

Knowledge, Attitudes And Practices (KAP) Of Primary Care Physicians Of Central Mumbai Suburbs About Childhood Asthma

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Abstract

Objective: Corticosteroids form the mainstay of present-day treatment of childhood asthma. Its use in early phase of asthma attack is vital. This study was conducted to determine extent of pediatric asthma knowledge at primary care level in Central Mumbai, India, and to analyze methods to increase awareness on role of corticosteroids in these young asthmatics.

Methods: 440 family physicians were asked to answer a pre-tested specially designed simple questionnaire containing questions on management of childhood asthma. The answers were evaluated to examine for differences, if any, in the managing these children for doctors with ≤ 10 years and those with > 10 years of practice. Modes of updating knowledge among these doctors were estimated, and their relation with the current management practices of these doctors was analyzed.

Results: Our study revealed that proper prescription of corticosteroids was carried out by only 18.2% of family doctors. Significant number of doctors prescribed antihistamines, antibiotics and dietary restrictions on all asthmatic children, and nebulisers /inhalers remained under-used. Family doctors relied commonly on journals, company brochures, and conferences to keep themselves updated.

Conclusion: Awareness about newer trends in childhood asthma management is less among family physicians with no difference based on number of years out in practice. This needs to be improved for optimal management of these children. Present modes of information dissemination to these professionally isolated and busy doctors are insufficient and require supplementation and reinforcement.

INTRODUCTION

Childhood asthma is a major public health problem^{1,2}. It is one of the most prevalent chronic airway diseases amongst children³. Major role of airway inflammation in childhood asthma has been recognized for more than a decade, and anti-inflammatory drugs now form mainstay of treatment for it^{4,5}. Bronchodilators and corticosteroids in inhaled/nebulised form are preferred to oral or parenteral drugs for maximum efficacy with minimum side-effects^{6,7}. Asthmatic exacerbations often require prompt treatment with corticosteroids, especially in high-risk patients, to reduce morbidity and mortality and avert future attacks^{8,9,10,11}. Antibiotics and antihistamines have little role in these wheezes, and diet modifications are not to be advised routinely in the 'growing child'^{12,13}.

The majority of childhood asthmatics in Mumbai seek medical assistance from family doctors. We hypothesized

that primary level family physicians are still not sufficiently aware of the role of inflammation in asthma and its treatment with systemic or inhaled corticosteroids. Hence we carried out this survey study in the central suburbs of Mumbai in order to evaluate current practice of management of childhood asthma by family doctors, and to investigate modes of dissemination of newer information to these primary care doctors.

METHODS

The survey was carried out in central suburbs of Mumbai. The number of allopathic general practitioners practising in the area was obtained from local medical organizations. A pilot study was conducted and based on it required sample size was calculated. The general practitioners were selected by random numerical technique. The chosen physicians were told about purpose of the survey and their verbal consent was sought. They were then asked to answer a pre-tested

specially designed simple questionnaire, which contained questions pertaining to childhood asthma, method of management of an asthmatic attack in a child, prophylactic therapy for childhood asthma, and ways to monitor asthma activity. Availability of peak flow meter was ascertained..

The treatments adopted by family practitioners for childhood wheezing were compared with GINA guidelines. Treatment of acute attack of asthma in these children was considered optimal if oral prednisolone in dose of 1-2 mg/kg/day for 5-7 days was prescribed along with oral or inhaled salbutamol. Intramuscular bronchodilators or intramuscular corticosteroids are not recommended for acute attack management and is considered as inappropriate treatment. Chest X-ray is not considered beneficial in childhood asthmatics, except in selected cases ^{4, 5, 14}. Duration of medical practice of each family doctor was estimated. Based on this, two groups were formed; those with practice of ≤ 10 years duration and those in practice for more than 10 years. The newer concept of use of corticosteroids has been promoted for at least a decade, and thus there may be a difference in how physicians treat asthma based on years out in medical practice. This was the rationale behind the above-mentioned grouping. Knowledge about childhood asthma treatment and patterns of drug prescriptions for childhood asthma in these two groups of doctors was compared and evaluated for differences. Availability of nebulisers and peak flow meters and their use in childhood asthma were determined. Employment of different inhalers and spacers for prevention of further attacks of childhood wheezing was also determined.

Methods used by the doctors to update themselves on recent concepts in medicine were examined. The sources used for gaining knowledge were grouped into following 5 categories: medical journals/books, conferences and CME (Continuing Medical Education) activities, Internet surfing, reading company brochures or by discussion on a case with pediatric specialist. Rational prescription of corticosteroids in childhood asthma, as previously defined by family physicians in each of these groups was determined and compared for differences.

