Linear Growth of infants with neonatal and early infantile meningitis

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Background
Meningitis frequently occurs in neonates and can lead to a number of acute, severe complications and long-term disabilities.

Although, long term growth delay and abnormal weight gain appear to be risk factors following an acute attack of both bacterial and aseptic meningitis in children, especially during the fast phase of infantile growth, the long-term effects of acute meningitis occurring during the neonatal and early infantile periods on linear growth (length, weight and head growth) have not fully reported.

The objective of this study is to describe the clinical presentation of neonates and young infants with acute meningitis with different etiologies and to determine the clinical impact of the effect of acute meningitis on growth parameters.

Patients and Methods
We analyzed the clinical data and the growth parameters of 50 newborns and young infants (age: 1.6 ± 0.9 months) admitted to our hospital (Al Wakra Hospital, Department of Pediatrics, Doha, Qatar), between 1-1-2016 to 1-1-2017, with acute meningitis.

Anthropometric measurements included weight, length, and head circumference. Length SDS (L-SDS) and body-mass-index (BMI) were calculated and recorded at every clinic visit, every 3 months for 8 ± 2 months.

Results
In this age group of neonates and young infants with acute meningitis fever (84%) and hypoactivity (64%) were the major presenting manifestations.

Acute bacterial meningitis (n: 10) was associated with: higher morbidity [shock (n: 1), subdural empyema (n: 1) and hydrocephalus (n: 1)]. Cerebrospinal fluid (CSF) examinations showed that infants with bacterial meningitis had significantly higher pleocytosis of mainly polymorphic leukocytes and protein levels, compared to those with aseptic meningitis.

Interpretation and Conclusion
Infantile linear growth appears to be normal in all newborns and young infants with both bacterial and aseptic meningitis. However, acute bacterial meningitis in newborns and young infants is still associated with considerably high morbidity and complications.