

Evidence-Based Project, Part 3

Student's Name

Institution of Affiliation

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PICOT Question: What is the effectiveness of intensive oral care on preventing ventilator-associated pneumonia among patients 65 years and above in the Intensive Care Unit (ICU) as compared to prophylactic probiotics intervention?

Patients: ICU patients of 65 years old and above.

Intervention: Intensive Oral Care.

Comparison: Prophylactic Probiotics Intervention.

Outcome: Reduce ventilate-associated pneumonia.

Time: The study will include a three months follow-up.

Peer-Reviewed and Systematic Reviewed Research**Xie, Lyu, & Li (2019)**

This systematic review study investigates the drugs that can be used in the prevention and control of ventilator-associated pneumonia (VAP) in the acute care setting. The authors noted that VAP is one of the most significant prevalent and severe complications of mechanical ventilation, which is as well considered as a frequent nosocomial infection in critically ill patients. The main objective of this review was to summarize the available knowledge on drug prevention and control of VAP while taking notes from recommendations of different health organizations such as “The American Thoracic Society with the Infectious Disease Society of America, the Centers for Disease Control and Prevention (CDC), the European Task Force on VAP, the Society for Healthcare Epidemiology of America, and the Institute for Healthcare Improvement, and the recently major guidelines for managing of VAP.” The authors concluded that ventilator-associated pneumonia is an essential cause of morbidity and mortality in mechanically ventilated patients, and several interventions have been proposed for the prevention

of the illness. Additionally, the researchers concluded that early proper antimicrobial therapy is crucial in enhancing outcomes for patients with VAP. Besides, the study found that new antibiotics like tedizolid, meropenem–vaborbactam, and other similar drugs are being developed for VAP to deal with the increasingly resistant infectious organisms. The researchers also recommended the future to evaluate the therapeutic interventions in the management of VAP.

Zhang et al. (2017)

The purpose of this study was to compare the efficacy and safety of oral care with different antiseptics to prevent ventilator-associated pneumonia in adults based on existing RCTs and ranking the antiseptics based on their performance. The study used a standard protocol for all reviews. The studies used included hospitalized adult patients age 18 years and above with devices to continuously assist or control their respiration through a tracheostomy. Four different antiseptics were evaluated and compared to oral care. The primary outcome was VAP morbidity, whereas the secondary outcomes incorporated the length of ICU stay, the length of hospital stay, and the time taken for mechanical ventilation. The study found that oral care is widely utilized to prevent ventilator-associated pneumonia. However, the researchers found that it is not clear oral care solution is the best used for oral care. This study is ongoing and will utilize meta-analysis to decide the best treatment option between oral care and the four antiseptics so that the clinical workers can offer reliable evidence and promote better patient health.

Kim, Lee, & Cho (2017)

The purpose of this study was to assess the efficacy of a ventilator-associated pneumonia bundle. It was a retrospective study that includes 3,224 intubated patients. This study included three groups and compared three VAP bundles. The results indicated that the number of VAP was significantly different among the three groups of comparison. Similarly, the results showed

that there were significant differences among groups in ICU length of stay and mortality. The researchers concluded that the three VAP prevention bundles had different effects on patient outcomes.

Kaneoka et al (2015)

The primary aim of this study was to evaluate the effectiveness of oral care on the incidence of pneumonia in non-ventilated patients. The researchers searched 8 databases to search and found eligible five randomized controlled trials, including 1,009 subjects. The studies examined the efficacy of oral care on reported incidences of pneumonia. Two of the trials evaluated the effects of chlorhexidine in ventilated patients, whereas the remaining three studies examined mechanical oral cleaning in nursing home centers. A meta-analysis was conducted on four trials, which showed a significant risk reduction in pneumonia via oral care interventions. Besides, the results showed that the decrease in fatal pneumonia from mechanical oral cleaning was substantial as well. The study concluded that the analysis suggested a preventive effect of oral care on pneumonia. The researchers also found that the effect should be interpreted with caution as a result of the risk of bias in the trials included.

Analysis of Search strategies

The Walden Library databases enable users to search several databases simultaneously for keywords. Using the keyword search as ventilator-associated pneumonia, intensive oral care, prophylactic probiotics, and intensive care unit, the researcher will search through CINAHL, CINAHL Complete, Cochrane Database of Systematic Reviews, Nursing & Allied Health Database, Science Direct, MEDLINE and MEDINE Complete databases. The researcher will delimit the search by clicking on "Find all my search terms" and "Also search with a full test of

the articles." Full-Text articles were also specified, as well as Peer Reviews Journals, showing that the journals were those published within the last five years.

Analysis of Levels of Evidence in Peer-Reviewed Research

The Level of evidence was assigned to the studies based on the methodological quality of the design, validity, and applicability to patients. There are seven levels of evidence. Level II entails evidence from a systematic review or meta-analysis of all appropriate RTCs or evidence-based clinical practice guidelines based on systematic reviews of RTCs or three or more RCTs of good quality with identical results. Level II entails evidence that is obtained from at least one well-designed RTC. Level III contains evidence obtained from well-designed controlled trials without randomization. Level IV involves evidence from well-designed case-control or cohort studies. Level V includes evidence from systematic reviews of descriptive and qualitative studies. Level VI entails evidence from a single descriptive or qualitative research. The last Level, which is Level VII, includes evidence from the opinion of authorities or reports of an expert committee.

In the articles, the study by Zhang et al. (2017) is of level V because it includes evidence from meta-analysis to compare the preventive interventions. The study by Kim, Lee, & Cho (2017), was of Level on because it included RTC trials. The study by Xie, Lyu, & Li (2019) WAS ALSO OF Level I because it included randomized controlled trials (RCTs). Lastly, the study by Kaneoka et al. (2015) is of Level I because it entails both published and unpublished randomized controlled trials that examined the effect of various methods of oral care.

References

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