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Paper Poster Session

Central nervous system infection

Pseudomonas aeruginosa meningitis in neurosurgical patients in a tertiary referee hospital

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Background: The aim of this study is the description of the characteristics of the neurosurgical meningitis due to *Pseudomonas aeruginosa* emphasizing the factors influencing their outcome.

Material/methods: All patients adults with nosocomial postsurgical meningitis due to *Pseudomonas aeruginosa* diagnosed at the Hospital Central de Asturias Oviedo, between 1990-2014 were retrospectively reviewed. Nosocomial meningitis was defined according to the CDC definitions. Continuous values were expressed as mean and compared using Student t test or U of Man-Whitney. Categorical values were expressed as absolute and relative frequencies and were compared using Fisher's exact test or χ^2 test. A p value lower than to 0.05 was considered as statistically significant. A binary logistic regression analysis using a step-wise (Wald) to determine the factors influencing the mortality of the infection

Results: 51 CSF cultures were found (58,8%% men, mean age of 50 [18] years. The mean time elapsed between the surgery and the onset of the infection was 22[20] days (range 3-112).. The characteristics of CSF were: white cell count 6,964 [33,569] cell/mm³, protein 321[314] g/dl and glucose 49[37] mg/dl. The most frequent underlying disease were: hemorrhage (33,3%), neoplasm (33,3%), head trauma (27,5%) and hydrocephaly (6%) . The most frequent symptom was fever (100%) following for headache (43%) and altered mental status (39%). Twelve patients had meningeal signs. Seventy-six percent of patients had a intraventricular catheter, 17% a CSF leakage and 6% a peritoneal device. Polymicrobial meningitis was found in ten patients. All patients received empiric treatment considered adequate in 80,4%. 32 patients received intravenous monotherapy with: antipseudomonal cephalosporins (26 cases), or carbapenems (11,8%), others (1 case). In 3 cases a combined parenteral therapy was used with ceftazidime and aminoglycosides. Fifteen patients received a combined intravenous and intrathecal therapy with cefalosporin plus amynoglicosides (3 cases) or plus colisitn (2 cases), or carbapenems (six cases) plus amynoglicosides or colistin (four cases). In 29 cases treatment was associated with removal of the intraventricular catheter. 17 patients died as a direct consequence of the infection (33.3%). Mortality was significantly associated with lack of removal of the intraventricular catheters (p= 0.006, OR: 5.74 [1.51-12.29] and an inadequate empiric treatment (p= 0,010, OR 3,14 [3.33-15,6]) , The mortality was lower in patients treated with colistin intravenous and intrathecal combined with carbapenems or cephalosporins(0 vs 17, p=0,06 OR= 1.61 [1.28-2.02] that in those treated with other treatments. In the multivariable analysis the mortality only was for the removal catheter (0.014) .

Conclusions: nosocomial meningitis by *Pseudomonas aeruginosa* is an infection with high mortality associated with lack of removal of the intraventricular catheters. The use of colistina intravenous and intrathecal combined with carbapenems or cephalosporins is a useful and safe option.