DATA ANALYSIS

All data are expressed as mean \pm SEM. The demographic data were analyzed by Chi-square test, while student's t test was used for continuous data ¹⁵.

RESULTS

DEMOGRAPHIC CHARACTERISTICS

443 general practitioners formed our study group. Two general practitioners were unavailable for the interview and one general practitioner refused to participate in the survey. Hence actual doctors recruited were 440. The mean age of the doctors was 48.20 ± 0.6 years (range 27 to 65 years). There were 104 female general practitioners; with male to female ratio of 3.2:1. The mean duration of medical practice was 12.5 ± 0.5 years (range of 2 to 32 years). 230 (52.3%) doctors were in practice for ≤ 10 years.

MANAGEMENT OF CHILDHOOD ASTHMA EXACERBATIONS

The general practitioners encountered an average of 10 ± 1.0 cases of recurrent childhood wheezing per month in their outpatient clinic. All doctors could correctly highlight the common symptoms and signs of an exacerbation of asthma in children. Grading of asthma attack severity was done by these doctors but they did not follow any specific recommendations. X-ray chest and complete blood count was ordered by 32 (7.3%) of these doctors in all cases, whereas another 7.3% of them felt that it was not necessary at all. 85.4% of doctors ordered these investigations in selected cases (mean 21.1 ± 1.0 %, range 5 to 50%). (Table 1)

Figure 1

Table 1: Knowledge and practice of family doctors regarding childhood asthma:

Parameter	Number (Percentage)
1. Aware of clinical features of asthma attack	440 (100)
2. Investigations in selective cases	376 (85.4)
3. Corticosteroids in asthma attack	
Prescribing corticosteroids in asthma attack	150 (34.1)
Proper usage of corticosteroids	80 (18.2)
4. Aminophylline in asthma attack	352 (80)
5. Antihistaminic in asthma attack	
Prescription in all cases	344 (78.2)
Prescription only with associated 'cold'	32 (7.3)
6. Antibiotics in asthma attack	
Prescription in all cases	280 (63.6)
Prescription only in selected cases	120 (27.3)
7. Nebuliser in asthma attack	356 (80.9)
Nebuliser in clinic	200 (45.5)
Using nebuliser in asthma attack in children	186 (42.3)
8. Prophylactic corticosteroids	18 (4.1)
Proper dosing	8 (1.8)
9. Salbutamol±corticosteroids for prophylaxis	134 (30.4)
10. Peak flow in clinic	46 (10.45)
Using peak flow in children	18 (4.1)
11. Dietetic restrictions	
In all cases	334 (75.9)
Only in known 'allergies'	20 (4.5)

TREATMENT OF ASTHMA EXACERBATION/S

Only 150 (34.1%) of general practitioners were aware that corticosteroids are now the mainstay of therapy in asthma attack. 80 (18.2%) of doctors correctly prescribed and/or dispensed oral corticosteroids for asthma attack. 70 (15.9%) prescribed corticosteroids but wrongly gave oral betamethasone or dexamethasone (oral or intramuscular) for acute attack or prescribed prednisolone for only 1-2 days. All the general practitioners gave oral or parenteral salbutamol (or terbutaline) for childhood asthma exacerbations. Aminophylline derivatives were employed by 80% of physicians for acute attacks in children. Subcutaneous adrenaline was not injected by any of the

doctors for asthma attack in children.

356 (80.9%) doctors were aware of role of nebulisations in asthma attacks, and 200 (45.5.0%) of them had nebulisers in their clinic. 176 (40.0%) of doctors used the nebuliser in all attacks of childhood asthma, whereas 10 (2.3%) used it only for severe attacks. The remaining 3.2% of doctors reserved nebuliser for adult asthmatics. Only 4 (0.9 %) doctors were aware of potential utility of spacers and metered dose inhalers (MDIs) in acute exacerbations of asthma in children.

78.2% of doctors prescribed antihistamines (tablets or as cough syrups) as a routine for asthmatic children. Another 7.3% gave them only if the asthmatic child had associated 'running nose'. 63.6% of general physicians gave antibiotics to all the wheezy children. 27.3% gave it only if the asthmatic child had high grade fever or 'bad, non-responding' cough. 17.2% of the physicians prescribed β_2 -agonist inhaler without spacer to the older asthmatic child for relief of acute attack, while 2.3% of the physicians used the combined inhalers (salbutamol+corticosteroids) for it.

