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NURSING CARE ANALYSIS OF ARTIFICIAL RESPIRATORY MANAGEMENT IN STROKE-ASSOCIATED PNEUMONIA (SAP) PATIENTS: A CASE STUDY FROM ICU RSPAL DR. RAMELAN SURABAYA

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Abstract

Introduction: Stroke-associated pneumonia (SAP) is a common complication of stroke, leading to ineffective airway clearance and potentially severe outcomes such as respiratory failure and death.

Objective: This case study analyzes the nursing care provided to a SAP patient in the ICU of RSPAL Dr. Ramelan Surabaya, focusing on the application of artificial respiratory management to improve airway clearance

Methods: Over five days, the nursing team implemented interventions, including Endotracheal Tube (ETT) care, which partially resolved the ineffective airway clearance.

Results: This improvement was evident in the enhanced respiratory parameters and reduced secretion accumulation.

Conclusions*:* The findings highlight the importance of diligent airway management in preventing respiratory complications in SAP patients.

INTRODUCTION

Stroke is a significant cause of disability and death, often leading to complications such as Stroke-Associated Pneumonia (SAP). SAP is particularly concerning due to its impact on respiratory function, where the accumulation of secretions can obstruct airways, leading to hypoxia, respiratory failure, and even death. Effective management of airway clearance is crucial in these patients, particularly in intensive care settings where the risk of pneumonia and respiratory failure is heightened (Chaves et al., 2022). Despite the established Standard Operating Procedures (SOPs) for Endotracheal Tube (ETT) care, there is often a lack of comprehensive implementation in clinical practice, particularly in maintaining airway cleanliness and patency. This case study aims to evaluate the effectiveness of artificial respiratory management in improving airway clearance in an SAP patient.

The prevalence of SAP among stroke patients ranges from 11.3% to 31.33%, with significant implications for patient outcomes. Previous studies have highlighted the importance of ETT care in preventing pneumonia, yet there remains a gap in the consistent application of these practices in clinical settings. This study adds to the existing literature by providing a detailed case analysis of nursing interventions in SAP management (Gong et al., 2016; Huang et al., 2019; Ji et al., 2013; Kishore et al., 2015).

In elderly patients with stroke, experiencing swallowing disorders (i.e., dysphagia) may increase mortality. Hilker et al. (2018). Dysphagia is the inability to swallow, difficulty chewing and swallowing food, coughing or choking before or while swallowing, difficulty keeping food in the mouth, drooling, hoarseness, and feeling like food is blocked in the throat.

Pneumonia is an infectious disease that affects the lower respiratory tract with signs and symptoms such as coughing and shortness of breath. This is caused by the presence of infectious agents such as viruses, bacteria, mycoplasma (fungi), aspiration of foreign substances in the form of exudate (fluid), and consolidation (cloudy spots) in the lungs (Khasanah, 2017). Infection caused by severe pneumonia can cause the patient to experience critical conditions. Most critically ill patients treated in the ICU experience multi-organ failure and respiratory failure, requiring technological support such as the installation of an Endotracheal Tube (ETT). Respiratory failure is caused by an inflammatory process in the lungs resulting in increased secretion/ sputum production and airway obstruction. A large amount of sputum production causes airway obstruction so airway clearance becomes ineffective.

The body's response to removing foreign objects in patients with an Endotracheal Tube (ETT) is generally not good, so mucus suction is essential (Syahar Yakub, Harmiady and Health Ministry of Health Makassar, 2022). The suction action is carried out to clear the airway of secretions or sputum and also to avoid airway infections, the patient is placed on mechanical ventilation, microbial contamination occurs in the airway, and the development of Ventilator-Associated Pneumonia (VAP), (Hidayat, 2013, Nurachman & Sudarsono, 2010, Price & Wilson, 2012, Kozier & Erb, 2012 & Saskatoon 2010, Wijaya RR, 2015). Suction is done through the nose, mouth, and Endotracheal Tube (ETT). Suction must be performed using appropriate procedures to prevent increasingly severe infections, wounds, spasms, edema, and airway bleeding (Kristyaningsih P, 2015).

Based on the report above, researchers are interested in implementing artificial airway management therapy to clear the airway for individuals with stroke-associated pneumonia (SAP) for whom airway clearance is ineffective.

METHODS

Study Design

A descriptive case study approach was employed to provide an in-depth analysis of nursing care for a single SAP patient in the ICU. The study focused on the application of artificial respiratory management over five days.

Settings

The duration of the analysis of nursing care for clients is five 5 days, starting from 23-27 May 2023 in the ICU room at RSPAL Dr. Ramelan Surabaya.

Research subject

This nursing analysis was conducted on a 79-year-old client (Mrs. K).

Instruments

This research uses nursing care sheets with interviews and observations as well as patient medical records.

Data collection

Data were collected through direct observation, interviews with the patient and their family, and reviewing the patient's medical records. The nursing care process was documented in detail, including the assessment, diagnosis, intervention, implementation, and evaluation stages.

Data Analysis

Several analytical ethics must be applied in nursing care analysis, such as asking for approval to be a respondent by providing informed consent. Anonymity is to maintain the confidentiality of respondents. Confidentiality, by maintaining the confidentiality of all information relating to respondents. Benefits, it is hoped that this case study can provide positive impacts and benefits for respondents.

