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Original Article

Knowledge and Practice of Caretakers Regarding the use of Metered-dose Inhaler in Children with Reactive Airway Disease

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Abstract

Aim: A study titled "knowledge and practice of caretakers regarding the use of metered-dose inhaler in children with reactive airway disease" is a descriptive study conducted on 101 caretakers of children seeking treatment in Sree Avittom Thirunal Hospital Thiruvananthapuram.

Objectives: The objectives of the study were to assess the knowledge and practice of caretakers regarding the use of metered-dose inhaler in children with reactive airway disease, to find the association between the knowledge and practice and to determine the association of knowledge and practice of caretakers regarding the use of metered-dose inhaler in children with selected sociodemographic and clinical variables.

Materials and Methods: The theoretical framework of the study was based on Nola J. Pender's Health Promotion Model. Data regarding caretaker's knowledge were assessed using interview schedule and practice through observation checklist.

Results: The study revealed that of the 101 caretakers 5% had good knowledge, 82.2% had moderate knowledge, and 12.8% had poor knowledge regarding metered-dose inhaler use. Of the 101 caretakers 8.9% had good practice, 54.5% had moderate practice, and 36.6% had poor practice of metered-dose inhaler use.

Conclusion: It was observed in the study that there was significant association between knowledge and practice of caretakers regarding the use of metered-dose inhaler.

Keywords: Knowledge, metered-dose inhaler, practice, reactive airway disease

Introduction

Bronchial asthma is an important public health problem at the global level. Bronchial asthma is not a disease confined only to the respiratory system but also has systemic effects. If not identified early, particularly in a child can lead to increased morbidity and mortality.[1] Bronchial asthma is one of the most common diseases of childhood. In India, mean prevalence of bronchial asthma in 6–7 age group children was found to be at 7.24% in a systematic review by Ranbir Pal and team. Around 4–20% of school going children in India suffer from asthma.[2]

According to Global Initiative for Asthma inhaler therapy has maximum therapeutic effect and minimum undesired effects. Inhalation technique together with medicine concordance, education, and motivation are important factors of symptom and disease control.[3]

The inhaled route is preferred for medication delivery as the incidence of side effect is lower than that seen in the use of parenteral drugs. Metered-dose inhaler with spacer is helpful in children. Incorrect inhaler technique is common among children which results in suboptimal disease control, raising risk of school absences, unnecessary increase in medication dosage, exacerbation requiring corticosteroid, and treatment of potential side effects.[4]

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Objectives of the study

1. Assess the knowledge and practice of caretakers regarding the use of metered-dose inhaler in children with reactive airway disease
2. Find out the association between knowledge and practice of caretakers regarding the use of metered-dose inhaler.

Materials and Methods

Research approach

The research approach in this study is quantitative.

Research design

The research design used in this study is descriptive.

Variables

Dependent variable

In this study, dependent variables include knowledge and practice regarding the use of metered-dose inhaler among the caretakers of children with reactive airway disease.

Independent variable

In this study, independent variables include sociodemographic data which include age, sex, education, socioeconomic status, and place of residence of caretakers and clinical data of children such as their age, education status, duration of illness, frequency of day and night symptoms, and duration of inhaler use.

Setting of the study

The study was confined to asthma clinic, ward 3 and ward 4 of the Department of Pediatric Medicine, Sree Avittom Thirunal Hospital, Thiruvananthapuram.

Study population

In this study, population refers to the caretakers of children with reactive airway disease using metered-dose inhaler.

Sample and sampling technique

In this study, the sample selected was the caretakers of children aged 2–12 years using metered-dose inhaler for reactive airway disease attending asthma clinic and admitted in ward 3 and 4 of Sree Avittom Thirunal Hospital, Thiruvananthapuram. Consecutive cases were collected from the asthma clinic.

Sample size

A total of 101 caretakers were selected.

Tools and techniques

Tools used in this study were structured interview schedule and observation checklist.

Description of the tool

Structured interview schedule

The structured interview schedule was used to assess the knowledge regarding metered inhaler use.

Observation checklist

The observation checklist was used to assess the practice of caretakers regarding the technique of inhaler use.

Data analysis

Frequency and percentage distribution were used to analyze social demographic and clinical variables. Karl Pearson correlation was used to find the association between knowledge and practice of metered inhaler use. Chi-square test was used to find out the correlation between the variables.

