

SHORT COMMUNICATION

The oral care practice in preventing clinical pulmonary infection on ventilated patients in intensive care unit: a retrospective study

Norliza Zahri, Noraini Hashim *

Centre for Nursing Studies, Faculty of Health Sciences, Universiti Teknologi MARA (UiTM), UiTM Kampus Puncak Alam, 42300 Bandar Puncak Alam, Selangor, Malaysia

Abstract:

Ventilator-associated pneumonia (VAP) is a dangerous infection in the oropharyngeal cavity. It is one of the most common healthcare-associated infections especially for patients who admitted in Intensive Care Units (ICU). The Oral care practice is a procedure in maintaining the healthcare of the oral cavity for ventilated patients in preventing Ventilator Associated Pneumonia. This study is to determine the incidence of VAP on ventilated patient in ICU. Patients in the ICU received oral care practice with chlorohexidine 0.12% or toothbrushing with chlorohexidine 0.12% as a routine practice. The result of VAP was assessed using data from the Clinical Pulmonary Infection Score (CPIS) as a predictor of VAP outcome. To identify the Relationship between oral care practice and Clinical Pulmonary Infection Score (CPIS) on ventilated patients in ICU. This is a Retrospective Study, whereby the researcher interested in a present outcome and attempts to determine antecedent factors that caused for it. Intensive Care Unit, Kuantan Medical Center, Pahang DarulMakmur. A Purposive sampling was used to patient who meet the eligibility; forty were randomly assigned on patient with mechanical ventilation. Totally, 38 subjects were included in the data analyses. The Ventilator Associated Pneumonia was evaluated by the Clinical Pulmonary Infection Score (CPIS) for baseline monitoring during admission and three days after the oral care practice done. Chi-square test was done for the second objective. There is no-significant difference on relationship of oral care practice and Clinical Pulmonary Infection Score (CPIS). These results have been supported by similar studies. This finding suggest that application of oral care intervention can prevent the ventilator associated-pneumonia during hospitalization of patients.

ARTICLE HISTORY

Noraini Hashim
hnoraini@uitm.edu.my

Keywords: oral care practice; intensive care units; Clinical Pulmonary Infection Score (CPIS); ventilator associated-pneumonia

1. INTRODUCTION

Ventilator-Associated Pneumonia (VAP) is defined as pneumonia in patients receiving mechanical ventilation that was neither present nor developing at the time of intubation. It also defined as the occurrence of pneumonia in patients undergoing mechanical ventilation for a long period of time [1]. VAP could prolong the usage of ventilator and length of stay (LOS) in ICU and the hospital and may increase health care costs. Moreover, VAP is the leading cause of death among hospital-acquired infections, exceeding the rate of death because of the prolonged duration of mechanical ventilation[2].

Oral care plays an inevitable role in the health and well-being of patients in Intensive Care Units. It is a basic nursing care activity that provides relief and comfort to patients who are seriously ill and cannot perform this simple activity themselves. Oral care practice is a procedure in maintaining the healthcare of the oral cavity in ventilated

patients. Providing oral care can decrease the incidence of pneumonia and other outcome measures, the care should be considered an important and critical component of critical care nursing[3]. Practicing oral care is a part of a hygienic procedure that should be done on the patient. The evaluation of the Clinical Pulmonary Infection Score (CPIS) and its components are to identify early in the hospital course of ventilator-associated pneumonia (VAP) which patients are responding to oral care practice.

2. METHODOLOGY

This study took place in Kuantan Medical Centre, Kuantan, Intensive Care Units (ICU), as a study setting since there are several patients receiving the oral care practice. This research study design used a retrospective study. Factors in relation to an outcome that is established are related to the researcher perspective. A study design that

begins with the manifestation of the dependent variable in the present, which is ventilator-associated pneumonia.

START

The researcher received the medical record of participants from the recording officer.



Select the participant documentation who on the mechanical ventilator and review patient's inclusion and exclusion criteria.



