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ORIGINAL ARTICLE

Usefulness of Peak Flow Meter in Monitoring of Asthma Management in Pediatric Age Group

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ABSTRACT

Objective: Toassess the incidence of usage of peak flow meter in the monitoring of asthma management in pediatric age group.

Study Design: Descriptive case study

Settings: Out Patient Department and Medical Ward of the Children's hospital and The Institute of Child Health Lahorefor duration of six months from 1st October 2016 to 31st March 2017.

Methodology: Patients admitted in the hospital fulfilling the criteria of inclusion were enrolled in the analysis. After taking informed consent from parents and approval from ethical committee their demographic information was recorded. The proforma was completed by the researcher. Follow up was done after one-week to label PFM usage.

Results: Out of 210 cases, 55.24%(n=116) were between 8-12 years of age while 44.76%(n=94) were between 13-16 years of age, 50.95%(n=107) were male while 49.05%(n=103) were females with mean age 12.0+2.30 years. Frequency of usage of peak flow meter in the monitoring of asthma treatment was recorded in 18.57%(n=39) whereas 81.43%(n=171) had no PFM usage.

Conclusion: We concluded that the frequency of usage of peak flow meter in the monitoring of asthma treatment in pediatric age group is similar to other studies but very few data on practices of asthma management in Pakistan and different protocols are used for asthma self-management which needs some-other studies so that more appropriate and evidenced based data may be collected for developing the local guidelines of self-management of asthma.

Keywords: Asthma, Monitoring, Usage of peak flow meter

INTRODUCTION

Asthma is anailment of the airways due to chronic inflammation distinguished by narrowing of the airways. Dyspnea,whistling sounds called wheezing coughing either at night or in early morning are common symptoms.[1] It affected nearly Three hundred million people making it a major health problem worldwide. It accounts for 1.8 million ER visits including 5 lac admissions and four thousand deaths.[2]
Peak flow meter (PFM) is one of the cardinal feature of Asthma self-management practices. The key features include how to take medicines in a proper manner, how to recognize early asthma attack, when to get medical help and how to avoid asthma triggers.[3]This will not only improve health of the patient but also improves quality of life. It will also help to improve adherence to medications[2,3]

PFM is an instrument that is used to detect obstruction in the airways. PFM is very important to determine thestaging of asthma exacerbations. It is also helpful to detect initial episodes of asthma and monitoring of medication response.[4]PEFRis definite asmaximum rate of flow that is produced at the time of expiration, starting from full inhalation. PEFR is measured by PFM. [4]

Previous studies have coherently shown the usefulness of PFM use in acute exacerbations of Asthma in pediatric age group (i.e. 2- 15 years) [5,6].

Wong et al[5] reported that in most of the Asian countries, physicians used or recommended peak flow meter (8% in Sri Lanka to 52% Australia) and score cards or diaries (0% in Philippines to 15% in India) in order to monitor acute asthma. Zhao et al[6] also reported that PFM use by 25% of the population helped the parents to monitor the asthma of their children correctly.

This indicates that there is a need for self-management of asthma, thus highlighting the importance of PFM in children. As there is not much research done on this subjectin Pakistan and different protocols are used for asthma self-management, we can make our own national guidelines by considering our regional and environmental factors so that asthma can be well controlled.The aim of this study was to determine the frequency of usage of peak flow meter in the monitoring of asthma management in pediatric age group.

METHODOLOGY

Study design: descriptive case study

Study setting: Department of Pediatric medicine, The Children's hospital and ICH Lahore for duration of six months from 1st October 2016 to 31st March 2017

Sampling technique: Non probability consecutive technique of sampling

Sample size: Sample size is determinedby means of WHO sample size calculator with absolute precision of 6%, confidence interval of 95% and 21.8%[5]formerlyconveyed frequencies (least among all). 210 was the sample size.

Inclusion and Exclusion Criteria: Children between 7 to 16 years and those who were diagnosed as asthma at least 6 months before starting of the study were included while children with other chronic illnesses like cystic fibrosis and those with poor compliance were excluded.

Data Collection and Statistical Analysis Procedure: Patients who werefulfilling the criteria were selected for this research. Informed agreementwas taken from parents and after approval from ethical committee their demographic information was recorded. The proforma was completed by the researcher. Follow up was done after one-week to label PFM usage. Usage of PFM was definite as usage of the PFM for minimum 6-7 days a week (80% of the time).

