

“In order to investigate the efficacy of antimicrobial lock therapy to prevent central-line-associated bloodstream infections (CLABSI), we performed a systematic search of PubMed, EMBASE, Cochrane Central Register of Controlled Trials, and clinicaltrials.gov, from the earliest date up to December 31 2013.” Zacharioudakis et al (2014).

Reference:

Zacharioudakis, I.M., Zervou, F.N., Arvanitis, M., Ziakas, P.D., Mermel, L.A. and Mylonakis, E. (2014) Antimicrobial Lock Solutions as a Method to Prevent Central Line-Associated Bloodstream Infections: A Meta-Analysis of Randomized Controlled Trials. Clinical Infectious Diseases. August 25th. .

Abstract:

BACKGROUND: Antimicrobial lock solutions may be an effective strategy to prevent catheter-associated infections. However, there remains concern about their efficacy and safety.

METHODS: In order to investigate the efficacy of antimicrobial lock therapy to prevent central-line-associated bloodstream infections (CLABSI), we performed a systematic search of PubMed, EMBASE, Cochrane Central Register of Controlled Trials, and clinicaltrials.gov, from the earliest date up to December 31 2013. Studies were eligible if they were randomized controlled trials comparing antimicrobial lock solutions to heparin and if they provided an appropriate definition of infection.

RESULTS: The 23 included studies reported data on 2,896 patients, who were predominantly adult hemodialysis patients (16/23 studies), but also adult and pediatric oncology patients, critically ill neonates and patients receiving total parenteral nutrition. The use of antimicrobial lock solutions led to a 69% reduction in CLABSI rate (RR=0.31, 95%CI 0.24-0.40) and a 32% reduction in exit-site infections rate (RR=0.68, 95%CI 0.49-0.95) compared to heparin, without significantly affecting catheter failure due to non-infectious complications (RR=0.83, 95%CI 0.65-1.06). All-cause mortality was not different between the groups (RR=0.84, 95%CI 0.64-1.12). Neither the type of antimicrobial solution, nor the population studied, affected the relative reduction in CLABSIs which also remained significant among studies reporting baseline infection rates of less than 1.15/1000 catheter-days, and studies providing data for CRBSIs. Publication and selective reporting bias are a concern in our study and should be acknowledged.

CONCLUSIONS: Antimicrobial lock solutions are effective in reducing risk of CLABSI and this effect appears to be additive to traditional prevention measures.

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