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[J Neurosurg](#). 1997 Aug;87(2):247-51. doi: 10.3171/jns.1997.87.2.0247.

Duration of protective activity of cerebrospinal fluid shunt catheters impregnated with antimicrobial agents to prevent bacterial catheter-related infection

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Abstract

This study determined the protective effect of antibacterial processing of cerebrospinal fluid (CSF) shunt catheters against infection with staphylococci, which is an important complication following CSF shunt placement for hydrocephalus. Also examined is the effect of a conditioning film such as that seen on the luminal surface of shunts used in posthemorrhagic hydrocephalus. Conventional preventative measures, including antimicrobial prophylaxis, confer a temporary or unproven benefit. The authors have therefore developed a process for impregnation of CSF shunts with rifampicin and clindamycin, and this has been shown previously to achieve the target duration of 28 days of protective activity in vitro. The present study demonstrates the limit of the period of protection and the efficacy of the processing against a wide range of staphylococci, particularly in the presence of a plasma protein conditioning film. Five strains of *Staphylococcus aureus* and 17 coagulase-negative staphylococci, all clinical isolates, were inoculated into the shunts at 2-week intervals until failure of antimicrobial protection occurred. The results showed that the process protected against all strains for between 42 and 56 days and that the conditioning film did not diminish the protection. Catheters processed by this method show promise of significant reductions in the incidence of CSF shunt infections.

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