

Article 3

by Era Widia Sary

Submission date: 12-Jun-2023 11:17PM (UTC-0500)

Submission ID: 2114968754

File name: Article_3.docx (31.24K)

Word count: 3208

Character count: 17278

Nursing Experience to Determine How to do Suction Action on Clients with Mechanical Ventilator in the Intensive Care Unit

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Short Title: Nursing Experience in Suction Action

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ABSTRACT: Suction is a procedure of action in health services that affect the safety of the clients because suction aims to assist clients to fulfill the oxygen needs by helping to liberate the airway. This study aimed was to gain an overview of the nurse's experience of determining how to perform suction actions on clients with mechanical ventilators in the Intensive Care Unit (ICU). A qualitative research method with phenomenology design. The data were collected by in-depth interviews on 26 participants who worked as nurses in the ICU. There were seven themes identified in this study: (1) the understanding of suction; (2) the experience of suction; (3) the suction complication; (4) the pathophysiology of ventilator installation; (5) the importance of adequate resource support; (6) the nurse constraint in the suction implementation; and (7) the protection against nosocomial infections. The hospital can improve the support of nurses on their self-development and caring skill in accordance with the standards, in order to continue to gain skills and can update the latest health sciences to support the procedures performed in the ICU.

Keywords: Nurse Experience, Suction Action, Client Safety.

1. INTRODUCTION

A mechanical ventilator device is one of the most important therapeutic devices for breathing and often used in intensive care units. The main problem of clients with breathing or mechanical ventilator that often arises is the cleaning of the infective airway, one of the interventions for this problem is handling suction, but in the process of suction not only the mucus is sucked, the oxygen supply that enters breathing is also sucked. making it possible

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for instantaneous hypoxemia to occur which is characterized by a decrease in oxygen saturation (SpO₂)

Usually, respiratory failure initially affects the ability to take oxygen (referred to as oxygenase failure) or to remove carbon dioxide called ventilation failure. Finally, both functions stop when respiratory failure becomes quite severe (Bhandary et al., 2015). Acute Respiratory Failure (ARF) in critical clients is still associated with a mortality rate of between 40% and 65%. (Vincent et al., 2002)

Some cases of respiratory failure end with the provision of a mechanical ventilator, which aims to help or take over respiratory function. The risk of installing mechanical ventilators on clients who experience respiratory system disorders is something that must be faced in an effort to save one's life. If the ventilator can function with it, an artificial airway (artificial airway) must be installed with an endotracheal tube (ETT). Clients who have an endotracheal tube (ETT) need to be monitored for hemodynamics before and after suctioning to get the body's response to the procedure given. Clients who are admitted to intensive care should be in a stable hemodynamic state, because the inconvenience of suction action is related to the invasive suction method.

The qualifications of nursing staff working in the ICU must have adequate knowledge, have appropriate skills and have a commitment to time (RI Ministry of Health, 2010). Knowledge of nurses about slime suction or suction is very important for the implementation of slime sucking action in critical situations so as to increase the success of nurses in handling clients in maintaining the effectiveness of the airway. This knowledge and skills determine the success of slime suctioning. Knowledge of slime suction can be obtained through education, training, and experience while working.

Multidisciplinary integration in health services is very influential on the outcome of the services provided. One of the phenomena is about multidisciplinary services in the ICU with clients installed in Mechanical Ventilators. Given the importance of suction action interventions by nurses according to indications that must be immediately carried out in accordance with the standard operating procedures in the ICU Room (McConnell et al., 2016).

The experience of nurses in determining how to do suction is very influential to see how during this time nurse carried out the suction action, because the suction action can provide side effects such as a decrease in oxygen saturation more than 5%. Most of the respondents experienced a significant decrease in oxygen saturation at the time of the suction of mucus endotracheal tube (ETT), which was diagnosed with diseases of the respiratory system. Complications that may arise from the action of sucking mucus, one of which is hypoxemia or hypoxia. So that clients who suffer from respiratory system diseases will be very susceptible to a significant decrease in the value of oxygen saturation at the time of the mucus sucking action, which is very dangerous because it can cause respiratory failure (Berty, 2013).

