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Original Research Article

Knowledge, attitude, practices of inhalational therapy among nursing staff posted at tertiary care teaching hospital

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ABSTRACT

Background: Inhalational therapy for patients with chronic respiratory disorder can greatly benefit. Nurses are one of the major components of health care system of hospital and have an important role in education and training of patients. This study was planned to assess knowledge, attitude, and practices of inhalational therapy among nurses.
Methods: This questionnaire based cross sectional study was conducted after taking permission from the institutional ethics committee in all the nurses of a tertiary care teaching hospital. This questionnaire consists of few socio-demographic questions and other questions for assessing level of knowledge, attitudes, and practices related to inhalational therapy. Incompletely filled questionnaire were excluded out for data analysis. Data was interpreted in percentage.
Results: Total 344 (87.31%) questionnaires were analysed. 334 (97.09%) have heard the term inhalational therapy and 310 (90.12%) responded that it is preferred in respiratory disease. 117 (34.01%) nurses could not mention single side effect of inhalational therapy. 178 (51.74%) nurses always assess/observe the patient and 211 (61.34%) always train the patients for correct inhalational technique. 165 (47.97%) nurses responded that knowledge of inhaler use came from attending meetings, courses or workshops organized by scientific bodies. 163 (47.38%) nurses considered 'Disease to be treated' the most important variable while prescribing an inhalational device.
Conclusions: The knowledge of inhalational therapy was satisfactory while the demonstration of inhaler techniques to patients was moderate in this study. So regular training courses and workshop should be conducted for the nurses about inhalational therapy practical approach.

Keywords: Attitude, Dry powder inhaler, Inhalational therapy, Knowledge, Metered dose inhaler, Nurses

INTRODUCTION

Inhalational therapy for patients with chronic respiratory disorder like asthma and chronic obstructive pulmonary disease (COPD) can greatly benefit. Aerosol must be delivered effectively to the airways as well as to produce a desired therapeutic effect.[1] Medications that are inhaled in the form of small droplets are absorbed immediately into the blood circulation and are available to the body within minutes. Inhalational drug route is one of the fastest, non-invasive methods of medications designed for treatment of respiratory disorders.[2,3] Metered dose inhalers (MDIs), dry powder inhalers (DPIs) and nebulizer and are most commonly used devices for delivering inhalational therapy.[4] Bronchodilators are frequently used in patients receiving invasive mechanical ventilation and commonly delivered through the inhalation route.[5] The delivery of bronchodilators with MDI in mechanically ventilated patients has received considerable interest in recent years because the use of MDI has several advantages over the nebulizer, such as reduced cost, ease of administration, less personnel time,

reliability of dosing, lower risk of contamination and also doses used in MDI or DPI is very less as compared to nebulisation or oral dose hence very less or minimal side effects.[6] Inhalational therapy if not given appropriately, can lead to mucosa irritation, bronchospasm, dyspnoea, airway burns, headaches, coughing, tachycardia, palpitations, nausea in patients and may result in hypoxemia.[1]

Nurses are one of the major components of health care system of hospital and have an important role in education and training of patients and also providing inhalational therapy for respiratory disorders. Effectiveness of inhalational therapy depends on nurses' knowledge, attitude and experience and the way nurses educate patients.[7] There are limited studies assessing nurses' knowledge on inhalational technique in India. Assessing the baseline knowledge of practitioner nurses on inhalational technique add value to develop educational intervention and training to update their knowledge and skills to improve patient's outcome. So, this study can provide database by assessing knowledge, attitude, and practices of inhalational therapy among nursing staff posted at tertiary care hospital.

METHODS

This questionnaire based cross-sectional study was conducted in a tertiary care teaching hospital. After taking the ethical permission from the institutional ethics committee; data was collected in preformed questionnaire. This questionnaire consists of few socio-demographic questions and other questions for assessing level of knowledge, attitudes, and practices related to inhalational therapy among nurses. It was specifically designed for this study with the help of Plaza et al study done in Spain for physician.[8] This questionnaire was validated with the help of five experts in the field of respiratory medicine. Validation of questionnaire was completed after lots of discussion and changes. This questionnaire was distributed to nurses of the tertiary care hospital. They were asked to fill the questionnaire without any assistance. The questionnaire was anonymous and was supposed to be submitted voluntarily. Hence a separate consent form was not collected. In the event that questionnaires were returned filled, consent was implicit; non-consent was presumed if questionnaires were returned blank. All the incompletely filled questionnaires were excluded out for the final analysis. Data collected in questionnaire was analyzed in excel using suitable statistical tests. Data were expressed as a number as well as percentages of respondents.

RESULTS

Total 394 questionnaires were collected from nurses who participated in the study. 50 (12.69%) questionnaires were incompletely filled which were not involved in the data analysis.

Finally, 344 (87.31%) questionnaires were analysed. Mean age of nurses were 28.29 years including 119 (34.59%) female and 225 (65.41%) male. Out of 344 respondents; 334 (97.09%) have heard the term inhalational therapy and 310 (90.12%) responded that it is preferred in respiratory disease. 303 (88.08%) responded that it is used for both asthma and COPD. 263 (76.45%) nurses mentioned that inhalational therapy can be used in paediatric patients and neonates.

117 (34.01%) nurses could not mention single side effect of inhalational therapy. 178 (51.74%) nurses always assess/observe the patient for correct inhalational technique every time and 211 (61.34%) always train the patients for correct inhalational technique (Table 1).

Table 1: Assessment and training the patients for correct inhalational technique (n=344).

