutritional status of children in different types of schools in Kerala revealed that being underweight is more widespread affecting 46.3% and 65.5%, respectively.[11]

The present study found that 11.4% of children had stunting. A study conducted in Calicut to assess the nutritional status of children in different types of schools also revealed that stunting

is still a problem in schools in the backward areas affecting 12.9% of students.[11] This finding is in congruence with the present study findings.

In the present study, the mean score of psychosocial functioning was 7.58. This finding is well supported by a study conducted in Maharashtra which revealed that the mean score of psychosocial functioning was 7.81.[4]

The present study revealed that only 4.3% of children were having difficulty in psychosocial functioning as per the PSC-17 total scores. However, the study from Maharashtra showed that above 30% of children had difficulty in psychosocial functioning. This finding is discordant with the present study finding.[4]

There was a significant association between psychosocial problems and medications prescribed for asthma. These findings are not in agreement with the studies conducted in South India which found that the use of inhaled corticosteroids at low or medium daily doses was associated with a mean reduction of 0.48 cm per year in linear growth velocity and a 0.61 cm change from baseline in height during a 1-year treatment period in children with mild-to-moderate persistent asthma.[8]

Conclusion

Early detection and management of growth problems and psychosocial dysfunction are essential to prevent growth faltering and abnormal psychosocial development of children with bronchial asthma. It will help to initiate nursing strategies at the levels of primary, secondary, and tertiary prevention to enable them to lead a life with quality.

Funding

Self.

Conflicts of interest

No conflicts of interest.

Acknowledgments

Investigators express gratitude to the faculty of the institution, hospital authorities, children, and their parents for their support and cooperation.

References

1. Brugman E, Rejiniveld SA, Verhulst FC, Verloove-Vanhorick SP. Identification and management of psychosocial problems by preventive child care. Arch Pediatr Adolesc Med 2001;155:462-9.
2. Safa M, Mehrian P, Zad MH. Prevalence of depression in children with bronchial asthma. J Compr Pediatr 2014;5:e17327.
3. The Global Asthma Report; 2018. Available from: https://www.globalasthmareport.org [Last accessed on 2019 Apr 02].
4. Lalu JS, Rakesh PS, Leelamoni K. Prevalence of bronchial asthma and factors associated with it among higher secondary school children in Ernakulam district, Kerala, Southern India. J Fam Med Prim Care 2017;6:311-5.
5. Beevi AJ, Basheer M, Babu AA. National demand in Juvenile Asthmatics: A procession. Int J Contemp Med Res 2017;3:2454-7379.
6. Baum WF, Schneyer U, Lantzsch AM, Klöditz E. Delay of growth and development in children with bronchial asthma, atopic dermatitis and allergic rhinitis. Exp Clin Endocrinol Diabetes 2002;110:53-9.
7. Lalu JS, Rakesh PS, Leelamoni. Prevalence of bronchial asthma and factors associated with it among higher secondary school children in Ernakulam District, Kerala, South India. J Fam Med Prim Care 2017;6:311-5.
8. Kumar P, Ram U. Patterns, factors associated and morbidity burden of asthma in India. PLoS One 2017;12:e0185938.
9. Oberger E, Taranger J, Bruning B, Engström I, Karlberg J. Long-term treatment with corticosteroids/ACTH in asthmatic children. IV. Skeletal maturation. Acta Paediatr Scand. 1986;75:744-9.
10. Oland AA, Genery D, Bruce BB. Psychological and lifestyle risk factors for asthma exacerbations and morbidity in children. World Allergy Organ J 2017;10:35.
11. Rajasree S, Soman CR. Nutritional status of children in Kerala. Indian Pediatr 2005;2:651-3.

How to cite this article: Remya V, Deepa P. Assessment of Growth and Psychosocial Problems of Children with Bronchial Asthma. Indian J Nurs Sci 2022;7(4):94-97.