Nurses' Awareness about Principles of Airway Suctioning

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ABSTRACT

Introduction: Airway suctioning is one of the most common interventions for patients with respiratory disorders and having adequate knowledge in implementing this technique is quite crucial for nurses.

Aim: To assess the nurses' awareness about principles of airway suctioning.

Materials and Methods: This study was a cross-sectional study done on 85 staff nurses' in Vali-Asr hospital. Sampling was based on census data collection. A researcher made questionnaire was used for assessment of nurses' awareness about the principles of airway suctioning. The validity and reliability (Cronbach's alpha=0.78) of the questionnaire have been examined and proved. The level of nurses' awareness about airway suctioning was measured based on the questionnaire that includes demographic and specialty information in the form of eight questions of 3-selection-item. The maximum and minimum score of knowledge ranged between 0-8. The data obtained was statistically analysed using SPSS software Version 16.0 and was analysed using descriptive statistics and Pearson correlation coefficient.

Results: The results reveal that the nurses' awareness about principles of airway suctioning was average. There was a significant association between knowledge and gender of nurses (p<0.05) which reveals that the awareness of women about the principles of airway suctioning was more than men.

Conclusion: The results indicate that nurses' awareness of airway suctioning technique was in an average state. Considering the importance of this technique and the effects this technique has on the patients' haemodynamic status, we recommend in-service courses.

INTRODUCTION

Nursing is defined as the art and science of taking care of help-seekers which may include a range of activities from the most complex to the simplest ones. Nursing science offers the knowledge and awareness among nurses for taking care of the patient [1,2]. The airway suctioning was one of the most common expert interventions which were used for patients with respiratory disorders [3].

The air way suctioning is an essential component in airway management in patients on mechanical ventilation, being one of the most frequently performed invasive procedures in the Intensive Care Unit (ICU). Its main goal is to remove accumulated lung secretions in order to maintain the airway's permeability; provide adequate oxygenation; reduce the risk of Ventilator-Associated Pneumonia (VAP) and prevent pulmonary consolidation and atelectasis [4].

However, the suction has complications like damaging the airway, bronchoconstriction, hypoxemias, changing in mean arterial pressure, heart rhythm disturbances and pneumonia associated with the mechanical ventilation system. But its most complicated factor is hypoxemia that would allow changes in the number of heart rate, heart rhythm disorders, haemodynamic imbalance, cardiac arrest, and death [5].

Therefore, it is imperative that this procedure is performed with professional competence, which means not only having the necessary skills, but also knowledge based on updated scientific evidence, guaranteeing efficiency and the safety of the patient [4]. Endotracheal suctioning must be performed according to right standards and codes in order to reduce its side effects [6].

Therefore, having enough knowledge and awareness and their usage in the implementation of this technique is quite crucial [3]. Results from some of the studies show that the level of knowledge and practice of nursing staff in endotracheal suction is average and poor [4,7-9]. Considering the importance of nurses' roles in patient care and the importance of airway suctioning for patients with respiratory disease, the aim of this study was to determine the level of knowledge of nurses about the principles of airway suctioning technique in Valiasr hospital of Borujen city.

MATERIALS AND METHODS

This was a descriptive, analytical study. The sample includes all the nursing staff (n=85) of Vali-Asr hospital of Borujen city, Iran. The study duration was of three months. The research followed the tenets of the Declaration of Helsinki; informed consent was obtained; and the research was approved by the ethical committee with the code of 208 of Shahrekord University of Medical Sciences, Iran.

The samples were selected by census method. The level of the knowledge of the nurses about the principles of the airway suctioning was measured based on a researcher made questionnaire in Persian language which consist of two parts: demographic information and technical information. The questionnaire for technical information was designed in the form of 8 questions with 3 choices about airway suctioning technique. The criteria studied in demographic section, were gender, age, marital status, degree, level of education, graduation time and the workplace.

The validity and reliability of the questionnaire have been examined and proved. The face and content validity of the test has been approved by the professors in nursing college of Borujen. By the use of alpha, the reliability of the test was calculated which was 0.78. In order to specify the reliability of questionnaire Cronbach's Alpha method was used over 20 clerks of Shahrekord Kashani hospital. A coefficient of 0.78 was obtained and was approved. The maximum score of awareness level at this evaluation was 8 and the range provided were: 0-2: very poor awareness; 3-4: poor awareness; 5-6: average awareness; and 7-8: high awareness.

