Subglottic Suctioning to Reduce Ventilator Associated Pneumonia

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Abstract:
Subglottic secretion drainage (SSD) is related to a reduction in occurrence of ventilator associated pneumonia. This study will review endotracheal tubes (ETT) with SSD subglottic secretion drainage that are to be implemented as a trial at Augusta Health in September of 2022 and the rate of Ventilator Associated Pneumonia (VAP). The results will demonstrate a recommendation to implement SSD on units that will intubate patients prior to an ICU admission.

Purpose/PICOT:
In mechanically ventilated patients does subglottic suction reduce the occurrence of ventilator associated pneumonia?

Methods:
A literature search was conducted on PubMed. Key words searched include "subglottic secretion drainage" publications within 5 years with 38 results.
A literature search was conducted on AACN Journals. Key words searched include "subglottic suction" with 7 results, "ventilator associated pneumonia" with 169 results

Background:
Ventilator associated pneumonia (VAP) is a hospital-acquired infection (HAI) acquired in the ICU within the mechanically ventilated patient population. It is estimated to have a 20-41% mortality rate as well as increase the length of ventilator days and hospital stay for the patient.
Endotracheal tubes with subglottic secretion drainage (SSD) are designed with a separate lumen on the back side that opens directly above the endotracheal cuff. It is helpful in reducing the amount of bacteria sitting above the cuff.
Studies have shown that secretions usually accumulate above the endotracheal cuff before dropping into the lower respiratory tract. The use of SSD is associated with lower VAP rates.
Augusta Health will plan to implement a trial of endotracheal tubes with SSD September of 2022.

References:
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Wang, F., Bo, L., Tang. L,. Lou, J., Wu. Y., Chen, F., Li, J., & Deng, X. (2012). Subglottic secretion drainage for preventing ventilator associated pneumonia: an updated meta-analysis of randomized controlled trials. *The Journal of Trauma and Acute Care Surgery,* 72 (5). https://doi.org/10.1097/ta.0b013e318247cd33

Results:
Research recommends to implement the use of endotracheal tubes with subglottic secretion drainage on all units that may intubate a patient prior to an ICU admission. The results demonstrate that these endotracheal tubes should be specifically considered for patient's who will require intubation for greater than 48-72 hours. Studies show the use of SSD is related to a 44% relative risk reduction for acquiring VAP as well as reducing mechanically ventilated days by 1.55.

Implications for Practice:
Augusta Health should implement the practice of using subglottic secretion drainage by having endotracheal tubes with SSD available in the emergency department and intensive care unit. These endotracheal tubes should be used for patients who may have a prolonged intubation. The use of SSD leads to a decrease in the occurrence of ventilator associated pneumonia by reducing the amount of bacteria sitting above the cuff. Thus leading to a reduction in ventilator and hospital days for mechanically ventilated patients.

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