

Emerging Antiseptic Resistance in ICUs



According to a recent study published in *Infection Control and Hospital Epidemiology*, the journal of the Society for Healthcare Epidemiology of America, bacteria that cause life-threatening bloodstream infections in critically ill patients may be growing increasingly resistant to chlorhexidine gluconate (CHG), a common hospital antiseptic.

The use of CHG as an antiseptic for patient baths in ICUs is increasing consistently in hospitals. It is believed that CHG may reduce the spread of multi-drug resistant organisms and prevent central line associated bloodstream infections (CLABSIs). However, it is unclear as to how the microbial ecology of the human microbiome and hospital environment will adapt to this expanded usage. There already have been reports of bacteria isolates that have demonstrated reduced CHG susceptibility.

The study was led by investigators at John Hopkins who compared bacterial resistance between cultures from patients in eight ICUs receiving daily antiseptic washes to patients in 30 non-ICUs who did not bathe daily with CHG. One hundred and fifty bacterial isolates were recovered from patients with CLABSIs between January 2012 and September 2013. 122 isolates were tested for CHG susceptibility from 28 patients in units with daily CHG bathing and 96 patients from units with no CHG bathing.

The cultures from patients with regular antiseptic baths showed reduced susceptibility to CHG as compared to those from patients who did not have antiseptic baths. Sixty nine percent of all bacteria showed a reduced susceptibility to CHG, regardless of unit protocol.

According to Nuntra Suwantarat, MD, and lead author of this study, "Hospitals are appropriately using chlorhexidine to reduce infections and control the spread of antibiotic-resistant organisms. However, our findings are a clear signal that we must continue to monitor bacteria for emerging antiseptic resistance as these antibacterial washes become more widely used in hospitals."

However, the clinical implications of these findings are yet unclear. Antibiotic susceptibility tests are often used to determine whether patients will respond to a certain antibiotic treatment. To date, there is no well-defined correlation between antiseptic susceptibility and response to an antiseptic and this is the area which should be further explored in future. These recent findings indicate that there is a need to evaluate the effectiveness of using CHG and to monitor bacterial resistance vigilantly.

The good news though is that despite reduced susceptibility, most bacteria are still vulnerable to CHG. Daily bathing with the CHG solution is an effective strategy against life-threatening bloodstream infections. In any case, this issue should be further explored. The next step should involve the identification of particular bacteria and settings in which these bacteria do not respond to antiseptic agents.

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