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Silver-Coated Endotracheal Tubes appear to Reduce Risk of Pneumonia Associated with Ventilator Use

Among intensive care unit patients who require mechanical ventilation, use of a silvercoated endotracheal tube resulted in reduced incidence of pneumonia associated with ventilators, according to a report in the August 20 issue of JAMA.

Ventilator-associated pneumonia is associated with longer hospital stays, increased health care costs and infection with antibiotic-resistant pathogens, according to background information in the article. It is likely to develop when pathogenic bacteria colonise the aerodigestive tract or when patients breathe out contaminated secretions. "Prevention strategies often focus on modifiable risk factors for colonisation and aspiration and can successfully reduce ventilator-associated pneumonia rates, but no single strategy completely eliminates ventilator-associated pneumonia," the authors write.

"Adherence to prevention guidelines is variable due to costs and lack of education, resources and leadership."

Silver has displayed antimicrobial activity in the laboratory and has blocked the formation of harmful pathogens on ventilator tubes in animal models. Marin H. Kollef, M.D., of the Washington University School of Medicine, and colleagues in the NASCENT Investigation Group report on a randomised controlled trial involving patients at 54 centers expected to require mechanical ventilation for 24 hours or longer. Between 2002 and 2006, 2,003 patients were randomly assigned to undergo intubation with either a silver-coated tube or a similar tube that was not coated. Of 1,509 patients who were intubated for 24 hours or longer, 4.8 percent of those with silver-coated tubes developed ventilator-associated pneumonia, compared with 7.5 percent of those with uncoated tubes—a 35.9 percent relative reduction in risk. Among 1,932 patients who were on ventilators for any length of time, the silver coating was associated with a 34.2 percent relative reduction in risk of developing pneumonia (3.8 percent of those with silver-coated tubes vs 5.8 percent with uncoated tubes).

In addition, the silver-coated tubes were associated with a delayed occurrence of ventilator-associated pneumonia. No differences were seen between the two groups in median (midpoint) duration of intubation, length of stay in the intensive care unit (ICU) or in the hospital, death rates or frequency and severity of adverse events.

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