Results

Of the 101 caretakers, 5% had good knowledge, 82.2% had moderate knowledge and 12.8% had poor knowledge regarding metered-dose inhaler use [Figure 1]. Among the 101 caretakers, 8.9% had a good practice, 54.5% had moderate practice, and 36.6% had poor practice [Figure 2]. The present study shows significant association between knowledge and practice of caretakers regarding metered-dose inhaler ($r = 0.657$, $P = 0.000$) [Figures 3 and 4]. The study shows no association between gender and knowledge of caretakers regarding metered-dose inhalers (MDI) use ($\chi^2 = 0.25$, $P = 0.617$). It shows association between education and knowledge of caretakers regarding inhaler use ($\chi^2 = 12.53$, $P = 0.006$). It also shows association between knowledge of caretakers regarding inhaler use and frequency of day symptoms ($\chi^2 = 14.73$, $P = 0.005$) and night awakening after starting inhaler ($\chi^2 = 16.52$, $P = 0.002$). The study shows association between gender of caretakers and their practice of inhaler use ($\chi^2 = 4.7$, $P = 0.030$). The study shows association between caretakers practice of inhaler use and frequency of night awakening after starting inhaler ($\chi^2 = 9.54$, $P = 0.049$). The study also shows association between practice of inhaler use and regular use of inhaler ($\chi^2 = 4.32$, $P = 0.038$).

Figure 1 shows that 5% of caretakers had good knowledge regarding the use of metered-dose inhaler, 82.2% had moderate knowledge, and 12.9% had poor knowledge.

Figure 2 shows that 8.9% of caretakers had good practice of metered-dose inhaler use, 54.5% had moderate practice, and 36.6% had poor practice.

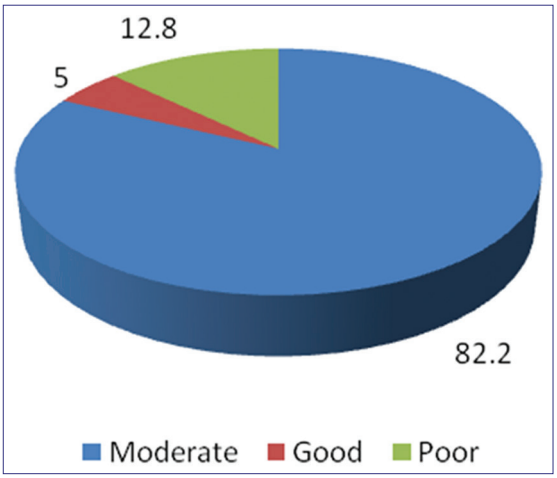

Figure 1: Distribution of knowledge of caretakers regarding metered-dose inhalers use ($n = 101$)

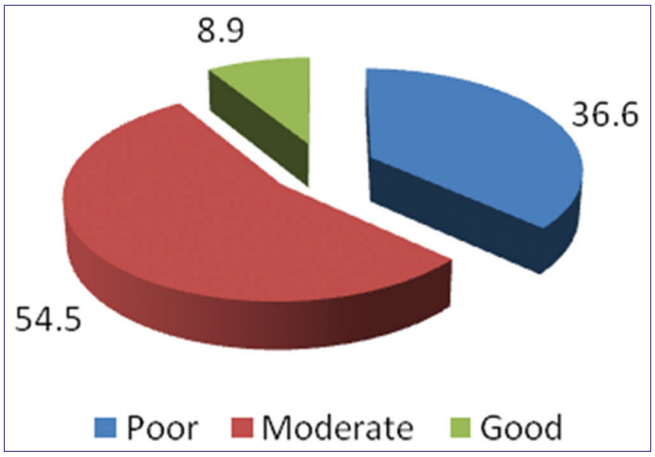

Figure 2: Distribution of the caretakers according to their practice of metered-dose inhaler use (n = 101)

