

Prevention and Treatment of VAP: Cochrane Reviews



Two recent Cochrane reviews have evaluated the evidence on oral hygiene care to prevent ventilator-associated pneumonia (VAP) and antibiotics to treat it. Recommendations can be made on oral hygiene, but insufficient evidence exists for antibiotics.

See Also: [Seven Days Antibiotics OK for HAP/ VAP. New Guidelines.](#)

Oral Hygiene

In the review by Hua and colleagues, 38 randomised controlled trials (RCTs) (6016 patients) were included, but only 13% of the studies were well conducted and described. Trials were included that evaluated the effects of mouthrinse, swab, toothbrush or combination in critically ill patients receiving mechanical ventilation for at least 48 hours.

There were four main comparisons: chlorhexidine (CHX) mouthrinse or gel versus placebo/usual care; toothbrushing versus no toothbrushing; powered versus manual toothbrushing; and comparisons of oral care solutions.

CHX Mouthrinse or Gel

- Reduces risk from 25% to about 19% (NNT = 17) - based on 18 RCTs (2451 patients)
- No evidence of difference to mortality, duration of mechanical ventilation, length of ICU stay
- Evidence lacking on the effect of CHX on duration of systemic antibiotics, oral health indices, caregivers' preferences or cost.

Toothbrushes and other Oral Care Solutions

Insufficient or only weak evidence exists on the effects of toothbrushing or other oral care solutions.

Antibiotic Treatments

Monotherapy vs Combination Therapy

The systematic review by Arthur and colleagues included data from 12 RCTs (3571 patients), up to December 2015, that compared the empiric use of one antimicrobial regimen versus another for the treatment of adults with VAP. The drug regimens differed between studies. The review found no statistical difference in all-cause mortality, clinical cure, length of ICU stay or adverse events between monotherapy and combination therapy. One meta-analysis found a significant increase in clinical cure for imipenem-cilastatin, but the effect was due to a single study.

There was no mortality difference between carbapenem and non-carbapenem therapies or adverse events, but carbapenems are associated with increase in clinical cure. The reviewers rate the quality of evidence for mortality and clinical cure as moderate, and for adverse events as low.

The reviewers cannot recommend a best antibiotic for VAP. However, they suggest that carbapenems as a class "may result in better clinical cure than other tested antibiotics."

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