

Family Physician's Knowledge, Awareness and Practices about Peak Flow Meters in the Management of Bronchial Asthma – A Study from Mysore City, South India.

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Abstract

Introduction: Asthma guidelines recommend that practitioners should use peak flow meters routinely in their practice. However, several studies all over the world have shown poor usage of this instrument. There is paucity of data from South India regarding the usage of peak flow meters. This study was hence carried out.

Methodology: A questionnaire was administered to 70 randomly selected Family Physicians (General Practitioners) of Mysore City. Details concerning the extent of and indications for use of PFM s were analysed.

Results: A total of 33 Family Physicians responded. The age ranged from 40 to 65 years. Mean age was 59.55 years (+/-8.33). Lack of knowledge about PFM was cited as the major reason by 12(44.4%) of the respondents. The reason of excessive patient load was reported by 11(40.7%). Cost factor was cited by 7(25.9%) practitioners. 4 (66%) of the practitioners using PFMs knew the advantages. 5(83.3%) of the practitioners using PFM gave assessment of the severity of asthma as the indication. The knowledge levels regarding steps of using the PFM was high with 100% of 5 practitioners being aware of 3 important steps. The practitioners who had a mean of 37.83 (+/-8.95) years of practice were found to be more likely in the group using PFM s compared to those with lesser years' of experience 31.07(+/-8.95). 25(75.8%) of the practitioners were interested in attending a proposed refresher course on PFMs.

Conclusion: Our study has revealed significant underuse of the Peak Flow Meter because of busy practice schedules and lack of awareness. Family physicians need to be updated about the benefits of PFM and use it regularly and in turn they need to make their patients use it.

Keywords: Asthma Monitoring, Airflow, Obstructive Airway Disease

Introduction

Asthma affects 300 million worldwide and 2,50,000 asthma related deaths are reported each year [1]. In most countries including India, Family Physicians (FP) /General Practitioners (GP) are the point of first contact for asthma patients. FPs need to treat patients and also teach them and their families asthma management skills. The dynamic nature of asthma, with waxing and waning symptoms, requires regular assessment and modification of the treatment. Inaccurate perception of a patients' asthma

severity by caregivers may lead to the overuse or underuse of medications.

Objective measurements of airflow are hence required to know the patient's asthma status. The peak flow meter, a small hand-held, robust, inexpensive device easily and reliably provides objective information about changes in airway obstruction [2]. Monitoring is very important in adult and across all age groups.[3] The importance of asthma monitoring using PFMs in paediatric age group has been well brought out in several studies both from India and the west [4,5].

Global Initiative Against Asthma (GINA) guidelines for the management of asthma state that Family Practitioners should use peak flow meters routinely in their practices [6] Various other international bodies have also recommended its usage. However several studies from various places

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have shown very poor usage of this instrument by Primary Care Physicians [7-10].

Most FPs are very busy and have little time for both usage of PFM or for counselling patients about their usage in Asthma. Many do not undergo retraining and re-education in recent advances and guidelines. There is a paucity of data from South India regarding the usage of peak flow meters in family practice, and this study was hence taken up.

Objectives

To determine the knowledge, awareness and the practices of Family Physicians (General Practitioners) practicing in Mysore City India, in the utilization of the Peak Flow Meter.

Methodology

70 randomly selected private Family Physicians (General Practitioners) practicing in various localities of Mysore City, South India formed the subjects of this study. A prepared and validated questionnaire was provided to the subjects. Data from those who responded and returned the questionnaire was collected. Details concerning practice profiles, the characteristics of the practitioners, the extent of and indications for use of PFM s and the reasons for failure to use these meters were collected and analysed. (Annexure) The study was carried out over a period of six months between January 2017 and August 2017. The study was presented before the JSS Medical College Institutional Ethical Committee and approval was obtained.

Statistical Analysis

Information from questionnaire was entered into Statistical Package for Social Sciences (SPSS) version 16 software. Descriptive statistics were used to summarize Family Physicians' characteristics as well as responses to items regarding PFM management. All data are expressed as mean \pm SEM. Statistical significance was defined as a *P*-value <0.05.

Results

A total of 33 Family Physicians (FP) responded to the questionnaire and participated in the study. There were 27 (81.8%) male and 6 (18.2%) female FPs. The age ranged from 40 years to 65 years. The majority of the practitioners 20 (61%) had MBBS degree. (12%) had certificate courses in various fields. [Figure 1]

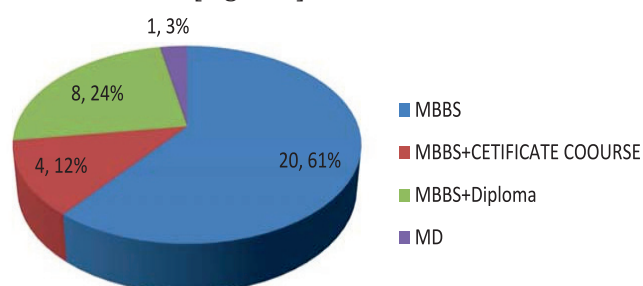


Figure 1: Depicting qualification of Respondents

The mean years of practice was 32.30 \pm 9.68 years. As far as the patient load seen by the respondents, 22 (67%) of them stated that they saw less than 10 (33%) cases per day. Majority of the practitioners 27 (61.6%) were not using Peak flow meters in their practice. Lack of knowledge about PFM was cited as the reason by 12 (44.4%). A similar number (but not the same respondents) stated that lack of patients' interest made them not to use the PFM. Excessive patient load reported as a reason by 11 (40.7%) Cost was the reason in only 7 (25.9%). [Figure 2]

