ORIGINAL ARTICLE

RISK FACTORS AND PARENTS' ATTITUDE FOR CHILDREN PRESENTING WITH ASTHMA AT A TERTIARY CARE HOSPITAL

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Background: Asthma is the most commonly prevalent disease in children. There is increasing prevalence and incidence of asthma in children in last few decades. Not only risk factors but also parent's attitude towards therapy matters the most in management. Objective was to assess for the risk factors and parents' attitude for children presenting with asthma. **Methods:** This cross sectional study was done at Ayub Teaching Hospital, Abbottabad. History was taken from parents about risk factors and associated myths. Duration of asthma, visits per year to clinic/hospital, tobacco smoke exposure, pets, fur toys, wood/coal burning, carpets in rooms, perfumes/powder use was documented. Parents' attitude towards use of spacer and inhaler was documented with specific questionnaire. Data was analysed using SPSS-20 and $p<0.05$ was taken as significant. **Results:** There were 136 patients, 93 (68.4%) males and 43 (31.6%) females. Mean age was 7.3±3.13 years. Most (80.1%) patients were <10 years old. Patient visits per year ranged from 2 to 15 visits with mean of 5.97±3.02 visits per year. Intermittent asthma was seen in 8.8% and persistent asthma was seen in 66.9% patients. The most common risk factor was use of perfume in 48.5% and family history in 65.4% patients. Parents' misconception towards inhaler use was noted in 38.2% patients. Younger children are at more risk of having asthma symptoms with exposure to wood/coal smoke and perfume powder exposure ($p=0.04$). **Conclusion:** Family history of asthma along with perfume/powder exposure and wood/coal smoke exposure are major risk factors in children. Parents' misconception is also a hurdle to timely management.

Keywords: Asthma, risk factors, myths, childhood

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INTRODUCTION

Childhood asthma is one of the common chronic disease not only affecting children only but also parents and families.[1] There is increasing prevalence and incidence of asthma in children in last few decades.[2] In Pakistan though exact prevalence of asthma is not known yet it is reported as 10.1% in children 13–14 years old.[3] Non adherence to doctor advice and exposure to environmental risk factors are the factors leading to exacerbation of asthma.[4] Also due to poor parental knowledge and myths associated with use of inhaler/spacer for asthma, there is inappropriate management of children with asthma.[5]

In our part of world there are many myths associated with use of inhaler in children as it will damage the lungs or child will remain dependent on inhaler. Also there are many risk factors to which patient is exposed but caregivers do not know and this leads to exacerbation and poor control of symptoms. This study is one step in recognition of the risk factors and parents attitude. This will help the paediatricians to find out the lacking data and give better management plan to patients. Objective of this study was to assess for the risk factors and parent's attitude in children presenting with asthma.

METHODOLOGY

This study was conducted in OPD of Paediatric B Ward, Ayub Teaching Hospital, Abbottabad form January 2018 to December 2019 over two years. After approval from Institutional Review Board, consent was taken from parents and then patients were included in the study. Children from 2 to 15 years of either sex were included. Children who were diagnosed case of asthma were included. Also the children with history of cough and wheeze for at least four weeks with exclusion of other pathologies were taken as case with asthma and complete the criteria of Global Initiative for Asthma (GINA) guidelines 2015 were included. Children known case of chronic lung disease including cystic fibrosis, primary ciliary dyskinesia, tuberculosis, immunodeficiency, congenital heart diseases, and chest X-ray suggestive of infection were excluded. Patient age, weight, sex, duration of asthma, visits per year to clinic/hospital, tobacco smoke exposure, pets (including pigeon, parrot, dog, cat at home), toys with fur, wood and coal burning, carpets in rooms, use of perfumes or powder were documented on specific proforma. Also parents attitude towards use of spacer and inhaler was documented with specific questionnaire that if they consider it to cause dependency or not and will lead to

permanent lung damage. The responses of parents were documented. Patient symptoms were classified according to guidelines and patient was classified as case of asthma as intermittent and persistent. Then persistent asthma was classified as mild, moderate and severe type on basis of symptoms. Data was analysed using SPSS-20. Chi-square test was applied and results were taken significant if $p<0.05$.

