

# Analysis of the Effect of Oral Care before Tracheal Intubation on Prevention of Ventilator Associated Pneumonia

Yongmei Qian\*, Xiuzhen Zhao

First People's Hospital of Suzhou City, Suzhou, 234000, China

**Abstract:** This paper study and analyze the effect of oral care before bronchial intubation on the prevention of ventilator-associated pneumonia. Take a report of 60 patients (Hospitalization time  $\geq 48$  hours) with ventilator assisted ventilation who underwent tracheal intubation from January 20 to June 18 18 in the Department of Critical Care Medicine as the object of study. According to the order of admission time, 30 cases was randomly divided into experimental group and control group. The control group took regular oral care, but the experimental group used oral care before and after intubation, and used 3% hydrogen peroxide and 5% sodium bicarbonate solution as the care solution. Research results show that the incidence of ventilator-associated pneumonia, positive rate of sputum culture, oral ulcer and oral odor were lower in the experimental group than in the control group. This paper come to conclusion: the patient can effectively clean the oral cavity before intubation, which can reduce or eliminate the internal cavity and bacteria, reducing the incidence of ventilator-associated pneumonia and the number of cases of sputum culture and oral ulcers, which is worthy of clinical application.

**Keywords:** Endotracheal intubation; Ventilator; Oral care

## 1. Introduction

There are more critically ill patients in the Department of Critical Care Medicine, and the patient's body resistance is low and extensive use of various antibiotics, so the internal environment is disordered which can easily cause bacterial translocation and reproduction. Intraoral tracheal intubation damages the breathing. The system's natural defense function<sup>[1]</sup>. In addition, the patient's tracheal intubation affects the swallowing function, causing the oral secretions to not swallow, making the oral cavity a good bacterial culture medium. The bacteria enter the lower respiratory tract through the oral cavity, which causes and aggravates the occurrence of pulmonary infection<sup>[2]</sup>. In order to reduce the proliferation of bacteria in the mouth, reduce and avoid the occurrence of ventilator-associated pneumonia, the Department of Critical Care Medicine of our hospital implemented the measures of oral care before tracheal intubation.

## 2. Data and Methods

### 2.1. General information

Selected in the Department of Critical Care Medicine, from January 20 to 2018 in June 2018, 60 patients with ventilator-assisted ventilation (hospital time  $\geq 48$  hours) were selected as subjects, and were randomly divided into experiments according to the order of admission.

Group and control group. The experimental group of 30 patients, 24 males and 6 females, aged 44-88 years, mean age ( $64 \pm 1.5$ ), 30 patients in the control group, 22 males, 8 females, aged 35-90 years, mean age ( $68 \pm 2.5$ ). The two groups of patients were comparable in terms of general information such as age, gender and condition.

### 2.2. Method

#### 2.2.1. Control group

Oral scrub according to the time of routine care, care method: bed height is 30-45°, head tilted to one side, check the air bag for air leakage.

#### 2.2.2. Experimental group

The oral secretions were cleaned before the tracheal intubation, and the oral cavity was firstly given with 3% hydrogen peroxide cotton balls. After the tracheal intubation was completed, the two nurses cooperated to check the airbag pressure, and then the oral rinse and scrub, oral nursing solution selects 3% hydrogen peroxide and 5% sodium bicarbonate solution. One nurse uses a 20ml syringe to draw 3% hydrogen peroxide into the mouth another nurse promptly draws the oral fluid with the suction tube. A nurse wiped the mouth with a 5% sodium bicarbonate solution cotton ball. After the wipe was completed, the tracheal intubation was fixed in time, and oral care was performed in the regular time.

**2.3. Evaluation indicators**

Compare the incidence of sputum culture positive rate, oral ulcer and oral odor in the two groups.

**2.4. Statistical methods**

The data of the experimental group and the observation group were processed by SPSS18.0 software, and compared with experiment and Chi Square. The statistical result was  $p \leq 0.05$ , which was statistically significant.

**3. Results**

The incidence of ventilator-associated pneumonia, positive rate of sputum culture, oral ulcer and oral odor were higher in the control group than in the experimental group, the difference was statistically significant ( $p \leq 0.05$ ), as shown in the following table

**Table 1. Experimental and control data detection statistics**

Group	Number of cases	Number of positive sputum culture	Number of oral ulcer	Number of ventilator-associated pneumonia	Oral odor
Control group	30	10 (33.3%)	5 (16%)	15 (50%)	5 (16%)
Experimental group	30	3 (10%)	2 (6.6%)	10 (33.3%)	3 (10%)

**4. Discussion**

Oral care given to patients before oral intubation can effectively reduce the incidence of ventilator-associated pneumonia, positive rate of sputum culture, simple mechanical oral operation can not effectively control the reproduction of bacteria, Zhang Jiajia<sup>[3]</sup> study It is believed that the oral wiping method combined with the flushing method can effectively reduce the incidence of ventilator-associated pneumonia, and has a wide application value in clinical practice. At the same time, some studies have suggested that sodium bicarbonate as an oral care solution can better improve oral conditions and reduce bacterial reproduction<sup>[4]</sup>. Song Yun<sup>[5]</sup> believes that hydrogen peroxide combined with sodium bicarbonate oral care solution can more effectively identify oral colonization bacteria, reduce the incidence of ventilator-associated pneumonia, shorten the length of hospital stay, and reduce the medical expenses of patients.

Patients in the Department of Critical Care Medicine have a severe condition. These patients have poor oral buffering capacity and oral cleaning ability, and the growth rate of oral bacteria is relatively fast. When the doctor intubates the patient with tracheal intubation, it may cause the bacteria to move down, causing lower respiratory tract infection, which may cause ventilator-associated pneumonia. Therefore, the patient can effec-

tively clean the oral cavity before intubation, which can reduce or eliminate the bacteria inside the oral cavity. To reduce the incidence of ventilator-associated pneumonia and reduce the number of cases of sputum culture and oral ulcers, so in the nursing work, medical staff must continue to innovate, implement detailed and high-quality nursing measures for different patients, so that patients can be as soon as possible Rehabilitation.

**References**

- [1] Yuan Liping, Zhang Yuping, He Shenghong. The role of oral care interval in the nursing of patients with orotracheal intubation. *General nursing*. 2015, 13(10), 894-895.
- [2] Li Jinxiang, Shen Yechun, Zhang Fan. Study on the number of oral colonies in oral ventilation for mechanical ventilation in patients with oral tracheal intubation. *Hebei Medical Journal*. 2014, 5(21), 838-840.
- [3] Zhang Jiajia. Comparison of different oral care methods for patients with tracheal intubation in the prevention of ventilator-associated pneumonia. *Clinical Research*. 2015, 23(11).
- [4] Zhao Hongli, Zhang Meihua. Application of 5% sodium bicarbonate injection in oral care of stroke patients with consciousness disorder. *Nursing Practice and Research*. 2013, 10(14), 95.
- [5] Song Yun. Observation on the effect of oral care combined with sodium bicarbonate solution in the prevention of neonatal ventilator-associated pneumonia. *Qilu Nursing Journal*. 2018, 24(4), 110-112.