

Abstract

Many neurodegenerative diseases, cancer and infections of the brain become more prevalent as population become older. That is one of the reasons, why blood-brain barrier and its transport mechanisms are intensively investigated. The blood-brain barrier is a unique membranous barrier that tightly segregates the brain from the circulating blood. The blood-brain barrier is formed by the connection of closely adjacent tight junctions between the capillary endothelial cells, which are not fenestrated and which display minimal pinocytosis. The capillary endothelial cells form a polarized barrier, which regulates transport of molecules across the blood-brain barrier. L-carnitine is compound necessary in the peripheral tissues for a transfer of fatty acids for their oxidation within the cell, it accumulates in the brain despite low β -oxidation in this organ. In order to enter the brain, L-carnitine has to cross the blood-brain barrier via specific carnitine transporters. The aim of this work was to describe recent information about blood-brain barrier, L-carnitine, transport mechanisms across blood-brain barrier and to find whether administration of L-carnitine can affect effect of 7-methoxytacrine. As a marker of the effect of drugs tested was chosen determination of activity of AChE by Ellman method in selected parts of the rat brain. Activity of AChE was measured in the frontal cortex, hippocampus, septum and basal ganglia of laboratory rat. The results showed that 7-methoxytacrine crossed blood-brain barrier and its levels in the brain were weakly increased after L-carnitine repeated administration.