

## Infection Rate after Cranial Neurosurgical Procedures: A Prospective Single-Center Study

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### OBJECTIVE

To determine infection rate (IR) and to identify modifiable risk factors (RF) in cranial neurosurgery in a neurosurgical department for tertiary referral as part of an infection control surveillance to reduce surgical site infections (SSI).

### METHODS

A prospective SSI incidence cohort study from February 2013 to January 2014 was performed in a tertiary care neurosurgical teaching hospital and referral center. All consecutive adults undergoing any cranial neurosurgical procedure were included. Twice weekly visits of included hospitalized patients by a trained member of the infection control staff. Follow-up of 30 days (procedures without implant) and one year (procedures involving permanent implants), respectively. Diagnosis of SSI according to criteria of CDC.

### RESULTS

317 patients undergoing 333 index procedures were included. The median age was 61 years (range 17 - 91 years) and 46% were female. Survival in patients with completed follow-up was 76% (196/258). Overall, IR was 7.2% (24/333 index procedures); in 96% (23/24) a neurosurgical implant was involved. The IR of extraventricular drain (EVD) was 12.5% (13.1/ 1000 EVD days). The main causative pathogens were *Staphylococcus aureus* followed by coagulase-negative staphylococci and *Propionibacterium acnes*. Independent RF for neurosurgical SSI were EVD as part of the index operation and BMI > 25 kg/m<sup>2</sup>.

### CONCLUSIONS

IR was in accordance to recent prospective single-center studies (reported IR between 1.6 and 9%). EVD placement was identified as the strongest modifiable RF for SSI in cranial neurosurgical procedures. The need for standard infection control procedures for the insertion and maintenance of EVDs to avoid their contamination is reinforced.

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