Background: Intravascular catheter-associated bloodstream infections (CA-BSIs) are a significant medical problem. Novel means to prevent CA-BSIs are needed.

Objective: To assess the clinical performance of an innovative catheter dressing that has the potential to inhibit the growth of microbes at the catheter insertion site.

Methods: Prospective, controlled, randomized, clinical trial comparing the 3M® Tegaderm™ CHG (chlorhexidine gluconate) IV Securement Dressing (3M, St. Paul, MN) with a transparent, semi-permeable, film dressing that contains a gel pad containing 2% (w/w) chlorhexidine gluconate. Between January 2007 and May 2007, 60 adult inpatients (48 male, 12 female) at University of Nebraska Medical Center, Omaha, NE were randomized to receive either the comparator or the Tegaderm CHG dressing (1:1 ratio). Patients were stratified by catheter insertion site (20 internal jugular, 20 subclavian, or 10 femoral). The mean time to first dressing change was 4.2 ± 2.5 days for the comparator and 4.4 ± 2.0 days for the Tegaderm CHG dressing, respectively. The mean total study dressing wear time was 5.6 ± 1.5 days (p = 0.84) for the comparator and Tegaderm CHG dressing groups, respectively.

Adverse events were reported in 6 subjects (3 comparator, 3 Tegaderm CHG) subjects, underwent aerobic microbiologic swab cultures of the dressing, respectively. The mean colony count on swab cultures for the comparator and Tegaderm CHG dressing groups, respectively (p = 0.84). Of the 6 skin cultures in which microbes were recovered, 5 yielded coagulase-negative staphylococci (range: 10 cfu to 390 cfu) and 1 yielded Candida parapsilosis (100 cfu).

The Tegaderm CHG dressing was regarded as superior to the comparator dressing in the clinical endpoints of catheter colonization and insertion site skin colonization.

Conclusions: The Tegaderm CHG dressing containing a chlorhexidine gel pad is an innovative means to potentially minimize CA-BSIs. The dressing was well-tolerated and judged to be superior to the comparator dressing with regard to catheter securement and overall satisfaction. These results justify adequately powered trials to examine the clinically relevant endpoints of CA-BSIs and the surrogate endpoints of catheter colonization and insertion site skin colonization.

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