Bulging fontanelle in febrile infants as a predictor of bacterial meningitis

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INTRODUCTION

It is common practice to perform a lumbar puncture in infants presenting with fever and a bulging fontanelle in order to rule out bacterial meningitis. However, most of these infants have benign, self-limiting diseases.

OBJECTIVES

The objective was to determine whether there is an association between bulging fontanelle and bacterial meningitis in febrile infants.

METHOD

This retrospective cohort study included febrile children with a bulging fontanelle who underwent lumbar puncture at Meir Medical Center from 2005 through 2015.

RESULTS

A total of 764 children ages 2-18 months underwent lumbar puncture during the study period. Among them, 304 had a bulging fontanelle and fever on evaluation and cerebrospinal fluid pleocytosis was found in 115 (37.8%), including 1 case of bacterial meningitis (0.3%). None of the infants described on admission as appearing well on presentation were found to have bacterial meningitis. Of the 764 children who underwent lumbar puncture, 10 infants were diagnosed with bacterial meningitis, only one (10%) presented with a bulging fontanelle.

Figure1. Leading diagnoses for bulging fontanelle in febrile infants

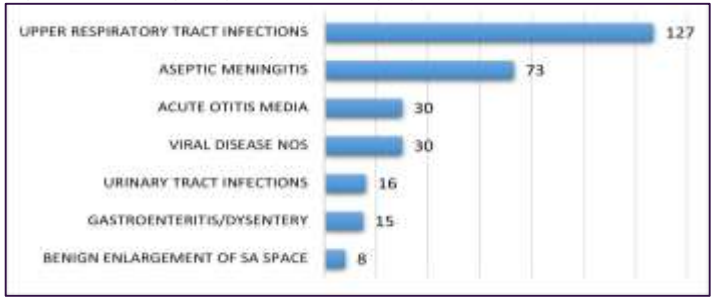

Table 1: Demographic characteristics of the study groups

Variable	Meningitis (N=100)	Normal CSF (N=202)	Total sample	P-value
Age,months; mean±SD	4.9±1.9	5.9±1.9	5.5±1.9	0.001>
Sex %				0.519
Male	50.5%	54.5%	53.2%	
Female	49.5%	45.5%	46.8%	
Religion %				0.618
Jewish	80.8%	78.3%	79.1%	
Arab	19.2%	21.7%	20.9%	

CONCLUSIONS

The finding of a bulging fontanelle, has very low sensitivity and specificity for bacterial meningitis. Most causes of a bulging fontanelle in febrile infants are self-limiting diseases. The routine approach of performing a lumbar puncture in febrile infants with a bulging fontanelle should be reconsidered.