

Anti-infective Endotracheal Tubes

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Technology description

Ventilator-associated pneumonia (VAP) is the most common infectious complication in patients under mechanical ventilation. It results in longer hospital stay, higher cost, and a mortality rate up to 70% in critically ill patients. The endotracheal tube (ETT) is a major risk factor for VAP. The intubation process causes damages to the host airway defense, and the presence of ETT serves as an easy path for bacteria invasion and a surface for microbial adherence. Biofilm formed on the ETT surface provides a defensive layer and it prevents the penetration of antimicrobial agents to kill the embedded microorganisms. Drs. Darouiche and Prince have developed an innovative anti-infective ETT design with a method to use in human patients. The invention features surface-coated multi-lumen anti-infective ETTs that can release not only anti-infective medications (antimicrobial and/or antibiofilm agents), but also energy radiation (electric and/or ultrasonic radiation) to further enhance the medication efficacy for both therapeutic and preventive purposes. This technology is very useful to improve the clinical outcome of patients with ETT placement, especially those in the intensive care units (ICUs).

Advantages

- The multi lumen tube has a coated outer lumen for releasing medication and energy radiation and a coated concentric inner lumen as the patient airway.
- Innovatively combines energy radiation with anti-infective medication for enhanced performance.
- Provides a method for using such multi lumen ETTs in human patients.

Institution

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