

Effect of Oral Hygiene for Patients on Mechanical Ventilator in Intensive Care Unit

Thesis

Submitted for Partial Fulfillment of the Requirement of Master
Degree in Medical Surgical Nursing (Critical Care Nursing).

By

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LIST OF ABBREVIATIONS

Abb.	Meaning
AACN	American Association of Critical Care Nurses
BSN	Bachelor of science in nursing
CHX	Chlorhexidine
CXG	Chlorhexidine gluconate
VAP	Ventilator-associated pneumonia
ETT	Endotracheal tube
ICU	Intensive care unit
CCU	Cardiac intensive care unit
IHI	Institute for health improvement
NICE	British national institute for health and clinical excellence
IgA	Immunoglobulin A
MRSA	Methicillin resistant staph aureus
MSSA	Methicillin sensitive staph aureus
VRSA	Vancomycin resistant staph aureus
OSSA	Oxacillin sensitive staph aureus
ORSA	Oxacillin resistant staph aureus
SPSS	Statistical package for social science
SD	Standard deviation
CPR	Cardio pulmonary resuscitation
GCS	Glasco coma scale
MCQs	Multiple choice questions

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Effect of Oral Hygiene for Patients on Mechanical Ventilator in Intensive Care Unit

Abstract

Oral care for patients on the mechanical ventilator is extremely vital in intensive care units, as negligence of oral care can cause long-term oral and nosocomial diseases such as ventilator-associated pneumonia. Maintaining oral health for the critically ill patient is a fundamental nursing activity, and the condition of a patient's mouth is considered an indicator of nursing care received. Critical care nurses can play a functional role in decreasing and preventing the occurrence of ventilator associated pneumonia, accordingly improving the patients' recovery rate and consequently reducing healthcare costs. **Aim of the study:** To assess the effect of oral hygiene for patients on the mechanical ventilators in the intensive care unit and nurses' knowledge and practice regarding oral hygiene. **Design:** a descriptive exploratory research design was utilized. **Setting:** The study was carried out in intensive care units of Mansoura University Hospital. **Study Subjects:** Convenient sample of all available nursing staff working in ICU, including 40 nurses and a convenient sample of 60 orally intubated patients admitted to ICU who underwent mechanical ventilator. **Data collection tools:** Data were obtained through nurses' knowledge questionnaire, nurses' observational checklist, and oral assessment scale. **Results:** The majority of the studied nurses had an unsatisfactory level of knowledge, and about three quarters of them had an incompetent level of practice regarding oral hygiene for patients on the mechanical ventilator. Meanwhile, regarding the patients' total oral score, it was found that about half of the mechanically ventilated patients had average oral alteration, and there was a significant relationship between oral alteration and frequency of oral care. **Conclusion:** there was a high statistically significant relationship between low frequency of oral care and oral alteration. Also, there was a high statistically significant relationship between ventilator-associated pneumonia occurrence and poor oral alteration. **Recommendations:** Designing in-service training and educational program to improve nurses' knowledge and practice regarding oral hygiene for the patient on mechanical ventilator.

Keywords: Knowledge, Practice, Oral hygiene, Ventilator-associated pneumonia



Introduction



Introduction

Oral care is the condition or practice of preserving the tissues and structures of the mouth in a healthy state. The primary goal of oral hygiene is to decrease the colonization of the oropharynx and dental plaque by bacteria also to reduce the aspiration of the accumulated colonized saliva that happens as a result of inadequate oral care for critically ill patients in most Intensive care units (ICUs). **(Potter and Perry, 2010)**

Providing oral care for patients on mechanical ventilator is exceptionally vital as mechanically ventilated patients cannot eat or drink for a while because they breathe depending on the endotracheal tube, so their mouth will be opened all the time, which has a drying effect on the oral mucosa. All these factors cause mouth dryness, crusting of the tongue, and altered mucous membranes **(Fields, 2008)**.

