

IMPACT OF ASTHMA EDUCATION PROGRAM ON ASTHMA KNOWLEDGE OF GENERAL PRACTITIONERS

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As in many other parts of the world,¹⁻³ the prevalence of asthma is high in Saudi Arabia, affecting 10% to 15% of schoolchildren.⁴ In spite of recent advances in understanding asthma pathophysiology and the availability of more effective modes of therapy, several studies have reported increasing morbidity and mortality from asthma.^{5,6} This has been attributed to many factors, including delays in asthma diagnosis, overreliance on bronchodilators, underestimation of chronic inflammation of airways leading to underuse of anti-inflammatory medications, and poor patient education.⁷⁻¹¹ Phin et al. reported wide variations in the treatment of childhood asthma among pediatricians, respiratory physicians and general practitioners in Australia.¹² Jobanputra et al. showed that 32% of patients with acute asthma managed by GPs in the UK were given oral theophylline, and 38% were given antibiotics.¹³ Similar results were found in a recent local study by Mobaireek et al., who assessed the prescribing of medications for asthma in outpatient clinics in four large hospitals in Riyadh City.¹⁴

Two approaches have been attempted in order to improve the quality of asthma care. The first consists of establishing unified clinical guidelines for the diagnosis and management of asthma. The second approach is to improve the knowledge and attitude of asthma patients. The first approach has been adopted by health authorities from several countries. Many guidelines have been published, all emphasizing the perception of asthma as chronic inflammation of airways with stepwise use of anti-inflammatory medications.¹⁵⁻¹⁹ A local version of the asthma guidelines (the National Asthma Management Protocol) was published recently by the National Scientific Committee of Asthma Management in Riyadh.²⁰ Further efforts have led to the organization of a national asthma

education program in order to introduce asthma guidelines to the medical community throughout the country. This study describes the impact of such a program on the knowledge of asthma of general practitioners in the Medina Region of Saudi Arabia.

Methods

Sixty-two GPs working in the primary health care sector in Medina were selected randomly to participate in the study. They attended a five-hour seminar on the diagnosis and management of asthma. The scientific materials and program were supplied by the National Asthma Committee. The program included slides and lectures on asthma pathology, epidemiology, classification, and stepwise use of asthma medication. The program also focused on the management of acute and chronic asthma. Practical sessions were conducted, including demonstration of a peak-flow meter and inhalation techniques, as well as an explanation of self-management action plans demonstrating different asthma devices. There were also posters and video illustrations. The lecturers were senior registrars in pediatrics, adult pulmonologists and family medicine practitioners who were trained and certified by the National Asthma Committee in the Medina region. Each candidate was given a file containing the National Asthma Guidelines, case study scenarios, peak-flow meter and chart, placebo-metered dose inhaler (MDI), asthma diary and self-management action plan sheet. A true/false asthma knowledge questionnaire supplied by the National Asthma Committee was used to assess baseline asthma knowledge of GPs (pre-test) and repeated twice. One was repeated immediately after the conclusion of the program (post-test-1) and the second was repeated eight weeks later (post-test-2) to assess the long-term effect of the program using the same questionnaire. Personal data recorded included age, gender, nationality, years since graduation, number of working years in primary health care centers (PHCC) and previous postgraduate training. The biodata and results of pre- and post-tests were processed, coded and fed into a personal computer. Analysis was done using Epi-Info²¹ and SPSS software.²²

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Accepted for publication 10 June 1997. Received 16 November 1996.

