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# Predictors of Ventriculostomy Infection in a Large Cohort

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*“Predictors of Ventriculostomy Infection in a Large Cohort”*

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**Introduction:** External ventricular drains (EVDs) are neurosurgical devices used to treat hydrocephalus and monitor intracranial pressure. Ventriculostomy-associated infections (VAIs) are a complication of EVD placement associated with increased morbidity and mortality, as well as cost. A previous study at Jefferson reported a decrease in VAI’s with the use of antibiotic-coated catheters.

**Objective:** The aim of this study was to assess the current rate of VAI’s and determine risk factors associated with infections.

**Methods:** Using Epic, the electronic medical records software, we conducted a retrospective review of patients who underwent EVD placement at Thomas Jefferson University Hospital and Jefferson Hospital for Neuroscience between January 2010 and January 2018.

**Results:** During this time period, 1107 EVD’s were placed in 1034 patients. The most common indications for placement were acute subarachnoid hemorrhage (51%), intraparenchymal hemorrhage (15.4%), and brain tumors (9.7%). 38 patients suffered from a VAI, for an infection rate of 0.03%. Patients with VAI’s had a significantly longer duration of EVD placement (19.4 vs. 11.1 days). Risk factors for VAI included CSF leak (OR 2.35), EVD placement greater than 11 days (OR 2.14), and concurrent infection (OR 1.74). There was no association with patient age, sex, initial diagnosis, drain replacement, number of samples drawn, or prophylactic antibiotics.

**Discussion:** Despite the use of antibiotic-coated catheters, VAI's still remain a prevalent complication of EVD placement. By working to prevent CSF leaks, minimize the duration of EVD placement, and appropriately treat concurrent infections, it may be possible to further lower VAI rates.