Evaluation of post-neurosurgical *Acinetobacter baumannii* meningitis

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Objectives

Acinetobacter baumannii is one of the most common causes of post-neurosurgical meningitis (PNM) with higher morbidity and mortality.

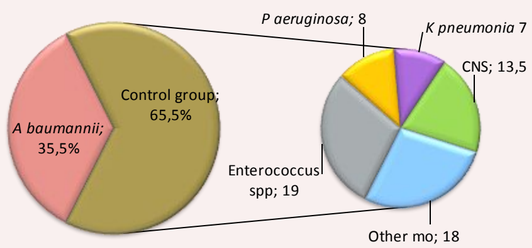
In this study, we aimed to investigate epidemiologic, microbiologic properties of post-neurosurgical *A. baumannii* meningitis and its effects on 30-day mortality.

Methods

This study was conducted in a neurosurgery intensive care unit between January 2008 and October 2015. A computerized system for hospital infection surveillance was reviewed retrospectively. All patients who diagnosed as PNM were included to the study. Demographic, clinical and laboratory findings of patients were recorded. Data were analyzed by SPSS 15.0 for windows.

Results

During the study period 76 meningitis attacks was detected in 68 patients. The most common reasons for PNM were; intracranial hemorrhage, malignancy and hydrocephalus. 27 *A baumannii* cases were classified as study group. Other meningitis cases (49 cases) were defined as control group (Graph 1).



Graph 1. Isolated microorganism

Among patients with *A baumannii* meningitis, 11 (41%) of them was male. Mean age was 50.4±23.3 years and range was 5 years and 88 years in study group.

Characteristics of patients and control groups were shown in table I. When study and control groups were compared, mean age was higher in study group but this differences was not statistically significant (p=0,082). Mean period between operation and infection was shorter in study group than control group (18 days versus 29 day, p=0.064).

Table 1. Characteristics of patients

	A.baumannii n=27	Other Microorganisms n=49	p
Age	50.4±23.3	38.9±29.4	0.082
Gender(M/F)	11/16	26/23	0.430
CSF leukocyte	2347±3504	3042±4929	0.546
CSF glucose	35.7±37.9	40.8±33.2	0.581
CSF protein	3887±4805	3663±4430	0.849
Mean period between operation and infection (day)	18.1±16.7	29.1±34.2	0,064
Appropriate treatment (%)	89	90	0,902
Duration of treatment (day)	14±8	17±8	0.115
Mean duration of hospitalization after diagnosis	32± 52	38±45	0.607
Mortality	59.3%	28.6%	**0.019**

Mean treatment duration was 14 days and 17 days respectively in study and control groups. Duration of hospitalization after diagnosis of meningitis was not different in two groups (p=0.607). Among all patients, antimicrobial therapy was started empirically in 35% of patients. Meropenem combined with an anti-staphylococcal antibiotic was the most selected antibiotic for empirical treatment

Among all patients, four had died before treatment. Crude mortality rate was 39.7%. 30 day mortality was 26% (19 patients). However in only 16 of them, mortality was attributed to the meningitis. Mortality rate was higher in *A baumannii* group (p=0.019).

Conclusion

Meningitis remains one of the most important post-neurosurgical complications. *A. baumannii* are the most common and deadly causative pathogens in our hospital.