

EP108

ePoster Session

Prosthetic joints, heart surgery and neurosurgery - infection is the link!

Prospective surveillance of surgical site infection after cranial neurosurgery: infection rate and risk factors

C.B. Strahm¹, B. Schöbi¹, W. Albrich¹, G. Hildebrandt², M. Schlegel¹

¹*Division of Infectious Diseases and Hospital Epidemiology- Cantonal Hospital St. Gallen, St. Gallen, Switzerland*

²*Department of Neurosurgery- Cantonal Hospital St. Gallen, St. Gallen, Switzerland*

Objectives

Data of Surgical Site Infections (SSI) in neurosurgery of the head are scarce. Incidences of 1–11% are reported. A prospective surveillance to determine SSI rate and risk factors at our hospital was conducted.

Methods

The study was performed during one year (February 2013 to January 2014) at our tertiary care centre. Data from all patients undergoing neurosurgical procedures of the head (without endonasal access) were entered prospectively into a database. Infections were defined according to the CDC/NHSN definitions, including a follow-up for 30 days without and 1 year with implantation of foreign material, respectively.

Results

317 patients undergoing 336 procedures were included. In this preliminary analysis 281 patients receiving 293 procedures were included (the 12 months follow-up was not yet completed in 43 (12.8%) procedures). Median age was 61 years. The SSI rate was 7.8% (23/293) overall. SSI rates for the most common interventions (craniotomy, trepanation and implantation of an internal shunt systems) were 6% (10/168), 9% (10/111) and 0% (0/18) respectively. SSI rate without foreign material was 6% (12/200 procedures), the SSI rate with foreign material was 11.8% (11/93) (p=0.1284).

All infections were deep organ space infections (8/23 bone infections, 4/23 intracerebral infections and 11/23 meningitis/ cerebritis, respectively). 21 of 23 infections were diagnosed either by positive cultures of sterile compartments or overt pus stated by the surgeon. Two infections were diagnosed on clinical grounds.

Independent risk factors for SSI in the multivariate analysis were external ventricular drainage (EVD) (p=0.02) and cranioplasty with foreign material (Polymethyl methacrylate (PMMA), Polyetheretherketone (PEEK)) (p=0.01). The duration of external drainage was significantly associated with SSI (p=0.015, median durations of external drainage in non-infected and infected patients were 6 and 10 days, respectively). In comparison with the previous surveillance period during 2009 the SSI rate was not different.

Conclusions

SSI rate after cranial neurosurgery at our institution was stable comparing the two periods (2009 vs 2013). Independent risk factors for SSI were cranioplasty with foreign material (PMMA and PEEK) and EVD (the risk increased with duration of drainage).

As the SSI rate is typically reported to be 5% (1-11%), our rate is within the normal range (maybe slightly higher than average). Since neurosurgical procedures especially craniotomies consist of heterogeneous interventions, care must be taken when comparing rates of different institutions.