

Therapeutic Challenges in Treatment of Adults Bacterial Meningitis Cases

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Abstract : Background: The outcome of bacterial meningitis is strongly related to the resistance of bacterial pathogens to the initial antimicrobial therapy. The objective of the study was to analyze the initial antimicrobial therapy, the resistance of meningeal pathogens and the outcome of adults bacterial meningitis cases. Materials/methods: This prospective study enrolled 46 adults older than 16 years of age, treated for bacterial meningitis during the years 2009 and 2010 at the infectious diseases clinic in Prishtinë. Patients are categorized into specific age groups: > 16-26 years of age (10 patients), > 26-60 years of age (25 patients) and > 60 years of age (11 patients). All p-values < 0.05 were considered statistically significant. Data were analyzed using Stata 7.1 and SPSS 13. Results: During the two year study period 46 patients (28 males) were treated for bacterial meningitis. 33 patients (72%) had a confirmed bacterial etiology; 13 meningococci, 11 pneumococci, 7 gram-negative bacilli (*Ps. aeruginosa* 2, *Proteus* sp. 2, *Acinetobacter* sp. 2 and *Klebsiella* sp. 1 case) and 2 staphylococci isolates were found. Neurological complications developed in 17 patients (37%) and the overall mortality rate was 13% (6 deaths). Neurological complications observed were: cerebral abscess (7/46; 15.2%), cerebral edema (4/46; 8.7%); haemiparesis (3/46; 6.5%); recurrent seizures (2/46; 4.3%), and single cases of thrombosis sinus cavernosus, facial nerve palsy and decerebration (1/46; 2.1%). The most common meningeal pathogens were meningococcus in the youngest age group, gram negative-bacilli in second age group and pneumococcus in elderly age group. Initial single-agent antibiotic therapy (ceftriaxone) was used in 17 patients (37%): in 60% of patients in the youngest age group and in 44% of cases in the second age group. 29 patients (63%) were treated with initial dual-agent antibiotic therapy; ceftriaxone in combination with vancomycin or ampicillin. Ceftriaxone and ampicillin were the most commonly used antibiotics for the initial empirical therapy in adults > 50 years of age. All adults > 60 years of age were treated with the initial dual-agent antibiotic therapy as in this age group was recorded the highest mortality rate (M=27%) and adverse outcome (64%). Resistance of pathogens to antimicrobics was recorded in cases caused by gram-negative bacilli and was associated with greater risk for developing neurological complications (p=0.09). None of the gram-negative bacilli were resistant to carbapenems; all were resistant to ampicillin while 5/7 isolates were resistant to cefalosporins. Resistance of meningococci and pneumococci to beta-lactams was not recorded. There were no statistical differences in the occurrence of neurological complications (p > 0.05), resistance of meningeal pathogens to antimicrobics (p > 0.05) and the initial antimicrobial therapy (one vs. two antibiotics) concerning group-ages in adults. Conclusions: The initial antibiotic therapy with ceftriaxone alone or in combination with vancomycin or ampicillin did not cover cases caused by gram-negative bacilli.

Keywords : adults, bacterial meningitis, outcomes, therapy

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