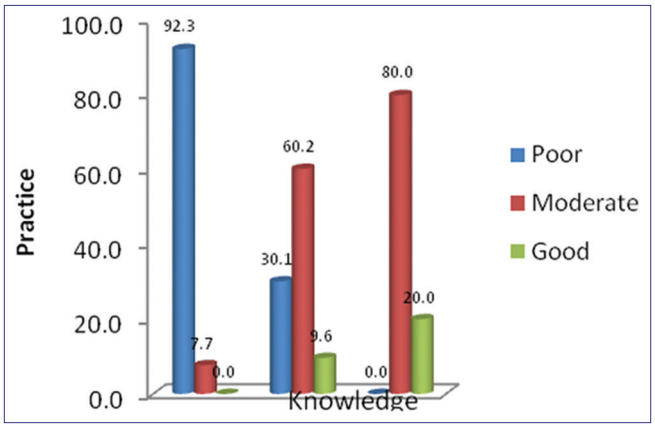

Figure 3: Association between knowledge and practice of caretakers regarding metered-dose inhaler use (n = 101)

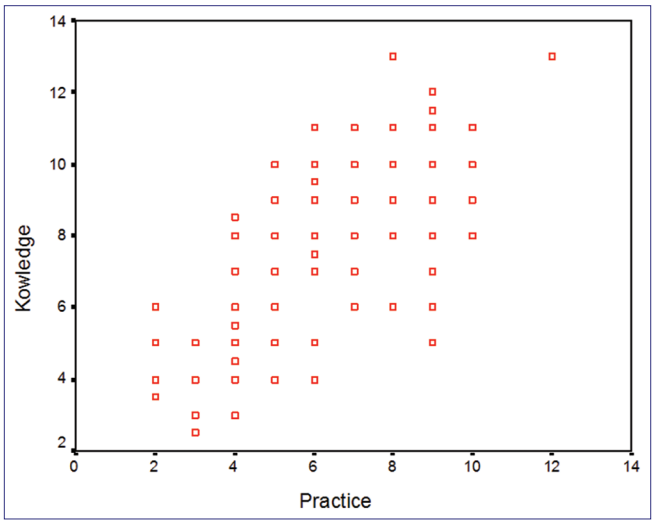

Figure 4: Association between knowledge and practice of care takersregarding the use of metered-dose inhalers r = 0. 657**, P = 0. 000

Figure 3 depicts that of the 101 caretakers those with poor knowledge, poor practice constitutes 92.3%, and moderate practice constitutes 7.7%. Those with moderate knowledge 30.1% were having poor practice, 60.2% were having moderate practice, and 9.6% were having good practice. Those with good knowledge 80% were having moderate practice and 20% were having good practice.

The scatter diagram [Figure 4] shows significant relationship between knowledge and practice (r = 0. 657 and P < 0.05).

Discussion

The current study was done to assess the knowledge and practice of caretakers regarding the use of metered-dose inhaler in children with reactive airway disease in Sree Avittom Thirunal Hospital, Thiruvananthapuram. The findings of the study revealed that 5% had good knowledge, 82.2% had moderate knowledge, and 12.9% had poor knowledge regarding metered-dose inhaler use. 8.9% had good practice, 54.5% had moderate practice, and 36.6% had poor practice. A significant association was found between knowledge and practice of caretakers regarding the use of metered-dose inhaler in children. Measures should be taken to improve the knowledge and practice of caretakers regarding the use of MDI.[5]

The findings are supported by a study conducted in Chandigarh, on 100 caretakers where 3.4% scored very low score, 65.3 low score, 31. 3% average score, and none have good score.[6] The study finding was controversial with a study conducted on school teacher's knowledge regarding asthma showed that 57% had good knowledge score.[7]

The present study shows that 8.9% had a good practice, 54.5% had moderate practice, and 36.6% had poor practice. These findings were supported by the study by Klok *et al*. which showed that 405 of children receive <80% of prescribed inhaled steroid.[8]

The study findings were supported by a descriptive cross-sectional study on caretakers of asthma children in Kenya on 82 subjects of which 37% performed all the essential steps of inhaler.[9]

The present study shows association between knowledge and practice. A multicenter study on knowledge, attitude, and practice of parents of children with asthma in 29 cities of China revealed that a gap between recommended and actual practice was noted, and generally, the knowledge, attitude, and practice score were low.[7] The study findings were supported by a study on 100 caretakers in New Delhi, showed that parental guidelines are urgent to prevent asthma exacerbations.[10]

Conclusion

Adequate knowledge regarding inhaler and proper practice of inhaler use is the cornerstone of management, thereby improving the quality of life of children with reactive airway disease.

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