

Closed or open endotracheal suction systems?

The following question was answered by a systematic review of the literature: Should closed endotracheal suction system versus open endotracheal suction system be used in mechanically ventilated ICU patients?

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Policies for endotracheal suctioning of patients receiving mechanical ventilation: a systematic review of randomized controlled trials.

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Abstract

Objective

The Dutch Working Party on Infection Prevention (Werkgroep Infectiepreventie [WIP]) aimed to determine whether certain policies on endotracheal suctioning are better than others in terms of prevention of ventilator-associated pneumonia (VAP) in patients receiving mechanical ventilation in the intensive care unit.

Methods

Publications were retrieved by a systematic search of Medline and the Cochrane Library for literature published before February 2006. Additionally, the reference lists of all identified trials were examined. All randomized trials, quasi-randomized trials, and systematic reviews or meta-analyses of randomized or quasi-randomized trials that compared different policies on endotracheal suctioning for patients receiving mechanical ventilation in the intensive care unit were selected. Two reviewers independently assessed trial quality and extracted data. Disagreements were resolved by discussion with a third reviewer. Data from the original publications were used to calculate the relative risk of VAP. Data for VAP were combined in the analysis where appropriate, by use of a random-effects model.

Results

Ten trials were included in the review. The quality of the trials and the way they were reported were generally unsatisfactory. Eight low-quality trials indicate that use of closed instead of open suction systems has no effect on the incidence of VAP. Two moderate-quality trials indicate that changing in-line suction catheters less frequently than every 24 hours does not increase the incidence of VAP.

Conclusion

The WIP recommends that there be no preferential use of either open or closed endotracheal suction systems to reduce the rate of VAP, but it elucidates that the quality of the evidence is low. Considerations other than

prevention of VAP should determine the choice of the suction system. When closed systems are used, the WIP recommends changing the in-line suction catheters every 48 hours. In case of mechanical failure or soiling of the suction system, they may be changed more frequently.

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