

Decreased plasma and cerebrospinal fluid ascorbate levels in patients with septic encephalopathy.

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Septic encephalopathies rapidly affect brain function without the involvement of a specific area causing a broad range of reversible neurologic symptoms. Capillary leakage including dysfunction of the blood-brain barrier has been proposed as a potential pathogenic mechanism in this entity. We tested the hypothesis that oxidative stress measured in plasma and cerebrospinal fluid (CSF) of patients suffering from septic encephalopathy could be linked to the neurologic symptoms of the disease. The neurologic symptoms of eleven patients with septic encephalopathy were described semiquantitatively through a score system. The ascorbate levels were significantly lower in both plasma and CSF from patients with septic encephalopathy than controls, and in CSF but not plasma this decrease correlated with the severity of neurologic symptoms. No significant changes were found for alpha-tocopherol. Our findings suggest that the short-term oxidative stress may be an important factor in the development of septic encephalopathy, possibly through dysregulation of the blood-brain barrier.

PMID: 12180123 [PubMed - indexed for MEDLINE]