Considering the importance of suction action, the action must be carried out according to the procedure, so the procedure cannot to cause other complications to the client, such as the lack of O₂ supply in the cerebral which can have fatal consequences for the client, to be able to carry out suction actions according to the right procedures. The above phenomenon is important to know because the experience of each nurse is subjective and difficult to

1 quantify. The experience of nurses in determining how to perform suction actions is very diverse and relates to the understanding of the nurse itself. This becomes very important to be explored in nurses so that they can provide an overview of how nurses experience in determining how to do suction actions. This study aimed was to gain an overview of the nurse's experience of determining how to perform suction actions on clients with mechanical ventilators in the Intensive Care Unit (ICU).

2. METHODS

This study of the experience of nurses determines how to perform suction actions on clients who were installed mechanical ventilators in the ICU room at Ulin Hospital Banjarmasin. This study used a qualitative research approach with phenomenological design. Determination of participants in this study using purposive sampling technique. Participants numbered 26 people who worked as executive nurses in the ICU. The researcher collects data by means of in-depth interviews and field notes. In this study the analysis was carried out with structured and specific analysis methods including verbatim transcripts, verbatim transcript analysis and thematic analysis.

3. RESULTS AND DISCUSSION

2 Themes of Understanding about Suction

All participants in this study knew the purpose of the suction action on clients who installed mechanical ventilators, namely to remove secret or mucus to maintain the patency of the client's airway. Knowledge of nurses on the purpose of suction actions in this study can be classified between levels three, because in general during the interview participants had applied the knowledge gained by doing suction as an effort to save clients.

Suction is a procedure used to maintain the patency and cleanliness of the airway by removing secretions from the trachea, nose or mouth either from the natural airway (nose or mouth) or from the artificial airway. According to the American Association of Respiratory Care (AARC, 2010) suction is an action procedure that aims to maintain the patency of the airway by cleaning up the accumulation of pulmonary secretion mechanically and carrying out suction actions only when mucous secretions are found.

In the participant interview, it was also suggested that the indication of suction was a client with a decrease in consciousness attached to a mechanical ventilator, and usually a client with a respiratory system disease. Clients with respiratory system diseases are very susceptible to respiratory failure. Breath failure occurs when the exchange of oxygen to carbon dioxide in the lungs cannot maintain the rate of oxygen consumption (O₂) and the formation of carbon dioxide (CO₂) in the body's cells. In this case the participant added that with the client's condition, the role of mechanical ventilators as one of the tools for emergency breathing therapy is undoubtedly, so that mechanical ventilators are one of the tools that are relatively often used in intensive care units. The main problem of clients with breathing apparatus or mechanical ventilator that often arises is the cleaning of the ineffective airway, one of the interventions for this problem is the suction action.

Suction as an effort to save clients is also expressed by participants where there is a consequence if suction is not carried out, namely the occurrence of respiratory failure due to a secret that closes the respiratory tract. According to Wiyoto (2010), if the suction action is

not carried out on clients with impaired airway clearance, the client will experience a shortage of O₂ supply (hypoxemia) and if the O₂ supply is not met within 4 minutes it can cause permanent brain damage. It can be concluded that all participants understand about suction both the purpose and the indications of suction as an effort to save clients, because clients who experience respiratory system problems, especially chronic irritation of the respiratory tract which can cause an increase in the number of mucus-producing / mucus-producing globet cells by therefore it is necessary to take suction of mucus or suction.

