The purpose of our study is to carry out a Bayesian network meta-analysis comparing the efficacy of different antimicrobial lock solutions (ALS) for prevention of catheter-related infections (CRI) in patients with hemodialysis (HD) and ranking these ALS for practical consideration" Zhang et al (2016).

Abstract:

PURPOSE: The purpose of our study is to carry out a Bayesian network meta-analysis comparing the efficacy of different antimicrobial lock solutions (ALS) for prevention of catheter-related infections (CRI) in patients with hemodialysis (HD) and ranking these ALS for practical consideration.

METHODS: We searched six electronic databases, earlier relevant meta-analysis and reference lists of included studies for randomized controlled trials (RCTs) that compared ALS for preventing episodes of CRI in patients with HD either head-to-head or against control interventions using non-ALS. Two authors independently assessed the methodological quality of included studies using the Cochrane risk of bias tool and extracted relevant information according to a predesigned extraction form. Data were analysed using the WinBUGS (V.1.4.3) and the Stata (V.13.0).

RESULTS: Finally, 18 studies involving 2395 patients and evaluating 9 ALS strategies were included. Network meta-analysis showed that gentamicin plus citrate (OR 0.07, 95% CrI 0.00-0.48) and gentamicin plus heparin (OR 0.04, 95% CrI 0.00-0.23) were statistically superior to heparin alone in terms of reducing CRBSI. For exit site infection and all-cause mortality, no significant difference in the intervention effect ($p > 0.05$) was detected for all included ALS when compared to heparin. Moreover, all ALS were similar in efficacy ($p > 0.05$) from each other for CRBSI, exit site infection and all-cause mortality.

CONCLUSIONS: Our findings indicated that gentamicin plus heparin may be selected for the

prophylaxis of CRI in patients undergoing HD with CVCs. Whether this strategy will lead to antimicrobial resistance remains unclear in view of the relatively short duration of included studies. More attentions should be made regarding head-to-head comparisons of the most commonly used ALS in this field.

Reference:

Zhang, J., Wang, B., Li, R., Ge, L., Chen, K.H. and Tian, J. (2016) Does antimicrobial lock solution reduce catheter-related infections in hemodialysis patients with central venous catheters? A Bayesian network meta-analysis. International Urology and Nephrology. December 29th. .

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