RESULTS

There were total of 136 patients included in this study. Out of 136 patients, 93 (68.4%) were males and 43 (31.6%) were females. Age of patients ranged from 2.5 year to 15 years with mean age of 7.3±3.13 years. Patient's age was categorized as 2 to 5.0 years, 5.1 years to 10.0 years and above 10.1 years. Age category and asthma percentage given in Table-1. There is significant association between age category and woo/coal smoke exposure with $p=0.040$. The younger children are at more risk of having asthma symptoms with exposure to wood/coal smoke exposure. There is also significant association of perfume/powder exposure to risk of asthma in younger children with $p=0.040$. Weight of patients ranged from 10 to 50 Kg with mean weight of 20.765±7.10 Kg. Duration of patient symptoms ranged from 3 months to 10 years with mean duration of 29.67±27.38 months. Patient visits per year ranged from minimum of 2 visits to maximum of 15 visits with mean visits per year of 5.97±3.02.

Out of 136 patients, 12 (8.8%) patients were with intermittent asthma, 91 (66.9%) patients were having mild persistent asthma, 29 (21.3%) patients were with moderate persistent asthma and 4 (2.9%) patients were with severe persistent asthma. The most common risk factor identified in history was use of perfume or powder by children, as 66 (48.5%) patients were using perfume/powder. The second most risk factor followed by use of perfume/powder was carpets at home as parents do not consider them to be predisposing factor for asthma in children. Carpets were present in 59 (43.4%) patients home. The third most important risk factor identified in this study was tobacco smoke exposure which was present in 51 (37.5%) patients. Other risk factors identified were pets (pigeon/parrot/ dog/cat) in 36 (26.5%) cases, fur toys for children in 36 (26.5%) patients, wood/coal fire smoke exposure in 37 (27.2%) patients. Family history of asthma was present in 89 (65.4%) patients while in 47 (34.6%) patients there was no family history of asthma.

Parent's misconception towards inhaler use was noted in 52 (38.2%) patients. Parents of these patients either consider inhaler harmful for the lungs or of opinion that child will be dependent on inhaler in future which may also be in adulthood as marked on the specific questionnaire. Though there were only four patients with severe persistent asthma, yet 75% of parents of these patients had myth about inhaler use (Table-2). There is significant association between wood/coal smoke exposure and parents misconception about inhaler use with $p=0.015$.

Table-1: Age category

Age group	Frequency	Percent
2–5 years	49	36.0
5.1–10.0 years	60	44.1
10.0 years and above	27	19.9
Total	136	100.0

Table-2: Parent's misconception toward inhaler use *vs* asthma classification —Cross tabulation

Parent's misconception about inhaler use	Asthma classification				Total
	Mild persistent	Moderate persistent	Severe persistent	Intermittent	
Yes	38	8	3	3	52
No	53	21	1	9	84
Total	91	29	4	12	136

DISCUSSION

Asthma prevalence in one city of northern part of Pakistan is estimated around 31.5%.[6] Though no age group is immune from developing asthma yet it is more prominent in children as parents and family involved in care of child noticed the symptoms.[7] In management of childhood asthma control of risk factors associated with exacerbation is the central pillar. Parents understanding of disease and its treatment are also one of the key aspects in management of children with asthma. This study was done to assess for the risk factors and parent's attitude in children presenting with asthma.

In one review article, Hui RWH studied the reasons of not using steroid based inhalers and prevalence about the myths with inhaler use in children. Hui RWH estimated the prevalence about not using steroid based inhaler in 19–67% of patients in different populations and main reasons for not using these inhaler were related adverse affects including weight gain, growth suppression, weakening of bones, psychiatric disturbance and addiction to inhaler.[8] While in our study the prevalence of not using the inhaler was 38.2% and main concerns of parents were addiction dependence on inhaler and lung damage.