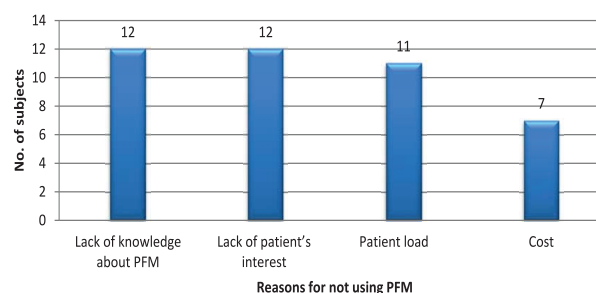


Figure 2: Depicting reasons for not using PFM

		n (%)
INDICATIONS	Assessment the severity of asthma	5 (83.3%)
	Determination of the severity of an exacerbation	3 (50.0%)
	Detection of exacerbation early	3 (50.0%)
	Adjustment by the patient doses of drugs	3 (50.0%)
	Identification of trigger factors	5 (83.3%)
	Identification of critical reductions in peak flow indicating the necessity for emergency care or hospitalisation.	5 (83.3%)

		Years of practice	
		Mean	Standard Deviation
Use PEFM	No	31.07	8.95
	Yes	37.83	4.49

4 (66%) of the practitioners using PFM's knew about the advantages of the instrument. 5 (83.3%) gave assessment of the severity of asthma as the indication for usage. A similar number stated that identification of trigger factors and identification of critical reductions in peak flow as indications. [Table 1]

All 5 (100%) of those actually using PFM, felt it was very easy to use. Similar number felt that the plan of therapy was directly defined according to the reading. Only 2 (40%) of 5 knowing about the differences between adult and paediatric meters

4 (80%) of the 5 practitioners using PFM felt that there was no need to change the treatment if the readings were 100% normal. Reading of less than 90% was thought to be the time for the patient to consult their physician by 4 (80%) of the 5 respondents who were using the PFM.

4 (80%) of those who using PFM were of the correct opinion that normal values of PEF is better defined by using age, height and sex. 5 (100%) of them had the correct concept that to estimate PEF measurements must be taken pre and post bronchodilator. The knowledge levels regarding steps of using the PFM instrument was high with 100% of 5 practitioners who were using PFM being aware of 3 important steps.

The practitioners who had a mean of 37.83 (+/-8.95) years of practice experience were found to be more likely in the group using PFM's as compared to those who had lesser years of experience 31.07 (+/-8.95) p=0.02. [Table 2] The difference was not statistically significant but is indicative that more senior doctors were likely to be inclined towards PFM usage,

The practitioners were eager to update their knowledge regarding PFM and other domains of this aspect of asthma management. This is evident since 25 (75.8%) of the practitioners were interested in attending a proposed course on PFM's.

Discussion

It has been said that the peak flow meter is to the asthmatics, what the sphygmomanometer is to the hypertensive and capillary blood glucose machine is to the diabetic. PFM is a simple portable hand-held tool to measure airway performance at the point of care. This instrument was introduced by Dr Martin Wright seven decades ago. It measures how fast a person can blow air out of the lungs in forceful exhalation after maximum inhalation i.e. Peak Expiratory Flow [11]

Patients with asthma have a fluctuating symptoms and varying degree of obstruction. Studies have demonstrated that 15% of the subjects were unable to sense marked obstruction. [12] Several authors found that intensity of

symptoms did not correlate with the degree of obstruction. [13,14] These findings support the use of PFM as a valuable tool. GINA guidelines recommend regular measurement of Peak Flow. So also, other major recommending bodies. However clinical inertia exists and very few general practitioners actually use the same.

Vallabh BK et al in their study found that peak flow meters were underutilised by family practitioners. [10] The cost of the PFM was found to be an important cause of underutilisation. In our study cost was not reported as a factor. Medical students were found to have poor knowledge about PFM in a study by Yates. [15] They recommended that use of PFM should be emphasised at the undergraduate and at continuing medical education level. In a prospective survey by Garcia-Marcos, only one-third of paediatricians reported use of PFM's for diagnosis and half used the device for managing asthma. [6]

Another study by Haifaa Y involved 625 physicians. The physicians had a low total knowledge score. [8] Our study shows similar findings. Raheem AA in their prospective study of 67 doctors found that only 13 (20.0%) used the PFM. Non-availability was the highest constraint (75.0%), followed by the cost (51.7%). [9] R K McKinley et al in their study noted the beneficial effects of increased knowledge and awareness after retraining among doctors of Northern Ireland. In their study, patients using domiciliary PFM rose from 58.3% to 97.9%. The percentage of doctors using PFM's rose from 81.9% to 93.2% [16]

In our study also there was significant under usage of PFM's. Lack of knowledge was an important reason. The very little attention given to asthma in MBBS curriculum could be the reason. Also responsible is the lack of Continuing Medical Education Programmes (CME)s addressing this issue.

The strength of this study is that questionnaire was administered directly by the study investigators at the practice places of the doctors concerned and the response was obtained in the same sitting. The limitation of this study is the small sample size and that this was only an observational study. Further studies along same lines and also including the impact of awareness and training of PFM's given to the practitioners on their asthma management practices are needed.

Conclusion

With this study we have been able to bring out the significant non-use of PFM in day to day practice of Family Physicians of Mysore city area. We also conclude that family physicians have inadequate knowledge of PFM. The busy schedules and negative attitude of many patients turned out to be the most important factors affecting their use.

Continued Medical Education programmes would help in renewal of family doctors knowledge about the methods and to improve the effective use of PFM.

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