## Findings Do Not Support Chlorhexidine Bathing in ICUs



A Vanderbilt University study, which appears in *JAMA*, shows that once daily chlorhexidine bathing of critically ill patients did not reduce the incidence of healthcare-associated infections (HAIs). Chlorhexidine is a broad-spectrum topical antimicrobial agent that, when used to bathe the skin, may decrease the bacterial burden, thereby reducing infections.

Infections acquired during hospitalisation, or HAIs, are associated with increased hospital length of stay, rates of death, and increased costs. The skin of hospitalised patients is a reservoir for infectious pathogens. Subsequent invasion by skin flora is said to be a mechanism contributing to HAIs. Some expert guidelines recommend chlorhexidine bathing as a means to reduce such infections.

However, results of the current study suggest that chlorhexidine bathing "may not be necessary, resulting in cost saving and avoidance of unnecessary [antimicrobial] exposure without adversely affecting clinical outcome," according to the Vanderbilt researchers. The findings have been presented at the Society of Critical Care Medicine's 44th Critical Care Congress.

For the study, led by Michael J. Noto, MD, PhD, of Vanderbilt University, five adult intensive care units in Nashville, Tennessee, performed once-daily bathing of all patients (n = 9,340) with disposable cloths impregnated with two percent chlorhexidine or nonantimicrobial cloths as a control. Bathing treatments were performed for a 10-week period followed by a two-week washout period (i.e., to eliminate the effect of the first intervention before starting a new intervention), during which patients were bathed with nonantimicrobial disposable cloths, before crossover (switching) to the alternate bathing treatment for another 10 weeks.

Dr. Noto's team reported these key findings:

- 55 infections occurred during the chlorhexidine bathing period: 4 central line-associated bloodstream infections (CLABSIs), 21 catheter-associated urinary tract infections (CAUTIs), 17 ventilator-associated pneumonia (VAP), and 13 Clostridium difficile.
- 60 infections occurred during the control bathing periods: 4 CLABSIs, 32 CAUTIs, 8 VAP, and 16 C difficile infections.
- After adjusting for various factors, no significant difference between groups in the rate of the primary outcome (composite of these infections) was detected.

Other infection-related secondary outcomes, including healthcare-associated bloodstream infections, blood culture contamination, and clinical cultures positive for multi-drug resistant organisms were also not improved by chlorhexidine, according to the research team.

In an accompanying editorial, Didier Pittet, MD, MS, of the University of Geneva Hospitals, Geneva, Switzerland, and Derek C. Angus, MD, MPH, of the University of Pittsburgh School of Medicine, and Associate Editor, *JAMA*, write that "widespread treatment of patients with antimicrobials – whether antibiotics, antivirals, antifungals, or biocides – has never been a good idea.

"Issues around chlorhexidine use include allergy, costs, resistance, and even safety. Although chlorhexidine bathing was found previously to reduce health care-acquired infection, the largest benefit appears to be in settings where the baseline prevalence of multidrug-resistant organisms is high. In these settings, the same benefits potentially could be gained through other approaches, such as improved hand hygiene, which may be safer and less likely to affect the ecology of bacterial resistance in the ICU.

"The current study by Noto et al. suggests that widespread adoption of daily chlorhexidine bathing is not indicated at this point, a position also articulated in the 2014 Society for Healthcare Epidemiology of America guidelines. Rather, for institutions with infection rates similar to those reported in the current study, a simpler, less expensive approach that focuses on basic hygiene practices seems best."

Source: [JAMA](#)
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