

Glial metabolic dysfunction caused neural damage by short-term ischemia in brain

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Although several pieces of evidence have indicated that glial cells support neuronal cells in the ischemia-reperfusion brain, the direct contribution of glial cells to cell damage is not well known. The present study was designed to determine whether there are any changes in cell damage after a short-term middle cerebral artery occlusion (MCAO) when glial metabolism is suppressed. Injection of fluorocitrate (FC) or 10 minutes MCAO alone did not produce cell damage. However, 10 minutes MCAO in rats pretreated with FC caused significant cell damage. These data directly demonstrated that inhibition of glial metabolism might increase neuronal vulnerability to even a short-term transient ischemia.

Key words: glial cells, ischemia, fluorocitrate, cell damage