



## TO ASSESS AWARENESS AND KNOWLEDGE AMONGST NURSING STAFF REGARDING TECHNIQUE OF NEBULISATION AND GOOD NEBULISATION PRACTICES

### General Medicine

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### ABSTRACT

**INTRODUCTION:** Nebulizers have been used for many years in acute and chronic management of airflow obstruction in adults and children. Although nebulisation is prescribed by the clinician, paramedics play a critical role in administering treatment to the patient. It has been observed that longer nebulisation time causes inconvenience resulting in reduced patient compliance.

**AIM:** To assess the awareness and knowledge amongst the nursing staff of a tertiary care centre with regard the nebulised method of inhalational drug delivery pre and post educational session.

**MATERIALS AND METHODS:** Questionnaire based cross sectional study of 320 candidates pre and post educational session.

**RESULTS:** Significant improvement in the knowledge regarding the appropriate techniques of nebulisation including the disinfection, amount of medication to be used in the chamber, duration for which the nebulisation has to be given, etc.

**CONCLUSION:** All the scores showed positive change indicating improvement post educational programme.

### KEYWORDS

Nebulisations, Asthma, Copd, Exacerbation

#### INTRODUCTION:

In the world of modern medicine, and advent of multiple drug delivery systems, it has become mandatory for healthcare professionals to be well versed with these drug delivery systems and devices. More so, for those which may be used in emergency situations, like intravenous route, nebulised route, intraosseous route. Nebulizers have been used for many years in acute and chronic management of airflow obstruction in adults and children. <sup>[1]</sup> Although nebulisation is prescribed by the clinician, paramedics play a critical role in administering treatment to the patient. It has been observed that longer nebulisation time causes inconvenience resulting in reduced patient compliance. <sup>[2]</sup>

#### AIM:

To assess the awareness and knowledge amongst the nursing staff of a tertiary care centre with regard the nebulised method of inhalational drug delivery.

It also aims to assess the improvement in the knowledge and awareness of nebulisation technique and development of good nebulisation practices in the study population after a brief educational session.

#### MATERIALS AND METHODS:

A questionnaire based assessment regarding the awareness and knowledge of the nursing staff to be made. Questionnaire consists of questions regarding the quantity of medication to be taken in the nebulisation chamber, type of disinfectant to be used, time span for which the nebulisation should be given etc. Post the collection of the questionnaire, an educational program regarding the good nebulisation practices and correct techniques to be used for nebulisation to be taught to the patients with the help of audio-visual aids and practical demonstrations. A post program assessment to be made with the help of another questionnaire and results tabulated and conclusions regarding the prevalence of awareness, knowledge and effectivity of the educational program are drawn. Parameters assessed in this study are awareness amongst nursing staff about good nebulisation practices.

Pre-nebulisation questionnaire and post nebulisation questionnaire comparing the effectivity of the educational programme was done.

#### SAMPLE SIZE:

320 candidates

#### TYPE OF STUDY:

Cross sectional study

#### INCLUSION CRITERIA:

All nursing staff willing to participate in the study.

#### EXCLUSION CRITERIA:

Nursing staff not willing to participate in the study.

#### DATA COLLECTION TECHNIQUE:

A Questionnaire with 15 questions was prepared. Nursing staff were given questionnaire at the beginning of the session. 30 minutes educational session was conducted regarding the usage and technique of nebulisation. Nursing staff were given the same questionnaire at the end of the educational session.

#### STATISTICAL TEST USED:

Paired T Test

#### OBSERVATIONS:

The data obtained from patients was tabulated as under:

Group	Mean Score	Standard Deviation	Standard Error of Mean	Number Of Study Subjects
Pre test	7.25	1.94	0.11	320
Post test	11.65	1.68	0.09	320

The data indicates that the mean score pre educational program was a mere 7.25 out of the total 15. This indicates inadequate knowledge regarding the good nebulisation practices. The post educational program score mean of the participants was 11.65, which indicates an

improvement in the understanding of good nebulisation practices. The significance of the change is calculated and elaborated upon as under.

#### STATISTICAL ANALYSIS:

Appropriate test of analysis was applied to the data: Paired T Test.

Group	Total Study Subjects	Average
Pre test	320	7.25
Post test	320	11.65
	P value=	Less than 0.001

The P value is less than 0.001 thus is statistically significant.

The study thus demonstrates that the post test showed significant improvement in the knowledge regarding the appropriate techniques of nebulisation including the disinfection, amount of medication to be used in the chamber, duration for which the nebulisation has to be given, etc.

#### DISCUSSION:

Nebulisation practices are commonly used and play a pivotal role in management of patients in acute exacerbations of Asthma and Chronic Obstructive pulmonary disease. Such life threatening illness can be timely managed with appropriate techniques of nebulisation. One article regarding nebulisation practices in India was presented by Guleria RJ, Thakkar KM<sup>[3]</sup> stated that 68% paramedics were trained on the use and maintenance of nebulizers, 11% learnt through observation while 21% were untrained. About 34.34% paramedics could not recall attending any training program on handling nebulisers in their practice years.

This lack of knowledge shows us the need for good nebulisation practices. With our study several areas of deficit knowledge were revealed, including how to clean the equipment properly, adequate knowledge regarding the quantity of medication to be used, disinfection techniques, duration for which the nebulisation has to be given which thus would help in better management of patients in acute exacerbations of these respiratory diseases. The knowledge regarding disinfection techniques would help to reduce the incidence of nosocomial infections such as pneumonia, and thus these measures help to prevent transmission of pathogenic microbes.<sup>[4,5]</sup>

The post educational session score of the participants in the study indicates that there is still room for improvement. This can be attained by repeated revision sessions and incorporation of a more practical approach to participant education to ensure or promote further understanding of the good nebulisation practices.

In the era of resistance to various micro organisms emerging on a daily basis, it remains essential that the route of drug delivery is appropriate and correct method of administration of the drug gains more and more significance to ensure that the amount of drug being administered attains a concentration within the therapeutic range of the agent. This with regard the nebulised agents including nebulised antibiotics can be ensured with good nebulisation practices. The security of a properly administered drug will help in preventing drug resistance by avoiding sub-therapeutic concentration of the involved agent being administered.

In patients with exacerbations of obstructive airway diseases, the inhalational route is the mainstay of treatment and thus the proper method of administration can avoid unnecessary over prescription of inhalational agents, thus preventing toxicities and side effects associated with them. It can further ensure quicker response and symptom relief in patients in whom inhalational route is the route of choice for drug delivery, especially in exacerbations.

#### CONCLUSION:

All the scores showed positive change indicating improvement post educational programme. Hence if we include such programmes in the curriculum of nursing staff it will improve patient outcome and limit the recovery time required in patients of acute exacerbations of respiratory illnesses.

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