	Assess / observe the patient for correct inhalational technique every time N (%)	Train the patients for correct inhalational technique every time N (%)
Always	178 (51.74)	211 (61.34)
Usually	83 (24.13)	72 (20.93)
Sometimes	67 (19.48)	47 (13.66)
Rarely	10 (2.91)	09 (2.62)
Never	06 (1.74)	05 (1.45)

165 (47.97%) nurses responded that knowledge of inhaler use came from attending meetings, courses or workshops organized by scientific bodies. 92 (26.74%) responded that it came directly from personal clinical experience and common sense. 62 (18.02%) responded that it came from reading articles or specialized books or the device leaflet. 25 (7.27%) told that knowledge came from attending meetings, courses or workshops organized by pharmaceutical companies.

Most known and preferred device for them was rotahaler (155) (45.05%) followed by nebulizer (73) (21.22%).

Most important step for correct pMDI inhalation was 'to shake the device well before inhalation' and for correct DPI inhalation it was 'to inhale deeply and forcefully' (Table 2). 16 (47.38%) nurses considered 'Disease to be treated' the most important variable while prescribing an inhalational device followed by 'Patients experience with a specific device' (77) (22.38%), 'patients age' (63) (18.31%) and 'patients preferences' (41) (11.92%).

Table 2: Most important step for correct pMDI/DPI inhalation (n=344).

	Most important step for correct pMDI inhalation N (%)	Most important step for correct DPI inhalation N (%)
To shake the device before inhalation	117 (34.01%)	66 (19.19%)
To exhale deeply before inhalation	50 (15.53%)	77 (22.38%)
To inhale deeply and forcefully	93 (27.03%)	151 (43.89%)
To inhale slowly and progressively	84 (24.42%)	50 (14.53%)

DPI-dry powder inhaler; pMDI- pressurized metered-dose inhaler.

DISCUSSION

Nursing staff are the key component of patients' education in the health care system of hospital.[7] Lack of inadequate knowledge in nurses leads to increased risks to patients and may influence patient's outcomes.[1] Nurses seldom receive formal training in the use of inhaling devices and about inhalational therapy.[9]

In the present study nurses age range was from 21 to 56 years old with mean age 28.29 years. This shows that in our study both new inexperience as well as senior experienced nursing staff was available for patient care. This may be due to the fact that many nurses were having diploma certificates only. Therefore, this factor may affect the unsatisfactory level of knowledge of nurses.[10]

In the current study 97.09% nurses had heard the term inhalational therapy. This shows that this terminology is quite commonly used at tertiary care hospital level. 90.12% of nurses responded that this is used for respiratory disease. 88.08% of nurses had the knowledge that it is used in both asthma and COPD. 76.45% nurses mentioned that inhalational therapy can be used in paediatric patients and neonates. So, the current study results denoted that the majority of the studied nurse's were having a good knowledge about the inhalational therapy. Desalu et al study has also shown similar results about knowledge.[7]

34.01% nurses could not mention single side effect of inhalational therapy. These findings revealed that total knowledge about side effects was at an unsatisfactory level. The reasons might be due to inadequate education about the side effects to the nurses.

Most preferred device by the nurses was rotahaler. The reason for that could be its' ease of administration as compared to other devices.[11] 74% nurses always assess/observe the patient for correct inhalational technique every time and 61.34% always train the patients for correct inhalational technique. This shows that attitude towards observing the patients for correct inhalational technique and to train the patients for correct inhalational technique was at moderate level. This is required because inhalational therapy can lead to mucosa irritation, bronchospasm, dyspnoea, headaches, coughing, tachycardia, palpitations and other side effects.[1] This patient knowledge about inhaler techniques have been associated with disease control and health outcome.[7,12,13]

47.97% nurses responded that knowledge of inhaler use came from attending meetings, courses or workshops organized by scientific bodies. 26.74% responded that it came directly from personal clinical experience and common sense. This may be due to the fact that they are working in teaching hospital where frequent workshops and teaching programme are conducted regularly. One study has also mentioned that knowledge is acquired primarily through experience, usually observation of and working with mentors; may also be described as practical i.e. derived from experience or practice.[1]

34.01% nurses considered 'to shake the device well before inhalation' most important step for correct pMDI inhalation and 43.89% considered 'to inhale deeply and forcefully' for correct DPI inhalation. Inhaled therapy is effective only when the inhaled drug particles reach the lungs and can deliver their effects there; which can only be provided by regular training programme in the form of demonstrating the steps or by workshops. The findings of our study revealed that total knowledge about steps for correct inhalation was at an unsatisfactory level. Various other studies on nurses have also reported similar results about demonstration of these important steps.[10,14] One study conducted by Plaza et al on-healthcare workers has also shown poor practical knowledge.[15] The reasons might be due to fact that nurses have not attended the training programme and workshop regularly related to these steps. Adequate level of training in order to correctly instruct their patients is required because the

efficacy of inhaled treatment greatly depends on the adequacy of the inhaler technique.[7]

In present study only 11.92% nurses considered 'patients' preferences' the most important variable while prescribing an inhalational device. Similar results were found in Plaza et al study; which were conducted for physicians.[8] This shows that there is inadequate knowledge about variable factors in inhalational therapy in physician as well for nurses. One study conducted in Pakistan has also suggested to increase practical/clinical hours during nursing school training to decrease the knowledge and practice gap among nurses.[16]

CONCLUSION

The knowledge of inhalational therapy was satisfactory while the demonstration of inhaler techniques to patients was moderate in this study. So regular training courses and workshop should be conducted for the nurses about inhalational therapy practical approach as treatment outcome depends on the patients and nurses' knowledge and practice of their inhaler technique.

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