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Theme of Experience Suctioning

From the results of the interview, participants revealed that the experience in carrying out suction actions had begun from seeing the senior or previous nurse who did it in the room when the participants first worked in the ICU Room. As for the way that nurses do in the implementation of suction in the room there are 2 (two), namely by open suction or by close suction. Participants suggested that the open suction technique requires a method by releasing the client from the ventilator, while the closed suction technique involves a sterile procedure, a closed catheter hose and one with a ventilator circuit that allows parts of suction through the artificial airway without releasing the client from the ventilator circuit, so the principle the procedure performed by closing suction is more sterile.

Overend, TJ et al., (2009) mentions in his research that there is no difference between open and closed suction associated with oxygenation. As for Maggiore, SM et al., (2013) in his research showed that the method of suction with closed suction or closed suction can reduce the loss of suction process (hypoxemia such as hemodynamic changes and mucosal trauma).

Theme of Suction Complications

Participants revealed that the suction action can cause the client's oxygen to be attracted when the nurse is sucking. One of the complications that can occur is because the length of sucking time is carried out beyond the recommended time limit, resulting in the release of the client's oxygen along with the sucking process carried out. The suction procedure where the insertion of the hose in the client's respiratory tract also allows for excessive negative pressure and leads to atelectasis. In addition, the participants also revealed that when the rinsing procedure after suction is also at risk of aspiration, this occurs if the nurse does not focus on performing the procedure.

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In Saskatoon Health Regional Authority (2010) said that, complications that might arise from the action of mucus sucking are hypoxemia / hypoxia. And strengthened by Maggiore et al. (2013) about the side effects of sucking on ETT mucus, one of which is a decrease in oxygen saturation of more than 5%. So that clients who suffer from respiratory diseases will be very susceptible to a significant decrease in the value of oxygen saturation at the time of the mucus sucking action.

It can be concluded that given that this suction action can cause harm, early awareness is needed, compliance to take action in accordance with the correct standard operating procedures (SOP) and good skills for health workers who will take such actions, especially for nurses, because without these things can have a bad impact on clients who are temporarily treated. One of them can decrease oxygen levels and if health workers / nurses

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are not sensitive to problems that arise can cause clients to experience respiratory failure even to death.

Pathophysiological Theme of Ventilator Installation

Participants revealed that in implementing the suction procedure changes in the balance of hemodynamics can occur to the client because it is an invasive action. In this case hemodynamics is a state of work function of a vital human organ such as lung and heart function. Some cases of respiratory failure end with the provision of a mechanical ventilator that aims to help or take over respiratory function. The risk of installing mechanical ventilators on clients who experience respiratory system disorders is something that must be faced in an effort to save one's life. If the ventilator can function properly then an artificial airway (an artificial airway) must be installed with an endotracheal tube or tracheostomy.

The role of mechanical ventilators as one of the tools for acute respiratory therapy is no doubt, so that mechanical ventilators are one of the tools that are relatively often used in intensive care units. The main problem of clients with breathing apparatus or mechanical ventilator that often arises is the cleaning of the ineffective airway, one of the interventions for this problem is the suction action.

Hemodynamics greatly affects the oxygen carrying function in the body and involves heart function, so hemodynamic monitoring is needed in the implementation of suction actions. Hemodynamic monitoring is a measurement of pressure, flow and oxygenation in the cardiovascular system. Both invasive and noninvasive hemodynamic measurements can be taken in the ICU (Lewis et al., 2011).

Theme of the Importance of Adequate Resources

The first finding in this study was the HR development category. The participants revealed the importance of the training that nurses should get in relation to the procedure performed in the ICU, this was related to the competence of the ICU nurses themselves. Primary ICU nurses are trained nurses who are certified basic life assistance and advanced life assistance. Secondary ICU nurses are nurses with a minimum of 50% of the total ICU nurses are ICU trained and certified nurses, while tertiary ICU nurses are 75% of the total ICU nurses are trained nurses.

The importance of support for close suction facilities was also revealed by the participants, where the suction method with close can minimize the risk of infection and indeed the standard client is installed a mechanical ventilator should use close suction. Regarding tool inventory policy causes limited use of closed suction. The next finding in this study was the importance of reinforcement, namely the support of the reward system given to the implementing nurses. Some participants in this study revealed that the existence of services is one that increases the motivation of nurses at work.