Results

Of the sixty-two GPs enrolled in this study, 33 were male (53.2%), and 29 were female (46.8%). Their ages ranged between 28 and 56 years, with a mean age of 39.7 years. Twenty (32%) had had previous postgraduate training, eight trained in the medical field and 12 in surgery. The average asthma knowledge scores were: pre-test 61.2%, post-test-1, 74.9%, and post-test-2, 72.9%. The difference between the pre-test and post-test-1 was significant ($P=0.03$). The difference between the pre-test and post-test-2 was not significant ($P=0.23$). Table 1 compares the average asthma scores with personal characteristics. Males scored better than females in all tests, and the differences were significant in the pre-test ($P=0.0006$) and post-test-1 ($P=0.0001$), but not in the second post-test. However, females retained long-term knowledge better than males. GPs who were above the mean age, and those who had had previous postgraduate medical training scored significantly better in the pre-test, but not in the post-test. The multiple regression tests showed positive correlation between the average score in pre-test and years of experience. Other factors, such as nationality, interest or experience in the management of asthma, and number of years of work in PHCC showed no significant relation to asthma knowledge score. The authors observed that the majority of candidates are not familiar with the mini right peak-flow meter and inhalation devices, and had special difficulty in demonstrating proper MDI-technique when using placebo MDI.

Discussion

The average asthma knowledge score increased sharply just after the program, followed by gradual decline, as is shown by the second post-test repeated eight weeks later. Though males scored better than females in all tests, the increase in post-test-1 (short-term knowledge) was more marked in females, who also retained the same score in post-test-2 (long-term knowledge). This may reflect that males had better background knowledge, but females continued to read about asthma after the program. Hendricson et al.²³ have reported the improvement of asthma knowledge scores of pediatric residents after participation in a similar asthma education program. Gorton et al.²⁴ have shown that short concise summaries with frequent reminders are the best form for dissemination of guidelines. Though GPs with more years after graduation did better in the pre-test, this was not related to years of experience in PHCC. The poor technique in using placebo MDI by GPs before the education session is worth mentioning, since some of the MDI medications have recently been added to the

TABLE 1. Average score according to study variables.

	Pre-test	Post-test-1	Post-test-2
Gender			
Male	65.1	78.5	74.0
Female	56.8	72.0	71.9
P-value	0.0006*	0.0001*	0.05**
Age			
Above the mean	64.8		
Below the mean	57.8		
P-value	0.00139*	NS	NS
Postgraduate training			
Medical	66.8	76.6	74
Surgical	59.1	75.7	73
P-value	0.03*	0.7**	0.8
Total average score	61.2	74.9*	72.9**

*Significant; **not significant.

formulary of the primary health care centers. Resnick et al. found that only 10 out of 38 pediatric house-staff physicians (26%) demonstrated perfect technique with a placebo MDI, even when re-evaluated eight weeks after a teaching session. Repeat education sessions were suggested to house-staff physicians.²⁹ Though dissemination of guidelines did improve asthma knowledge, there was some controversy over the efficacy of such guidelines in improving the current practice of asthma management. Two studies from the USA demonstrated significant improvement in acute asthma management by emergency room residents following intervention with short concise asthma education sessions at minimal efforts and costs.^{25,26} However, chronic asthma management is different from acute asthma in the following: 1) chronic asthma management is a long-term process focusing on preventing asthma attacks by regular use of anti-inflammatory medications; 2) in chronic asthma management, the patients play a major role in the success of asthma control; and 3) administrative support and availability of clinical pharmacy services are important factors in helping long-term management of chronic asthma. For these reasons Kibbe et al.²⁷ and Gergen and Goldstein²⁸ emphasize that in order for guidelines to be effective in controlling variations in clinical practice, they should be integrated into the total clinical process design, rather than focusing on just physicians (a multidimensional approach). The study conducted by Mobeireek et al.¹⁴ indicated that the outpatient clinics in four major hospitals in Riyadh do not follow the asthma guidelines in prescribing medication. Such a study needs to be repeated after dissemination of the National Asthma Guideline is completed to assess changes in prescribing for asthma medications.

In conclusion, the National Asthma Education Program will be beneficial as an initial step in improving asthma knowledge and increasing its awareness in the medical community. In addition, there is a need to establish

continuing medical education programs with emphasis on concise frequent reminders, such as the use of newsletters. Further studies are needed to evaluate changes in asthma management after the national education program has been disseminated, and to evaluate methods that result in long-term improvement in the management of asthma.

Acknowledgment

The authors acknowledge Mr. Haitham J. Al-Tiab, for the proper coordination of the training program, and continuing post-tests.

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