Ethical Consideration

Informed consent was obtained from the patient and their family, ensuring confidentiality and anonymity throughout the study. The research adhered to ethical guidelines to protect the patient's rights and well-being

RESULTS

The patient initially presented with moderate respiratory distress, characterized by crackles due to secretion accumulation, a respiratory rate of 24 breaths per minute, and ineffective airway clearance. Following three days of ETT care, there was a notable improvement in airway clearance, with reduced secretion accumulation and a slight decrease in respiratory rate to 22 breaths per minute.

This research was conducted by (Widodo et al., 2020) (Syahar Yakub, Harmiady, and Health Ministry of Health Makassar, 2022) that the average oxygen saturation before using closed suction was 98.53% and oxygen saturation after using closed suction was 98.53%. 97.73%, there was a decrease of 0.80%. Patients installed on a ventilator with an Endotracheal Tube (ETT) must undergo mucus suction, to clear secretions and prevent airway obstruction.

The author believes that Endotracheal Tube (ETT) treatment is very helpful for SAP patients in preventing tissue hypoxia and the risk of experiencing respiratory failure and even death. The process of inspiration and expiration will run well and the oxygen that will be supplied to the tissues can be

transported adequately. This will help prevent SAP patients from experiencing tissue hypoxia, both peripheral, cerebral, and cardio, to prevent negative impacts that are at risk of arising.

DISCUSSION

Based on the results of implementing nursing care for patients with pneumonia, the problem of airway clearance nursing was ineffective in the Intensive Care Unit (ICU) RSPAL Dr. Ramelan Surabaya. So, the author will discuss the results of nursing care that has been carried out by providing the application of Artificial Airway Management therapy.

The results of the observation showed that there were excessive secretions in the airway. Mrs. The results of TTV measurements on Mrs. K showed BP 183/82 mmHg, RR 26x/minute, N 89x/minute, S 36°C. The results of the assessment, Mrs. K has a history of shortness of breath, HT, and DM. This is by the statement from the Socialization Activities Public Knowledge of Pneumonia in 2022 which states that the typical symptoms of pneumonia are fever, cough, chest pain, and shortness of breath.

Age is also related to pneumonia, according to research conducted by Feri Setiadi et al, it is stated that people aged >60 years are more likely to get pneumonia and it has a worsening impact on patients because in old age the function of the body's organs is no longer functioning well and the body's immune system is weak. decrease.

According to the author, age has a big influence on the patient's health, because the older you get, the more dangerous the disease the patient experiences, as well as unhealthy lifestyles and lack of prevention of controlling pneumonia. Efforts that can be made include stopping smoking, reducing alcohol consumption, and paying attention to cleanliness. self, including hands and mouth.

From the results of the assessment, Mrs. K complained of tightness and her throat did not feel relieved, because there were secretions that had accumulated and could not be removed. From the data above, the main nursing diagnosis that emerged for Mrs. K was ineffective airway clearance. Some of the risk factors experienced by Mrs. K are having a history of hypertension and diabetes mellitus.

According to the author, the problem of ineffective airway clearance without intervention can cause general health problems in pneumonia sufferers. Like Mrs. K, who is elderly, and often experiences shortness of breath and the secretions cannot be excreted, if left untreated and not treated properly, it can develop, causing other health problems such as bloodstream infections, lung abscesses, and pleural effusion.

Based on the B1 (Breathing) examination, the patient is installed tool help Respiratory that is ETT on ventilator VSIMV, TV 350, Flow 30, Ps 8, Peep 6, F 20, Tinsp 1.00, Ftring 2.0, Tve 333, Mv 10.6, RR act 26x/min, Spo2 100%, auscultation of wet crackles in bronchial lobes and bronchioles.

Researchers believe that someone who receives treatment in a hospital will have a high risk of being exposed to pathogens and will experience new disease problems. Nosocomial infections can be prevented by implementing strict personal hygiene, especially washing hands at five to 5 moments, namely before entering the patient's environment, before carrying out aseptic procedures, after exposure

to patient fluids, after contact with the patient, and after contact with the patient's environment. The implementation of a clean and sterile system does not only apply to health workers but also applies to everyone in the hospital environment, including the patient's family.

LIMITATION

The limitation of this research is that this research is a case study that is limited to one research subject only. It needs to be developed with a larger number of respondents so that research results can be obtained that truly provide a picture of the field.

CONCLUSION

The study concludes that artificial respiratory management, specifically ETT care, is effective in improving airway clearance in SAP patients. The findings underscore the need for consistent application of these interventions in ICU settings to prevent respiratory complications. The study recommends the integration of routine ETT care into standard ICU practices for SAP patients. Additionally, further research is needed to explore the long-term effectiveness of these interventions and their impact on patient outcomes.

AUTHOR CONTRIBUTION

Authors' contributions: All the authors contributed equally to the study.

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Dinda Rimyatul Ababiel : None.

CONFLICT OF INTEREST

This case study was written to analyze nursing care regarding the implementation of artificial airway management for ineffective airway clearance in stroke-associated pneumonia (SAP) patients in the ICU room at RSPAL Dr. Ramelan Surabaya and there is no conflict of interest.

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