The dataprivacy was guaranteed. SPSS was used for all data analyzed using. Quantitative variables are accessible as standard deviation and mean. Qualitative variables ware accessible as percentagesand frequency. Post-stratification chi-square test was pragmatic with <0.05 of p value as significant.

RESULTS

Out of 210 cases, 55.24%(n=116) were between 8-12 years of age while 44.76%(n=94) were between 13-16 years of age, 50.95%(n=107) were male while 49.05%(n=103) were females. Mean age was 12.0+2.30 years.(Table 1-2)

Frequency of usage of peak flow meter in the monitoring of asthma treatment in pediatric age group in our population was recorded in 18.57%(n=39) whereas 81.43%(n=171) had no PFM usage. (Table-3)

Table-4 shows frequencyof Stratification of PFM usage with respects to age.Stratification for gender shows that out of 107 cases 18 were male while 21 out of 103 cases were females, p value was 0.50.

Table 1: Distribution of Age (n=210)

Age(in years)	Patients	%
8-12	116	55.24
13-16	94	44.76
Total	210	100
Mean+SD	12.0+2.30	

Table 2: Distribution Of Gender (n=210)

Gender	Patients	%
Male	107	50.95
Female	103	49.05
Total	210	100

Table 3: Frequency Of Usage Of Peak Flow Meter In The Monitoring Of Asthma Management In Pediatric Age Group (n=210)

PFM usage	No. of patients	%
Yes	39	18.57
No	171	81.43
Total	210	100

Table 4: Stratification For Pfm Usage Frequency With Respects To Age (n=210)

Age (in years)	Usage of PFM		P value
	Yes	No	
8-12	20	96	0.58
13-16	19	75	

DISCUSSION

Self-governing of signs or monitoring of peak flow (PFM) is suggested for all asthma patients, and is often encompassed in the treatment of asthma strategies. Recent management of asthmaplans recognize that monitoring peak flow in asthma exacerbation helps govern the exacerbation severity and can be helpful in making treatment choices in practice. Since there is little data on asthma control practices in Pakistan, and different protocols are used for asthma self-treatment, we can create our own national guidelines for good asthma control taking into account our regional and environmental factors.

In this study, the frequency of peak flow meters in asthma control in the pediatric age group of our population was 18.57% (n = 39), while 81.43% (n = 171) did not use BMD. .

Zithran et al2 reported that in the United States, most children with active asthma or their caregivers received multiple asthma management practices. Children were taught to be able to properly use their asthma medications (for example, use an inhaler) and manage their symptoms (for example, use a peak flow meter). 2 Children aged 12 to 17 were more likely to develop asthma, according to this study. An instructional report on the use of a peak flow meter (PFM) for self-monitoring and monitoring.

Gahleitner et al. 17 and Juan-Mei et al. 8 reported similar results on the use of PFM and asthma control in children. In another study in China, Su et al.9 found that 21.8% of children used a peak flow meter (PFM) and 6.6% of these patients used PFM daily. This points to the need for asthma self-treatment, highlighting the importance of PFM in children. The results of our study are in line with previous studies.

PFM monitoring is reliably performed with data suggesting that a 20% reduction in PFM in both adults and children is insensitive to early detection of exacerbations; Variations in the numeral of symptoms herald peak flow changes. 10

Yoos et al. exhibitedlongstandingenhancement (up to 12 months) in severity of asthma scores and on most observed symptom days in children of African-American state who observed symptoms and cast-off a peak flow meter when worsen of symptoms perceived. No extraadvantage was attributed to daily BMD. 11 For a monitoring tool to be useful, it must have maximum specificity and sensitivity, and be suitable, cost-effective and consistently used by the monitored population. proof. Therefore, our data will support others who suggest that BMD monitoring probably helps little to symptom-based treatment at school or home.

CONCLUSION

We concluded that the frequency of usage of peak flow meter in the monitoring of asthma management in pediatric age group is similar to other studies but very few data on practices of asthma management in Pakistan and different protocols are used for asthma self-management which needs some-other studies so that more appropriate and evidenced based data may be collected for developing the local guidelines of self-management of asthma.

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