

Risk for Childhood Hydrocephalus due to Bacterial Meningitis

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Abstract

Background: Neurologic complications of childhood bacterial meningitis are encountered frequently, but the risk for childhood hydrocephalus was rarely reported in developing countries.

Aims: The purpose of this study was to analyze the incidence, clinical characteristics and risk factors associated with hydrocephalus in children with bacterial meningitis in developing country Kosovo.

Study design: 354 children treated for bacterial meningitis in the Clinic of Infectious Diseases in Prishtina, Kosovo, were enrolled in the study.

Methods: This study presents retrospective analysis of hydrocephalus cases among children treated for bacterial meningitis in two study periods. In first study period (1997–2002), 277

children and in the second study period (2009–2010), 77 children were prospectively enrolled in the study. The first study period includes years before and after the war in Kosovo (1999). The second study period includes two years study period, a decade after the war in Kosovo.

Results: Of the 277 vs. 77 children, 60 (22%) vs. 33 (43%) patients developed neurologic complications, while there were 15 (5.4%) vs. 2 (2.6%) deaths. Hydrocephalus developed equally in both study periods 7 vs. 2 cases (2.5% vs. 2.6%). Of the total 9 hydrocephalus cases, 6 developed obstructive and 3 communicating hydrocephalus. The median age of cases with hydrocephalus was 8.6 months. The mean duration of illness prior to admission was 5.7 days and 67% of them have been previously treated with

antibiotics. At admission 89% had altered mental state, 67% had seizures, 44% had neurological deficit. The etiology was proven in 7 cases: *H. influenzae* (4 cases), *N.meningitidis* (2 cases) and *S. pyogenes* (1 case). Case fatality was 22% among cases with hydrocephalus and 4.3% among other cases.

Conclusions: Hydrocephalus as a complication of bacterial meningitis in children was associated with poor outcome and high case fatality. Risk factors for childhood hydrocephalus were infant's age, late admission and infection with *H. influenzae*.

Key words: Bacterial meningitis, hydrocephalus, neurological complications, children