Out of the 80 doctors who correctly prescribed corticosteroids for asthma attacks, only 16 (3.6%) doctors prescribed rational management for asthma attack, namely, corticosteroids in proper doses for proper duration, no antihistamines or antibiotics, and dietetic restrictions only where indicated.

PREVENTIVE TREATMENT

Regular use of steroid inhalers was correctly prescribed by only 8 (1.8%) surveyed doctors. 10 (2.3%) of studied doctors prescribed steroid inhalers in improper dosages (suboptimal dosing in 1.8% and overdosing in 0.5%). 134 (30.4%) surveyed doctors prescribed long-term use of salbutamol or salbutamol+steroid inhalers to asthmatic children. The remaining 288 (65.5%) doctors did not prescribe any preventive drug regime for these children. Self-management plan were advised by no physicians to their patients/their guardians.

334 (75.9%) of family physicians felt that forbidding certain 'cold' foods is a must to avoid further asthma attacks, whereas 20 (4.5%) of them advised this dietary restriction only if there was specific association between intake of the food item and asthma exacerbations.

46 (10.45%) doctors had a peak flow meters. But only 28 of these (60.9%) used it to monitor asthma in cooperative

children. The remaining 18 (39.1%) used it only on adult asthmatics.

PREScription PATTERN AND DURATION OF PRACTICE

Pattern of prescriptions for childhood asthmatic amongst doctors with \leq and > 10 years of practice is as depicted in Table 2. It can be seen that there was no difference in practice of prescribing corticosteroids in two types of doctors. There was no significant difference between these two groups as regards prescription of antibiotics and anti-histamines for asthmatic child. Universal dietetic modifications for children with asthma were prescribed by significantly more number of doctors with > 10 years of practice ($p<0.05$). Pattern of advising blood and roentgenographic tests for childhood asthmatics did not vary in the two groups. Age and gender of practising physician did not influence practice of prescription of corticosteroids for asthma attack in a child.

Figure 2

Table 2: Relationship between practice duration and steroid prescription for childhood asthma:

Parameters	Practice \leq 10 y	Practice $>$ 10 y	Total
Number	230	210	440
Mean Age \pm SEM (y)	48.8 \pm 0.5	48 \pm 0.75	--
Females	46	58	104
Cases/month (Mean \pm SEM)	8 \pm 0.7	12 \pm 1.3	--
Proper corticosteroids for asthma attack [†]	45(19.6)	35(16.7)	80
Aminophylline in asthma attack	178(77.4)	174(82.8)	352
Antihistaminic with associated 'cold' only	17(7.4)	15(7.1)	32
Antibiotics in associated bacterial infections only	56(24.3)	64(30.5)	120
Nebulisers in asthma attack	92 (40)	94 (44.8)	186
Salbutamol \pm corticosteroids for prophylaxis	73 (31.7)	61 (29)	134
Diet advice in known allergies only	15(6.5)	5(2.4)*	20
Advised tests in (%)	28.3 \pm 2.9	23.4 \pm 2.0	--

The figures in parentheses represent percentages

[†]Recommended corticosteroids=Prednisolone PO, or hydrocortisone IV, or methylprednisolone IV. Physicians prescribing beta- or dexamethasone were not included in this group

* $p<0.05$

PREScription PATTERN AND MODES OF UPDATE

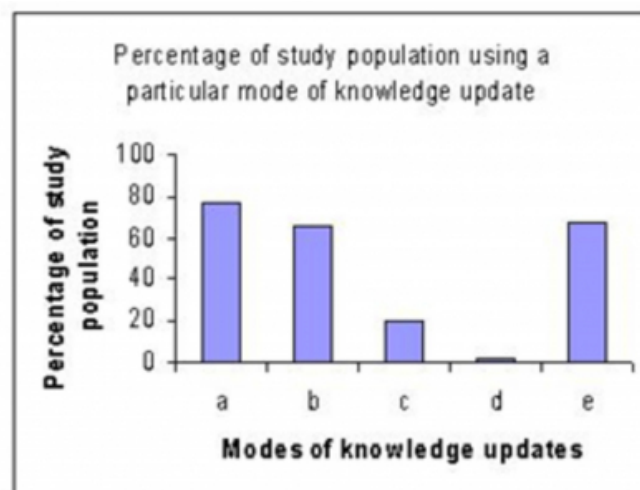
76.4% of doctors resorted to reading medical journals to keep themselves updated about medicine. These journals were general medical journals and no practitioner prescribed

specialized pediatric journals to gain information on this front. 65.5% of general practitioners attended conferences to gain new knowledge and refresh their basics. 20% of doctors used newer modalities of knowledge updates, namely computers and Internet. Discussions on a case with pediatric consultant were used by a mere 2.3% of family doctors. They felt that this type of direct talk gave them more insight into the case and also helped them update their knowledge. 67.3% of general practitioners relied on visiting medical representatives to learn about the newer things in their sphere (Fig. 1).

