

The findings show that use of ClearGuard HD Antimicrobial Barrier Caps, when compared with standard CVC caps, significantly lowers rates of catheter-related BSIs and hospital admissions for BSI in HD patients using CVCs” Hymes et al (2016).

Abstract:

BACKGROUND: The rate of bloodstream infections (BSIs) is disproportionately high in hemodialysis (HD) patients with central venous catheters (CVCs) versus those with permanent accesses, contributing to poorer outcomes, such as increased rates of death and hospitalizations.

STUDY DESIGN: 12-month, prospective, cluster-randomized, multicenter, open-label trial.

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SETTING & PARTICIPANTS: 40 Fresenius Medical Care North America dialysis facilities were matched and paired by positive blood culture rate and number of patients with CVCs and then cluster-randomized with 20 in each study group. 2,470 patients participated in the study (1,245, intervention group; 1,225, control group), accruing approximately 350,000 CVC-days.

INTERVENTION: Use of ClearGuard HD Antimicrobial Barrier Caps versus use of standard CVC caps; assigned at the facility level.

OUTCOME: Primary end point was positive blood culture rate as an indicator of BSI rate.

MEASUREMENTS: Positive blood cultures, hospital admissions for BSI, hospitalization-days for BSI, intravenous antibiotic starts, and CVC-days.

RESULTS: Baseline positive blood culture rates were similar ($P=0.8$) between groups. Use of ClearGuard HD caps for 12 months was associated with a 56% lower BSI rate versus use

of standard CVC caps (0.26 vs 0.59/1,000 CVC-days, respectively; $P=0.01$). When considering sustained use (defined as last 6 months of the study), the intervention versus the control was associated with a 69% lower BSI rate (0.22 vs 0.72/1,000 CVC-days, respectively; $P=0.01$), 43% fewer hospital admissions for BSI (0.28 vs 0.48/1,000 CVC-days, respectively; $P=0.04$), and 51% fewer hospitalization days for BSI (2.42 vs 4.94/1,000 CVC-days, respectively; $P=0.04$). No device-related adverse events were reported.

LIMITATIONS: Study was open label; patients occasionally received HD at nonresearch facilities; patients did not receive the intervention when hospitalized.

CONCLUSIONS: The findings show that use of ClearGuard HD Antimicrobial Barrier Caps, when compared with standard CVC caps, significantly lowers rates of catheter-related BSIs and hospital admissions for BSI in HD patients using CVCs.

Full Text

Reference:

Hymes, J.L., Mooney, A., Van Zandt, C., Lynch, L., Ziebol, R. and Killion, D. (2016) Dialysis Catheter-Related Bloodstream Infections: A Cluster-Randomized Trial of the ClearGuard HD Antimicrobial Barrier Cap. American Journal of Kidney Diseases. November 8th. .

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