EVALUATION OF THE KYNURENINE PATHWAY AND CYTOKINES FROM PATIENTS WITH BACTERIAL MENINGITIS.

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Activation of the kynurenine pathway (KP) has been observed in experimental bacterial meningitis (BM). We assessed the association of chemo-/cytokine levels with the concentration of KP metabolites in Cerebral Spinal Fluid (CSF) and plasma from patients with BM. Samples were collected from 22 hospitalized patients. We assess the concentrations of 14 chemo-/cytokines by Luminex system while the concentration of metabolites from the KP and tryptophan were assessed by HPLC. Approximately all chemo/cytokines assessed were 100-fold higher in CSF from patients with BM compared to the two other groups. In plasma samples the concentrations of IL-6, IL-10, IL-1RA, MCP-1 and G-CSF were significantly increased in patients with BM. The concentrations of KP metabolites were 10-fold higher in CSF of patients with BM compared to the other two groups while the concentrations of KP metabolites in the plasma were not different among the groups. Tryptophan levels in plasma were higher than CSF and were significantly decreased in patients with BM. This increase in KP metabolites is most likely due to activation of KP by INF-gamma and TNF-a. Based on the comparison of tryptophan and KP metabolites concentrations between plasma and CSF samples we conclude that the activation of the tryptophan pathway upon BM occurs within the brain.

Key words: Bacterial Meningitis, Cytokines, Kynurenine Pathway, Tryptophan

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