

ACTIVATION OF THE KYNURENINE PATHWAY IN PATIENTS WITH BACTERIAL MENINGITIS

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Bacterial meningitis (BM) is one of the top ten infectious diseases that are causing death worldwide. The majority of sequelæs are associated with acute inflammation and subsequent brain damage. The kynurenine pathway (KP) is known in other neuroinflammatory diseases as one potent causative factor to increase brain injury. Our study has aimed to measure the levels of the KP metabolites in cerebrospinal fluid (CSF) and plasma of patients with BM from Rio Grande do Norte, BRAZIL. Out of 22 patients, 9 cases were diagnosed for BM and were compared with the remaining of 13 patients with aseptic meningitis (n=06) or non-infectious neurological disease (n=07). The metabolites tryptophan (Trp), kynurenine (Kyn), anthranilic acid (AA) and kynurenic acid (Kyna) were determined by HPLC. We found significant increased levels of Kyn, Kyna and AA in the CSF from patients with BM compared to controls, while Trp was not different among all the 22 patients. However, in plasma, Trp concentration was higher in control patients than in patients with BM, while all other metabolites were not significantly changed. These results suppose that during BM the KP is specifically activated in the brain and one decreasing in systemic Trp might be the result of a shift of plasmatic TRP into the CSF.

Key words: Bacterial Meningitis, Brain damage, Kynurenine Pathway, Tryptophan