Analysis of external ventricular drainage associated infection in the neurosurgery ICU of the single tertiary level hospital

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Introduction:
The external ventricular drainage (EVD) is one of the most frequent interventions in our Neurosurgery Intensive care Unit (NICU) and about 15% of these patients are diagnosed EVD related infection (meningitis or ventriculitis). The aim of our study was to evaluate the prevalence, risk factors and outcome of EVD associated infection in NICU patients.

Methods:
We performed a single-center observational, retrospective cohort study of 212 who underwent EVD insertion operation during their stay in the NICU at our 2200 bed university teaching hospital Kaunas Clinics Hospital from January 2012 to December 2016. These patients (103 males) with median age 63 (19-80), were used for further analysis. There were 50 patients in EVD related infection group. Clinical variables such as age, sex, prior clinical diagnosis, duration of EVD, total numbers of EVD per person, and outcome were analyzed to verify the risk factors, causative agents and outcomes.

Results:
An infection was documented in 23% of all patients. Extended duration of catheterization correlates with an increasing risk of neuroinfection during the first 10 days of catheterization (p=0.034). Also a significant risk factors were reinsertion of EVD (p=0.001), unfavorable outcome in Glasgow Outcome Scale (score< 9, p=0.029). Patients with infections had a longer intensive care unit stay (p = 0.0029) or hospital stay (p=0.004).

Conclusion:
Longer duration of drainage, repeated insertion or unfavourable outcome in Glasgow Outcome Scale are the major risk factors for EVD associated infection.