Oral care helps to stimulate the flow of saliva, which prevents the mouth from becoming inflamed and sore, thus maintaining the patient's mouth clean, moist, and free of infection. The aim of oral care also is to keep the mucosa and the lips clean, soft, moist, and intact. Cleansing the mouth and teeth of food debris and dental plaque intend to relieve any discomfort, prevent halitosis, and prevent oral infection **(Malkin, 2009)**.

Maintaining oral care for patients on mechanical ventilators is a fundamental nursing activity. Critical care nurses are the one who decides when and how often oral care is provided starting with the oral assessment which is very important in assessing patient's oral status to identify the needs to maintain a good standard oral hygiene, and to provide baseline

information to evaluate oral care interventions resulting in reduced incidence of the complications **(Ames et al., 2011)**.

Unfortunately, the majority of nurses lack the training to do the oral assessment for patients in ICUs. They need to follow oral care protocols as the intervention is vital for patients on the mechanical ventilator to prevent the potential colonization by gram-negative bacteria, which replaces the normally found Gram-positive bacteria as a result of the presence of endotracheal tube **(Hallberg & Andersson, 2011)**.

Oral hygiene has often been overlooked by health care staff and performed on a unique and immediate basis. Nurses believe that cleaning the oral cavity is severe, an unpleasant task, and an endotracheal tube is one of the causes that make nurses hesitant to do oral assessment and hygiene measures as they are afraid of dislodging the endotracheal tube or cause aspiration. Several concerns are cited related to oral care intervention. Nurses indicate that other interventions take priority over oral care in ICU **(Handa, Chand, Sarin, Singh, Sharma, 2014)**.

Many nurses are not aware of the link between the oral health of mechanically ventilated patients and ventilator-associated pneumonia (VAP), which considered to be the most common complication that mechanical ventilator carries because this topic is insufficiently emphasized in clinical practice. However, cumulative evidence found that insufficient mouth care for intubated patients may contribute to aspiration of the contaminated secretions into the lungs **(Coppadoro, Bittner, & Berra, 2012)**.

The Institute for health improvement (IHI) recommended a bundle of care for mechanically ventilated patients to decrease the incidence of VAP

to zero. This bundle includes 5 strategies: elevating the head of the bed to at least 30 degrees, daily interruption of sedation and regular assessment of the readiness to extubate, peptic ulcer prophylaxis, deep venous thrombosis prophylaxis, and daily oral care with chlorhexidine (CHX) **(Morton & Fontaine, 2013, Pogorzelska et al., 2011)**.

Lack of adequate oral care using chlorhexidine gluconate and widespread tooth brushing is a serious problem because it is considered more effective than sponge swabs at removing the dental plaque that can be a major reservoir of the respiratory pathogens which may be aspirated and contribute to VAP. **(Dale, Angus, Sinuff, & Mykhalovskiy, 2013)**.

In conclusion, oral hygiene for intubated and mechanically ventilated patients has developed from being a matter of patient comfort to be a matter of VAP prevention. If the benefits of oral care outweigh the risks, accurate oral care procedures should be considered an essential and crucial component of critical care nursing. Hence, this study was carried out to determine the effect of oral care on mechanically ventilated patients in the intensive care unit.

Significance of the study:

Providing oral hygiene to patients on mechanical ventilator is expected by hospitals to be routine nursing intervention, but there is no consistent or standardized oral care provided, as most nurses do not know how to provide proper oral care to patients on mechanical ventilator when they begin their practice. Most of the intensive care nurses reported difficulty in cleaning the oral cavity, then the condition of intubated patients often worsened over time.

Ventilator associated pneumonia is the most common infection related to oral care in ICUs. In Egypt, the most recent eight studies that are concerned with analysis of VAP revealed that the incidence ranged from 16% to 75%. Comparing with the VAP worldwide, 10-28%, the incidence of VAP in ICUs is about 2.5 times more. **(Fathy, Abdelhafeez, Abdel-Hady, & Elhafez, 2013)**. Therefore, it is imperative that nurses should be aware of the effect of oral hygiene care for patients on mechanical ventilator for early identification of oral hygiene problems then proper intervention to prevent complications or early recognition and set treatment strategies.



Aim of the Study

