

Can Bathing with Chlorhexidine Reduce VAP?



Ventilator-associated pneumonia (VAP) is the most important nosocomial infection in intensive care units (ICUs). Measures have been taken to prevent morbidity of VAP, such as semi-recumbent body position, hand hygiene, and daily bathing with chlorhexidine gluconate (CHG). However, results of previous studies on the effectiveness of daily chlorhexidine baths in preventing VAP remain conflicting rather than conclusive.

Dr. Weihong Zhang, Director of Infection Management Office, the First Affiliated Hospital of Nanjing Medical University (China), and colleagues conducted a meta-analysis of available data to assess whether daily bathing with CHG results in the reduction of VAP.

"We found that daily bathing with 2% CHG impregnated cloth or wipes decreased VAP risk among critically ill patients (RR: 0.73, 95% CI: 0.57-0.93)," the authors write in a report published in the *Journal of Thoracic Disease*. "Our findings suggest that daily bathing with CHG could reduce the risk of VAP in ICU settings."

While previous studies have highlighted the benefits of daily CHG baths in preventing nosocomial infections regardless of whether bathing is done using CHG impregnated cloths or a liquid preparation, the authors note that no standard intervention has been established.

Methodology

The authors searched PubMed, Embase and the Cochrane Central Register databases for all published studies related to the application of daily CHG bathing to reduce VAP risk in critically ill adult patients. Studies were excluded when CHG bathing was not applied as the primary part of intervention. Additional studies were identified by a manual search of references of original studies or review articles on this topic.

If between-study heterogeneity was found, a random effect model was conducted. If I^2 was $\leq 50\%$, a fixed effects model was used to calculate a pooled estimate of effect; if the I^2 statistic was $>50\%$, a random effect model was used. Publication bias was evaluated by the linear regression asymmetry test by Egger et al. All data were analysed in Review Manager (v.5.1.6; Oxford, England) and STATA11.0 (Stata-Corp, College Station, Tex).

Results and Discussion

In all, six articles reporting a total of 27,638 ventilator-days met the inclusion criteria: 132 patients in the CHG arm developed VAP (13,349 ventilator-days), compared with 188 patients in the control arm (14,289 ventilator-days). Daily bathing with CHG was significantly associated with decreased incidence risk of VAP [relative risk (RR): 0.73, 95% confidence interval (CI): 0.57-0.92, $I^2=0\%$].

A subgroup analysis showed that daily bathing with 2% CHG impregnated cloths or wipes reduced the incidence risk of VAP among before-and-after studies (pooled RR: 0.73, 95% CI: 0.57-0.93).

Existing data — even if mainly obtained from quasi-experimental studies— support the practice of daily bathing with CHG for reducing VAP for critically ill patients. Additional well-designed large studies are required for the validation of this association. Nevertheless, the crucial impact of daily CHG baths in preventing VAP should not be neglected by infection preventionists and healthcare workers.

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