

eP808

Abstract (eposter session)

**Effectiveness of antimicrobial catheters in cerebrospinal fluid-shunting-associated infections: a systematic review and metaanalysis**

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**Objective:** To study the effectiveness of antimicrobial cerebrospinal fluid (CSF) shunting catheters in reducing the risk of infection and related mortality. **Methods:** PubMed and Scopus databases were searched (till October 2012). Cerebrospinal fluid shunting was classified either as permanent (mainly with ventriculoperitoneal shunting) or as temporary (mainly with external ventricular drainage). Studies evaluating antibiotic-impregnated (AIC), silver-coated (SCC) and hydrogel-coated catheters (HCC) were included. A random effects model meta-analysis was performed. **Results:** Thirty studies (6 randomized and 24 non-randomized) that evaluated 13839 procedures were eligible for inclusion. Most of these studies enrolled patients without major risk factors for development of CSF shunting infections. Significant statistical heterogeneity was observed in most of the performed analyses. Unadjusted data only were available. AIC were associated with lower risk for CSF shunt associated infections [risk ratio (RR) 0.42, 95% confidence interval (95% CI) 0.31 -0.57] than conventional catheters (CC), lower risk for Staphylococcal infections (0.23, 0.15-0.36) and lower risk for early shunt infection in permanent shunting (<6 months after implantation, 0.47, 0.26-0.85) but not for late infections (1.23, 0.24-6.20). Lower risk for infections was observed in both randomized (0.43, 0.18-1.03) and non-randomized (0.41, 0.29-0.58) studies. Lower risk for infection was observed in all age groups in neonates (0.39, 0.16-0.96), in children (0.55, 0.35-0.87), in adults (0.32, 0.14-0.76) and in mixed populations with adults and children (0.40, 0.25-0.64). Data for temporary shunting only was available for SCC, which were associated with lower risk for infection (0.48, 0.34-0.69) than CC. No difference in development of infections was observed between HCC and CC (1.63, 0.21-12.96). Nine studies (1605 procedures) provided data for mortality; no difference in mortality was observed between all types of antimicrobial catheters and CC. **Conclusion:** Based on data from non-randomized studies, AIC and SCC seem to reduce the risk for infection in patients undergoing cerebrospinal fluid shunting. Additional randomized controlled trials are needed to investigate differences in effectiveness among the different types of antimicrobial shunting catheters.