Introduction

Asthma and chronic obstructive pulmonary disease (COPD) are common airways and lungs diseases that have a major impact on health. About 300 million people in the world are suffering from asthma. In Pakistan, the prevalence of asthma is 19% among children and 5-10% in adults. It has been predicted that the future increase in asthma is likely to be more in developing countries.

Current effective treatments available for asthma are mainly the inhalers. Nurses play a vital role in imparting correct knowledge of asthma care and teaching inhaler techniques to patients. The aims of the study were to, a) determine the knowledge of nurses regarding asthma and its management and b) evaluate the competence of nurses to use inhalers.

Methods: A simple random sample of registered nurses was taken from the medical surgical units of the hospital. Data was collected by using pre and post test asthma questionnaire and a nine step inhaler skill checklist.

Results: The pre-test data shows 40-50% of RNs lacked the knowledge of causes, sign and symptoms and the management of asthma. More than 30% were not able to demonstrate the correct inhaler technique of MDIs. Evaluation after several teaching sessions shows 80-90% improvement in the knowledge and competence of nurses to use inhalers.

Conclusion: Continuous training programs and workshops are needed to improve the knowledge of nurses about asthma, their competence to use inhalers and to demonstrate to patients.

Abstract

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of patient. Therefore, a need was felt to train nurses for better management and care of asthmatic patients admitted in the hospital.

The following study aimed to determine nurses’ knowledge regarding asthma causes, symptoms and management and to evaluate the competence of nurses in using correct asthma inhaler technique in order to enhance patient education regarding asthma management.

**Methods**

A simple random sample of registered nurses (n=60) was taken from three medical-surgical units of the hospital having an experience not less than 6 months. For data collection, two separate study instruments were used to assess the knowledge of asthma and competence of nurses for inhaler technique. In order to evaluate nurses’ knowledge of asthma, a 20 item asthma questionnaire adapted from a previously published research was used. A written permission was sought from the authors before using the questionnaire. To evaluate the competence of participants for correct inhaler technique, a 9 step skill checklist adapted from Baddar et al, 2002 was used.

The questionnaire was administered before and after several teaching sessions on asthma education in order to compare the differences in the knowledge level of nurses and evaluate the effectiveness of the training sessions. Clinical nurse instructors of the respective unit administered the questionnaires. During training sessions demonstration of correct inhaler technique using the placebo metered dose inhaler (MDI) device were also conducted. Each participant was asked to demonstrate the inhaler technique skill to their respective unit clinical nurse instructor and was scored as per the checklist criteria.

The study was approved by the university ethical review committee. Permission was obtained from managers of the specific units of the hospital before data collection and informed written consent was taken from the participants. Data was analyzed using the SPSS software package and described as descriptive statistics.

**Results**

**Knowledge of Asthma**

Pre-test data showed nurses lacked the knowledge about the causes, symptoms and management of asthma, and more than 30% were not able to demonstrate the correct inhaler technique of MDIs commonly used for the treatment of asthma among patients in the hospital. However, post-test results showed marked improvement in understanding of asthma, its causes, symptoms and management (Fig. 1).

**Nurses’ competence in using correct inhaler technique**

Results showed that 71% nurses were able to demonstrate the correct inhaler technique before the session which, after the training sessions improved to 97%. Moreover, there was also a marked improvement seen in performing essential steps while using correct inhaler technique which improved from 63% to 99%.

**Discussion**

The study results highlighted the significance of asthma education among nurses in relation to the effective patient care. Asthma education is essential if patients are to get the maximum benefit from their treatment. It is important for nurses to teach correct inhaler technique to their patients as this is one of the factors associated with morbidity due to asthma. For patients, it is difficult to learn effective inhaler technique simply by reading the instructions provided by manufacturers. Continuing educational and training sessions should be held among nurses in order to enhance learning, updating the concepts previously learned and integrating the new knowledge and advancements in the related area.

Effective patient education by nurses improves the patient care safety and brings positive healthcare outcomes. The proficiency with the use of metered-dose inhalers can be substantially improved if physicians and allied health care personnel (nurses, respiratory therapists, and pharmacists) devote time to instruct their patients on how to use and care for their inhalers properly. Simply instructing patients without actual demonstration may not be adequate. Ongoing assessment and teaching of inhaler technique is essential if patients are to get the maximum benefit from their treatment. It is important to ensure that inhaler technique is monitored regularly since poor technique is one of the factors associated with morbidity due to asthma. In one of the research study, positive outcomes were seen among asthmatic patients with the introduction of trained nurses in asthma management. Trained nurses who provided standardized inpatient asthma management according to current asthma care guidelines and asthma education to patients and their families before discharge, encouraged referrals to the outpatient allergy/asthma clinic for further asthma management and education, and addressed other medical or social needs related to asthma care. As a result, the positive outcomes measured in their study were a decreased length of hospital stay (LOS) by 12 hours per hospital admission and average cost savings of $300,000 annually for the hospital. Other positive outco-
omes included improved patient and family understanding of asthma and improved coordination of care. Moreover, through this practice, the asthma nurses have had the benefit of further developing their asthma assessment, teaching, and communication skills.

Several factors have been identified in the literature among health care professionals and specifically among nurses for not providing proper teaching regarding the inhaler technique to the patients. These include; increased workload, lack of regular periodic assessment of patients’ inhaler technique, lack of time for educating patients, and lack of awareness regarding the importance of patient education. Therefore, it is essential that the hospital administration must look into these issues and facilitate the staff accordingly to perform their required roles efficiently and in the benefit of the patients care and safety. Moreover, continuous reinforcement among the staff is necessary to make them realize the importance of asthma education and training which will ultimately enhance the patient care quality and their satisfaction.

Recommendations

On the basis of findings of the present study, following recommendations were given:

1. Frequent sessions should be organized for nurses about asthma care, its management and correct inhaler technique.
2. Frequent follow up should be made during clinical rounds to motivate the staff of the unit for increased patient teachings and its documentation.
3. Competence in nursing skills should be given high emphasis in nursing curriculum.
4. Further research studies and clinical projects are recommended to be carried out among nurses and other health care professionals for improved asthma care and its management within the hospital and overall in the country.

Limitations

The results of the study cannot be generalized due to smaller sample size. The post test and practical re-demonstration was taken shortly after the teaching sessions. The improvements in the results might be because of the regency effect of the session. This is subject to further monthly follow-up of the staff by their clinical nurse instructors in the unit.

Conclusion

Better asthma management and care is essential for effective patient care reducing the morbidity and mortality of the disease overall in the country. Inhalers are the common and widely used treatment modality in the asthma management. However, its desired effects can only be achieved by proper usage with correct technique. Competent and knowledgeable nurses can raise the standards of patient care and satisfaction within the hospitals and the community and may play an important role to overall reduce the disease burden in the society.

References