

Investigator-initiated trials of optimised antibacterial therapy strategies

Multidrug-resistant *Acinetobacter* meningitis in neurosurgical patients with intraventricular catheters (IVC): comparison between colistin versus carbapenem treatment

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Objective: The aim of this study is comparing the outcome of a cohort of patients diagnosed of nosocomial neurosurgical meningitis by *A. Baumannii* meningitis treated with different intravenous and/or intrathecal colistin vs carbapenems.

Methods: During the period of study all patients adults with nosocomial postsurgical meningitis due to *A. baumannii* related with IVC intraventricular catheters diagnosed at the Hospital Central de Asturias Oviedo, and Hospital Ramon y Cajal (HRC), Madrid between 1990-2014 and treated with colistin or carbapenems were retrospectively reviewed. Nosocomial meningitis was defined according to the CDC definitions. The parenterally administered antibiotics were: imipenem 1 gr/ 8 hours or meropenem 2 gr /8 hours, and sodium colismethate 160 mg/8h/. The intrathecally treatment were: colistin (10mg/12 hours). 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 and the efficacy of the different therapies was used.

Results: During the period de study 41 patients were analyzed (63% male, mean age 47 [16] years). All patients had intraventricular catheters. 23 patients received intravenous treatment with carbapenems, six with intravenous colistin, and 12 intrathecal and intravenous colistin. There isn't significant differences in age, sex, or underlying disease between the three groups. In 28 cases treatment was associated with removal of the intraventricular catheter (15 in carbapenem group, 9 in intravenous/intrathecally colistin and 4 in intravenous colistin). Twelve patients died as a direct consequence of the infection (10 in carbapenems Group, 2 in intravenous colistin Group and none in intravenous/intrathecally colistin Group). Regarding to mortality when we compared the group treated with carbapenems versus intravenous colistin we didn't find significant differences (10 vs 2, p= 0.513). On the other hand when we compared the group treated with carbapenems versus intravenous/intrathecally colistin the mortality was lower in the group of both colistin (12 vs 0, p=0.006, OR 1,769, [1,236-2,532]). Multivariable analysis confirmed this fact.

Conclusions: The combination of intravenous and intrathecal colistin is the first election treatment of the nosocomial meningitis by *A. baumannii* and it is associated with a lower mortality.