Participants demographic and clinical pulmonary infection score (CPIS) was recorded into checklist on the day of admission



Participants received oral care practice for 3 days documented by the nurses in intensive care chart accordingly.



Participants, clinical pulmonary infection score (CPIS) was recorded in 3 days after receiving oral care practice.



END

Figure 1. Data Collection Method

3. RESULT AND DISCUSSION

The study was done to investigate the oral care in preventing ventilator-associated pneumonia on the ventilated patient in the intensive care unit.

3.1. Descriptive analysis of the demographic data

| Variable | | N | % |
|--------------------|--|----|------|
| Oral Care Practice | Chlorohexidine 0.12% | 24 | 63.2 |
| | Tooth brushing with chlorohexidine 0.12% | 14 | 36.8 |
| Gender | Male | 24 | 63.2 |
| | Female | 14 | 36.8 |
| Race | Malay | 30 | 78.9 |
| | Chinese | 6 | 15.8 |
| | Indian | 2 | 5.3 |
| Discipline | Medical | 24 | 63.2 |
| | Surgical | 14 | 36.8 |

3.2. Relationship between Oral Care Practice and Clinical Pulmonary Infection Score

| Oral Care Practice | Clinical Pulmonary Infection Score (CPIS) | | | | X ² | P |
|---|---|------|----------------------|------|----------------|-------|
| | Diagnosis of Pneumonia | | Absence of Pneumonia | | | |
| | N | % | N | % | | |
| Chlorohexidine 0.12% | 6 | 15.8 | 19 | 50.0 | 0.382 | 0.432 |
| Toothbrushing with Chlorohexidine 0.12% | 2 | 5.3 | 11 | 28.9 | | |

*Chi-Square

Based on the respondents with chlorhexidine 0.12%, the oral care indicate, 6(15.80%) had a diagnosis of pneumonia. For respondents with tooth brushing with chlorhexidine 0.12%, was 11 (28.9%) showed an absence of pneumonia compared to 2(5.3%) which showed had a diagnosis of pneumonia.

4. CONCLUSION

This study found that there is no significant relationship between oral care practice and Clinical Pulmonary Infection Score (CPIS).

Enhancing the white blood count is one of the factors that can occur in the event of VAP and the indicator are included in the CPIS score. In addition, oropharyngeal can easily cause bacterial reproduction if oral treatment is not performed.

A similar finding was obtained from a study [4]stated that the clinical pulmonary infection score (CPIS) at the 14 days, reduce bacterial resistance and increasing in weaning the patients. It is important for us health care professional to keep on identifying the factors identified in CPIS that could reduce the level of clinical pulmonary infection score (CPIS) in preventing VAP.

ACKNOWLEDGEMENTS

I would like to express my deepest thanks to who was very helpful to guide me from the beginning towards accomplishing this research project. Thanks to everyone, those have been contributing by supporting the work and help me during the beginning till it is fully completed.

REFERENCES

- [1] Bercault, N., & Boulain, T., "Mortality rate attributable to ventilator-associated nosocomial pneumonia in an adult intensive care unit: a prospective case-control study." *Critical care medicine*, 29(12), 2303-2309, 2016.
- [2] Safdar, N., Dezfulian, C., Collard, H. R., & Saint, S., "Clinical and economic consequences of ventilator-associated pneumonia: a systematic review." *Critical care medicine*, 33(10), 2184-2193, 2015.
- [3] Houston S, Houglund P, Anderson JJ, LaRocco M, Kennedy V, Gentry L.O., "Effectiveness of 0.12% chlorhexidine gluconate oral rinse in reducing the prevalence of nosocomial pneumonia in patients undergoing heart surgery." *Am J Crit Care.*;11:567-570., 2012.
- [4] Palmer, L. B., Smaldone, G. C., Chen, J. J., Baram, D., Duan, T., Monteforte, M., & Richman, P., "Aerosolized antibiotics and ventilator-associated tracheobronchitis in the intensive care unit." *Critical care medicine*. 36(7), 2018.