Flynn et al. (2004) state that gifts / rewards are given by organizations tailored to their abilities, skills, experience and performance. The results of the research of Hsu et al. (2015) in Taiwan concluded that reward systems affect nurse job satisfaction and strengthen organizational commitment with the aim of maintaining nurse skills. The results showed that there was a significant relationship between reward and work motivation of nurses, reward

¹ was the most related variable to nurse work motivation (Negussie, 2012). Nurses who are valued for their competence will have high motivation in work.

Theme of Constraints for Nurses in the Implementation of Suction

The constraints found in this study include the limitations of the number and qualifications of nurses and the limitations of facilities. The first sub-theme of the limitations of the number and qualifications of nurses with unprofessional nurses' behavioral categories revealed that nurses' behavior was a supporting factor (environment) because of statements from participants who stated that nurses were less aware of sterile procedures. This can form unexpected behavior. Professional behavior must also be reflected in nurses, because nurses are part of nursing who have professional characteristics.

Nursing as a profession has characteristics that include knowledge underlying skills to solve problems in nursing practice, providing services, education that meets standards, controlling standards of practice, being responsible and accountable for actions taken, lifelong careers and independent functions (Generous, 2013).

The next obstacle felt by participants was the lack of nurses in the ICU who were not balanced with the number of clients being treated. Nurses in the ICU care for around 2-5 clients in 1 service shift. This is not in accordance with the Decree of the Minister of Health of the Republic of Indonesia Number 1778 / MENKES / SK / XII / 2010 Concerning the Implementation of Intensive Service Guidelines stating that the ratio of nurses to clients using mechanical ventilation is 1: 1, while comparison of nurses with clients who do not use ventilation mechanics is 1: 2.

Theme Protection of potential nasocomial infections

Some participants say the biggest thing that is an obstacle in this case is the behavior of the nurse itself. He revealed that nurses often did not wash their hands at the beginning of the action due to the demands of the work that had to be done by immediately seeing the condition of the average client being critical. The results of research study on VAP Bundle Interventions in Prevention of Associated Pneumonia Ventilator (VAP) in Mechanically Ventilated Clients stated that the health personnel's action on compliance with hand washing which was the basic factor in preventing the occurrence of nasocomial infections was found to indicate 43.4% nurses do not wash hands before touching the client. Sp. (ETS)

Hand washing is important because hands are a way of transferring effective microorganisms, making health workers who often contact clients to spread microorganisms that commonly cause nosocomial infections. ICU clients are mainly installed invasive devices such as ventilators with easy suction actions for nasocomial infections, so the principles of sterility, use of tools and appropriate nursing actions need to be carried out in carrying out the procedure.

4. CONCLUSION

The resulting theme has answered the purpose of this research, namely how the description of the nurse's experience determines how to perform suction actions on the client who installed a mechanical ventilator in the ICU Room. In this study it was found that all participants understood the purpose of suctioning, indications of suctioning, suction complications to

1 suctioning were efforts to save patients. The experience in doing suction actions has been started from seeing the senior or previous nurse who did it in the room when the participants first worked in the ICU and how the nurses performed in suction in the room there were 2 (two), namely by open suction close suction. Nurses understand the pathophysiological changes that can occur from ventilator installation, so the importance of adequate resource support is highly expected by nurses in the ICU, such as training in caring for the ICU to improve knowledge and skills in performing action procedures, and supporting adequate facilities. The results of this study also reveal the need for qualification adjustments and the number of nurses with the needs of clients in the ICU, especially clients installed mechanical ventilators, because the workload of nurses will affect how procedures are performed on clients in terms of protection against potential nasocomial infections.

ACKNOWLEDGEMENT

To hospitals, especially nurses who have been willing to become participants, thank you for permission, assistance and assistance in finding data and all information needed in this study.

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