72.7% of family doctors depended on two or more of these modes of knowledge updating to gain information (Fig. 2). The relationship between optimal use of corticosteroids in asthma attack and method of gain of knowledge (singly or in combination) is as depicted in Fig.3. It can be seen that asthma awareness was similar in all different modes, except in discussion group, wherein knowledge and practice was significantly better than doctors who did not resort to such discussions.

Figure 3

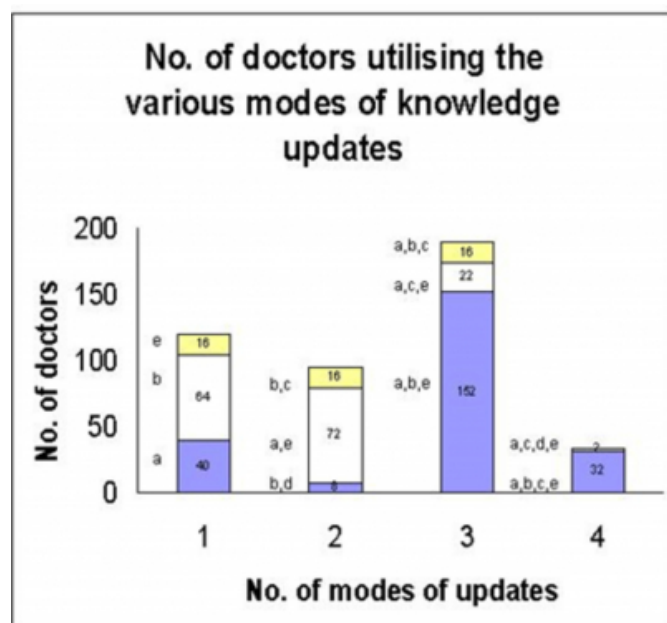
Figure 1: Various modes of update of knowledge and primary care physicians



a=Medical journals, b=Medical conferences, c=Internet use, d=discussions, e=medical representatives

Figure 4

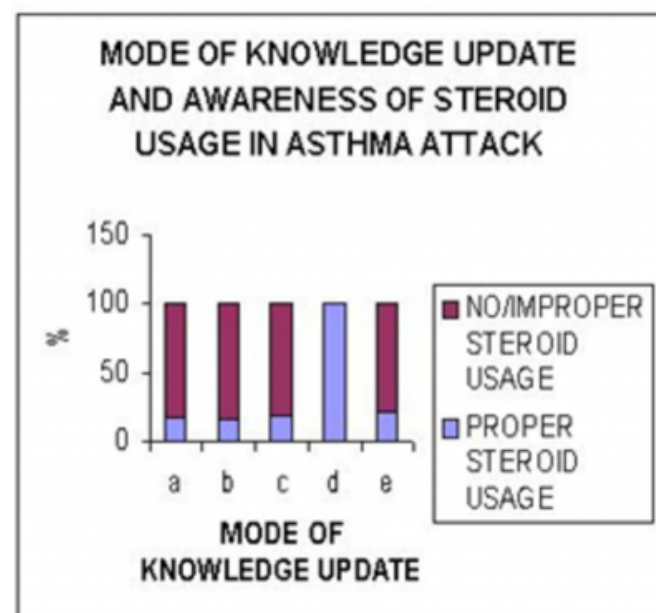
Figure 2: Number of modes of knowledge updates and primary care physicians



a=Medical journals, b=Medical conferences, c=Internet use, d=discussions, e=medical representatives

Figure 5

Figure 3: Awareness of proper steroid usage in asthma exacerbation in different modes of knowledge updates.



DISCUSSION

Our study showed that adequate knowledge on correct use of corticosteroids in treatment of asthma exacerbation has still reached the primary care level, where majority of asthmatic

children are taken to for treatment. The general tendency towards avoidance of inhaler prescriptions in children is noticed. Internet as mode for gaining information was seen in a meager 20% of studied doctors.

