# THE QUALITY OF ORAL CARE IN CRITICAL CARE UNITS: IS IT TIME FOR CHANGE?

**Tayseer Mohamed Zaytoun, Tamer Nabil Habib, Ahmed Mohamed Abdelmagid Hawash, Ramy Ahmed Mohamed Mohamed Abdelrehim**

**Department of Critical Care Medicine Faculty of Medicine, Alexandria University**

## Introduction

Oral care is a critical yet often underemphasized aspect of patient management in critical care units (CCUs). In these high-acuity environments, patients frequently experience conditions that compromise their ability to maintain adequate oral hygiene, including intubation, sedation, mechanical ventilation, and altered consciousness. These factors create a favorable environment for microbial colonization in the oral cavity, which can lead to serious complications such as ventilator-associated pneumonia (VAP), systemic infections, and inflammation that may further exacerbate critical illnesses. Additionally, poor oral care can result in discomfort, impaired communication, and diminished quality of life for patients, particularly those requiring prolonged stays in the CCU. The significance of oral care extends beyond the immediate maintenance of hygiene. The oral cavity is a reservoir for pathogens that can travel to the lower respiratory tract or enter the bloodstream, resulting in nosocomial infections. Preventing such complications is especially vital in critically ill patients, whose immune systems are often compromised.

## Aim of the Work

The primary objective of the study was to evaluate whether discontinuing the routine use of chlorhexidine in favour of a standardized oral care bundle can reduce ICU mortality, IVAC rates, oral health dysfunction, and procedural pain in mechanically ventilated ICU patients. Aim of this study was to assess the role of magnetic resonance imaging in determining the possible causes of anterior knee pain in symptomatic individuals and emphasis on their MRI findings.

## Patients and Methods

This prospective study was conducted in two phases over a 9-month period at the adult ICUs of Alexandria Main University Hospital. The study population included adult patients (≥18 years old) who were mechanically ventilated for at least 3 days. It excluded patients under 18 years, post-cardiac arrest patients, pregnant women, and those with significant facial trauma or burns. Phase I (Pre-Intervention): Over 3 months, baseline data on oral care practices were collected, including the use of chlorhexidine and patient outcomes such as oral health dysfunction (measured by the BOAS) and procedural pain (measured by the CPOT).

Phase II (Intervention): Over 6 months, chlorhexidine was de-adopted, and a new oral care bundle was introduced. The bundle included oral assessments, tooth brushing, regular moisturization, and oropharyngeal suctioning. Outcomes from both phases were compared to evaluate the effectiveness of the intervention.

## Results

The results demonstrated significant improvements in several key outcomes following the introduction of the standardized oral care bundle. The study found no statistically significant difference in ICU mortality between phases, indicating that the de-adoption of chlorhexidine did not negatively affect survival in mechanically ventilated patients (p = 0.944). A significant reduction in IVAC rates was observed, with 38.75% of patients experiencing IVACs in Phase I, compared to only 16.25% in Phase II (p = 0.007). This reduction highlights the efficacy of the oral care bundle in preventing ventilator-associated complications. The oral health of patients improved significantly in Phase II, with mean BOAS scores decreasing from 3.09 to 1.92 (p = 0.002). This indicates that the comprehensive oral care protocol better maintained oral mucosal integrity, reducing the incidence of oral dysfunction (Table1). The CPOT scores also showed significant improvement, with a reduction from a mean score of 2.99 in Phase I to 2.03 in Phase II (p = 0.040). This suggests that the new oral care protocol was less painful for patients, likely due to less mucosal irritation in the absence of chlorhexidine (Table2). Oral Procedural Pain: Although BOAS and CPOT scores improved, the incidence of oral procedural pain did not differ significantly between the two phases (p = 0.640), suggesting that factors other than oral care protocol may contribute to the experience of pain in mechanically ventilated patients.

**Table 1:** Distribution of studied cases according to BOAS scores.

| BOAS Scores | Phase (I) | Phase (II) | t | p |
|---|---|---|---|---|
| - Minimum | 1 | 1 | | |
| - Maximum | 5 | 3 | | |
| - Mean | 3.09 | 1.92 | 1.825 | 0.002* |
| - Standard Deviation | 1.45 | 0.84 | | |
| - Median | 3 | 2 | | |

**Table 2:** Distribution of studied cases according to CPOT scores.

| CPOT Scores | Phase (I) | Phase (II) | t | p |
|---|---|---|---|---|
| - Minimum | 1 | 1 | | |
| - Maximum | 5 | 3 | | |
| - Mean | 2.99 | 2.03 | 1.431 | 0.040* |
| - Standard Deviation | 1.35 | 0.92 | | |
| - Median | 3 | 2 | | |

## Conclusion

In conclusion, the de-adoption of chlorhexidine and the introduction of a standardized oral care bundle resulted in significant improvements in oral health and a reduction in ventilator-associated complications without adversely affecting ICU mortality. This study advocates for a shift in ICU oral care practices, emphasizing the need for evidence-based interventions that prioritize patient comfort and minimize unnecessary exposure to potentially harmful antiseptics.