Ventriculitis treatment

Rapid drainage and irrigation of pus and debris may be beneficial for reducing inflammation and preventing intraventricular septation and subsequent isolated ventricular enlargement. Early diagnosis of ventriculitis may significantly improve the overall outcome, and MRI plays an important role as a first-line diagnostic tool. 

1) Intraventricular administration of proper antibiotics is a reliable and effective way to treat ventriculitis associated with ventriculoperitoneal shunts. (2) Vancomycin is the preferred antibiotic for ventriculitis, but other kind(s) of some antibiotics are necessary in a few patients in addition to or instead of vancomycin. (3) The effect of systemic use of antibiotics could not be defined in this series of patients, but this may be used as an adjunct in the practice. (4) There are many problems related to diagnosis and treatment of shunt ventriculitis that should be studied more extensively and deeply.

The emergence of multidrug-resistant pathogens has resulted in difficult-to-treat ventriculitis/meningitis (VM). A meta-analysis aimed to study the role of intraventricular antibiotic administration as an adjunct (IVT plus IV) to the classical intravenous antimicrobial chemotherapy (IV-only) in the management of VM in terms of infection control (Q1), functional outcome (Q2), microbial eradication (Q3), complications (Q4), cost-benefit analysis (Q5), infectious mortality (Q6), and overall mortality (Q7).

The electronic search focused on adult neurosurgical patients, complicated by Gram-negative VM and was limited to studies comparing IVT plus IV to IV-only. The quality of the overall body of evidence was assessed according to the GRADE working group. The pooled estimates for each question were summarized in odds ratios and visualized by forest plots. Every outcome was stratified according to carbapenem-resistance.

Eleven studies with 348 patients fulfilled the eligibility criteria. No evidence existed regarding Q1, Q2, Q4 and Q5 question. For the remaining questions, the overall quality of the best available evidence was low. IVT plus IV treatment was statistically superior to the IV-only therapy in terms of eradication [OR: 10.06 (95% CI: 2.62, 38.65)], infectious mortality [OR: 0.1 (95% CI: 0.03, 0.36)], and overall mortality [OR: 0.22 (95 % CI: 0.08, 0.60)] in the management of carbapenem-resistant pathogens, only.

The combined IVT plus IV treatment has not proved to be superior to the standard IV treatment in the management of VM. Nevertheless, there is weak evidence that IVT treatment may serve as an adjunct in the management of carbapenem-resistant pathogens.

Case reports

Endoscopic washout for medically refractory cerebral ventriculitis.
If not controlled in the early stage, ventriculitis is difficult to treat neurosurgically and can lead to serious sequelae, a long course of treatment, and hospitalization. We report two cases of ventriculitis and progressive hydrocephalus after shunt infection. Both were successfully treated by neuroendoscopic septostomy in combination with thorough intraventricular irrigation through a single burr hole followed by single shunt revision. Although surgical intervention has not been established as a first-choice treatment for ventriculitis, including early-stage ventriculitis, prompt neuroendoscopic surgery appears effective for the management of ventriculitis and hydrocephalus after shunt infection. The strategy described in this report might be useful to avoid recurrent shunt infections and malfunctions, simplify a shunt, and reduce the overall duration of hospitalization.