We have tried to study pattern of management of childhood asthma by primary physicians in an urban setting. It is noteworthy that knowledge on use of corticosteroids in present-day management of childhood asthma has still not reached them. This could possibly be due to resistance of part of doctors or patient's kin, or due to insufficient/improper dissemination of latest information to doctors who need it most. We have tried in this study to find out from primary care doctors what would be the best and suitable practical method of dissemination of any new information to them. Like any other interview study, this form of self-reporting may suffer from deliberate hiding of facts or provision of wrong data by doctors. Nonetheless, this study could form a basis to realize that prevailing situation needs to be improved and efforts to provide latest asthma treatment protocols to these family doctors in an effective way should be made.

We found that only 10.45% of the doctors had a peak flow meter in their clinic and out of this only 6.4% used it for monitoring asthma severity or control in children. Majority relied solely on their clinical judgment as a monitoring tool. Numerous studies have revealed that this could lead to an underestimation of the severity of asthma attack, as patient's perception and expression of disability may vary considerably^{16,17}. Hence an objective assessment of asthma severity is recommended to be used especially for older co-operative asthmatic children. This could also assess response to therapy.

In our study, we found that less than 20% of the doctors were aware of proper use of corticosteroids in asthma. There was no difference in the practice of prescribing corticosteroids amongst doctors with ≤ 10 years of practice when compared with those with > 10 years of practice. It is amazing that in spite of attendance at conferences and reading of medical journals by family physicians, knowledge about proper management of childhood asthma seems not to have still had its impact at the primary level. With doubtful patient compliance and some 'corticophobia' amongst parents of these asthmatic patients, actual number of asthmatic children ultimately taking the systemic steroid 'rescue' therapy is expected to be even lesser¹⁸. Other studies have also shown that general practitioners were very

restrained as regards rational use of corticosteroids in childhood asthma^{19,20,21,22,23,24}. Aminophylline is a good anti-asthma drug but has a narrow safety margin and hence should be used only in non-responders to the conventional line of management of asthma attack¹⁴. Our study revealed that aminophylline was used primarily as first-line therapy by 80% of doctors for asthma exacerbations in children. Besides nebulised β_2 -agonists were used by only 42.3% of the doctors for children with exacerbations of asthma; this is consistent with other studies^{20,21,25}. Cost of nebulisation therapy seems also to be a determining factor. Recent studies have shown that salbutamol inhaler with spacer has equal efficacy to that of nebulised salbutamol²⁶. Also early treatment of attack could help decrease duration of attack and hospitalization rate⁸. Hence it needs to be emphasized on the family physicians that spacers and inhalers with or without the baby mask could be a cheaper option to nebuliser for targeted treatment of childhood asthma. Antihistaminic and antibiotics were still used empirically and irrationally by significant proportion of doctors for acute asthma attacks in children. Stress on dietary limitations was made by significantly more number of senior doctors.

Riyami et al have shown that general doctors in their country did advocate long-term inhaler use but salbutamol was the most common inhaler prescribed²⁵. Similar results were noted in our study, where it was seen that only 1.4% of studied doctors rightly prescribed inhaled corticosteroids and 2.3% prescribed inhaled corticosteroids in wrong dosages and frequencies. 30.4% prescribed just salbutamol or combination inhalers for long-term use in chronic asthmatics.

Modes of keeping themselves abreast with latest knowledge were mainly by journals and conferences, but the busy schedule tended to leave the doctors with less time for this posting. Surprisingly, more senior doctors (≥ 50 years of age) resorted to Internet for gaining the latest information, but overall percentage who thus used the Internet was only 20%. This is important considering the vast amount of medical websites for family physicians which have flooded cyberspace. This implies that these remain largely unexplored. Dependence on medical representatives for latest knowledge was present in 67.3% of doctors. But it should be appreciated that such an information could be a biased one and not always reliable. A healthy exchange of information between general doctors and pediatricians gave the former a better perspective of the case as well as

knowledge of the newer trends in medicine. Simple, short, easy recent guidelines for management of childhood asthma could also be circulated to family physicians either by post or by direct contacts. This will aid in providing the knowledge, gradually changing the attitudes and assuring the right practices by this important component of our health care system.

Our study has revealed that 'ideal' management of childhood asthma is still far away from the general practitioners' office practice. Use of corticosteroids as main therapy in 'rescue therapy' for asthma in childhood needs to be emphasized to these doctors. This can be carried out more efficiently by means of dissemination of concise relevant material for busy doctors. Repeated demonstration of use of spacers, inhalers, nebulisers and such devices for childhood asthma in conferences and via small booklets/pamphlets could help in change of attitudes of doctors in this context. Continuing medical education should incorporate recent trends in asthma management. Education of these professionally isolated physicians about appropriate asthma care in children would help improve physician prescribing behavior and control childhood asthma better.

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