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MEETING ABSTRACT Open Access

Craniotomy infections: the Venizeleio hospital experience

Nikolaos Syrmos*, Stefanos Patiakas, Charalampos Iliadis, Konstantinos Grigoriou, Vasilios Valadakis, Foteini Chatzinasiou, Dimitrios Arvanitakis

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Background

Surgical site infections (SSIs) are defined as infections occurring up to 30 days after surgery and affecting either the incision or deep tissue at the operation site. Despite improvements in prevention, SSIs remain a significant clinical problem as they are associated with substantial mortality and morbidity and impose severe demands on healthcare resources. The incidence of SSIs may be as high as 20%, depending on the surgical procedure, the surveillance criteria used, and the quality of data collection. In many SSIs, the responsible pathogens originate from the patient's endogenous flora. The causative pathogens depend on the type of surgery; the most commonly isolated organisms are Staphylococcus aureus, coagulase-negative staphylococci, Enterococcus spp. and Escherichia coli.

Materials and methods

Aim of our study was to to determine the incidence and risk factors of surgical site infections (SSIs) after craniotomy.During a 36-month period(2006.2007,2008), every adult patient undergoing craniotomy in our neurosurgical unit was prospectively evaluated for development and risk factors of SSI. The follow-up period was at least 60 days.

Results

Of a total of 155 patients,33(14,8%) with SSIs were observed including those with wound infections-5-, with bone flap osteitis-4-, with meningitis-1-, and with brain abscesses-2-. Independent risk factors for SSIs were postoperative cerebrospinal fluid leakage and subsequent operation. Independent predictive risk factors were emergency surgery, clean-contaminated and dirty surgery, an operative time longer than 4 hours, and recent neurosurgery.

Conclusions

The incidence of craniotomy infections, usually less than 4%, is dependent on many factors, such as how the information is collected and how the percentage is calculated.It is difficult to prove that a given factor contributes to infection. Most routines are based more on personal convictions than on solid evidence. CSF leak is one factor known to have great impact; it should be avoided with painstaking technique and, if it occurs, it should be treated promptly. Solid evidence favoring prophylactic antibiotics for persistent CSF leak is not available; but, until a well-designed randomized study tells otherwise, the high risk of meningitis justifies prophylaxis. Penicillin is adequate for leaks through the nose or the ear. For leaks through the skin, the antibiotic should be effective against staphylococci. The infection register should provide information about prevailing bacteria. In many hospitals, the prophylaxis should cover gram-negative bacilli. CRP is a useful diagnostic aid for detecting postoperative infections. The operation, however, also causes a CRP rise. Daily CRP monitoring, at least for patients with elevated temperature, is recommended. The third-generation cephalosporins are a welcome contribution to the treatment of bacterial meningitis. To avoid side effects, and to keep them potent when they are really needed, they should be used with caution. Most postoperative cases of meningitis are in fact aseptic. If the patient is moderately ill, chloramphenicol is still eligible as the first choice antibiotic. When the bacterial culture is negative, the antibiotic

Neurosurgical Department-Venizeleio General Hospital, Heraklion, Crete, Greece

should be stopped. The standard treatment for bone flap infection is removal of the bone flap. The bone flap is essentially devascularized and comparable to a foreign body.

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