At first the aim of the study was explained to nurses and consent form was taken by participants. After participants were agreed to

Variables		Number	Percentage (%)
Gender	Male	20	23.5
	Female	65	76.5
Marital status	Single	13	15.3
	Married	72	84.7
Degree	Bachelor of Science	84	98.8
	Master of Science	1	1.2
A few years have passed since their graduation (years)	1-5	18	21.2
	5-10	28	32.9
	10-15	22	25.9
	> 15	17	20
Workplace (Ward)	Internal medicine	12	14.1
	Surgical	10	11.8
	Dialysis	2	2.4
	Emergency	38	44.7
	ICU	11	12.9
	CCU	12	14.1

[Table/Fig-1]: Demographic characteristics of participants (n=85). ICU= Intensive care unit, CCU=Coronary care unit

Level of awareness	Number and percent
Very poor (0-2)	3 (3.5%)
Poor (3-4)	28 (32.9%)
Average (5-6)	39 (45.9%)
High (7-8)	15 (17.7%)
Total	85 (100%)

[Table/Fig-2]: Level of awareness among nurses about principles of airway suctioning.

take part in the study the researcher distributed the questionnaires in different wards and different working shifts, and collected the form after finishing. The questionnaires were nameless and not being coded and they were made confidential.

STATISTICAL ANALYSIS

The data obtained was statistically analysed using Software Package used for Statistical Analysis (SPSS) software Version 16.0 and was analysed using descriptive statistics and Pearson correlation coefficient.

RESULTS

The findings from this study show that 23.5% of the samples were men and 76.5% were the woman. The minimum and maximum age of participant's was 22 and 42 and the mean age was calculated as 31.09±5.78 years. Other demographic data are presented in [Table/Fig-1].

In addition to these results, determining the level of awareness about airway suctioning reveals that the overall awareness of the nurses in Vali-Asr hospital about the principles of airway suctioning was average. The maximum score for the level of awareness in this study was 8 and the scores between 0-2 represent very low level of awareness which would take up 3.5% of the samples, the scores between 3-4 represent low level of awareness which would take up 32.9% of the samples, the scores between 5-6 represent average level of awareness which would take up 45.9% of the samples and the scores 7-8 represent high level of awareness which would take up 17.6% of the samples. The participants' distribution in the study in different levels of awareness is depicted in [Table/Fig-2].

The relationship between the level of awareness of the airway suctioning and gender was significant (p=0.004) (r=0.164). It signifies that the knowledge of airway suctioning among women was higher than men but there was no relationship established between the level of awareness and other demographic details like

age, level of education, work experience, workplace, marital status, and graduation time (p>0.05).

DISCUSSION

The results of this study show that the overall awareness of nurses about principles of airway suctioning was average. Our findings were in concordance with Hadian Shirazi Z et al., where he found that the level of knowledge and operation of nursing staff about endotracheal tube suctioning in neonatal intensive care unit was average and low and their level of knowledge and operation increased after training [10]. However, in our study training was not provided as it was not the aim of our study. In a study by Ansari A et al., to determine the difference between knowledge and performance of the nurses in following the standards of tracheal suctioning, they concluded that nurses had a poor performance in endotracheal suctioning, despite their acceptable knowledge. This would reveal that having knowledge is not sufficient; training is also important [11].

Also in a study by Amirzade N et al., to observe the status of following the nursing standards about safe suction, the results showed that the nursing care about the endotracheal suction tube in ICU is not safe. This problem would reveal the importance of identifying their causes and removing them in order to prevent the complexities [12].

In the study, Frota OP et al., reported that nursing practitioners do not have sufficient knowledge of the current recommendations for AET and, according to empirical evidence; the practice is often based on rituals and traditions [4].

Ania Gonzalez N et al., also showed that there is a noticeable gap between nurses' knowledge and performance of endotracheal suctioning. Finding shows there is a large gap between knowledge and performance in such a common and vital process in ICUs and most nurses, despite awareness of recommended standards, do not observe them practically [8]. Leddy R and Wilkinson JM identified a gap between what is considered best practice and what is used within groups of community hospital ICUs. This highlights the need for greater education with respect to endotracheal tube suctioning generally [9].

The study of Varghese and Moly showed deficit areas of knowledge and skill in specific phases of ET suctioning as well as a significant difference between the current practices observed and best recommended practice on ET suctioning. This may be because the nurse's practice ET suctioning as learned from others or due to inadequate training during student/staff period. The need for skill training program specific to practice areas of nursing before independent patient care assignment in critical care unit has become evident [7].

As airway suctioning is one of the most common interventions which are done for patients with respiratory disorders, therefore, having sufficient knowledge and using them for implementation of these techniques is critical [13-16]. Therefore, it is recommended to evaluate the knowledge of nurses working in hospitals and provide appropriate courses to improve nursing care.

LIMITATION

Limitations of this study were the number of available personnel, therefore, further studies on larger populations are recommended.

CONCLUSION

This technique is one of the most common technical methods and it is done by nurses, respiratory therapists, and trained technicians but the results of the study indicate that nurses' awareness about airway suctioning technique was in an average state. Considering the importance of this technique and the effects this technique has on the patients' haemodynamic status, we recommend in-service courses for creating knowledge among the nurses.

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