Majeed R *et al*[9] studied the risk factors in children with asthma. Their study included children aged from 12 months to 8 years while in our study age ranged from 2 years to 15 years in their study 60% of patients were male, in comparison in our study 68.4% were males. There is history of asthma in family and 38.5% patients had exposure to smoking. In our study 65.4% patients had family history of asthma while 37.5% patients had exposure to tobacco smoke which is almost equal to Majeed R *et al* study findings. In one study done by Afzal M *et al*[10] for risk factors in children and found that tobacco smoke exposure and history of asthma in family were the two important

factors. In our study these two factors were also very significant.

Karunasekera *et al*[11] studied environmental and genetic factors in children with asthma. Childhood asthma risk in increased in children with family history of asthma either in father or mother. One of the main environmental factor recognized was firewood smoke. In our study fire wood exposure was in 27.2% patients and family history of asthma was in 65.4% patients. Khan IM *et al*[12] did one study about the impact of socioeconomic status of parents on asthma control in children. It was concluded in their study that children of parents with low income have poor control of asthma as compare to children whose parents have high income. In our study we did included the income of parents but included the exposure to firewood smoke. As families in whom income is low or from rural area tend to use fire wood for cooking and in 27.2% of patients there was history of firewood or coal smoke exposure. Kamran A *et al*[13] in their study concluded that apart from living area without sunlight and room without window, the major risk factors in childhood asthma were tobacco smoke exposure at home and family history of asthma. In our study family history of asthma was present in 65.4% patients and tobacco smoke exposure was present in 37.5% patients.

Basharat S *et al*[14] study included children with persistent asthma for drug adherence and control of symptoms. In our study the persistent asthma was in 91.2% patients. In Basharat S *et al*[14] study 65.17% were male and 34.83% were female while in our study 68.4% were male and 31.6% were female. The childhood asthma is more prevalent in males as compare to females. Simba J *et al*[15] did one study in one referral center of Kenya about the care takers perceptions and knowledge about childhood asthma. In their study it was found out that care takers prefer syrups to inhaler in 70.7% of cases. Though we did not take opinion regarding syrup use but 38.2% patient's parents were reluctant in use of inhaler due to myth that it leads to dependency or there is lung damage with use of inhaler.

Al-Anazi A *et al*[16] assess the level of parent's awareness in their study about childhood asthma. They used Likert scale questions for assessing parent's awareness about childhood asthma. In one of the category they checked for the myths and beliefs about asthmain children. The questions about inhaler dependence and not good for long use scored 3.39±1.32 and 2.69±1.32 respectively. In our study the parents of 38.2% children had myths leading to dependence and lung damage in 38.2% of children. Noureddin AA *et al*[17] did their study in asthma clinics in Sudan. They found out that 21% of mothers of children with asthma consider inhaler use not acceptable at all. In our study the myths related with use of inhaler leading to not use of inhalers was in 38.2% children.

Ankermann T *et al*[18] in their review article concluded that there is vaccination in routine does not predispose the children to allergies including asthma. Labuschagne IL *et al*[19] in their review study concluded that diet with vitamins including vitamin C, D, E and polyunsaturated fats have protective role in children with asthma.

There were limitations in this study. We only considered specific factors. One of important environment risk factor is moulds exposure which was not considered. Another factor was parent's adherence to preventive medications which was also not included. We also did not consider the nutritional history and nutritional status of children.

CONCLUSION

Family history of asthma along with perfume/powder exposure, wood/coal smoke exposure, carpets at home and tobacco smoke exposure at home are the major risk factors for childhood asthma. Parents' misconception towards use of inhaler is one of major hurdle in asthma symptom control and prevention.

RECOMMENDATIONS

Parents' education and awareness about the use of inhaler for preventive and controller medicines is needed both at community and hospital level along with the focus on parents' attitude and misconception.

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