



Effect of lead exposure on memory processes in mice after cerebral oligemia

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Abstract:

The purpose of this study was to find out whether the effect of acute exposure to lead on memory processes in mice could be exacerbated by cerebral oligemia. Adult mice were subjected to 30 min of bilateral clamping of carotid arteries (BCCA) and then treated intraperitoneally with lead acetate at a single dose of: 29.3 mg/kg, 58.6 mg/kg or 87.9 mg/kg. Long-term memory was assessed in the passive avoidance task while spontaneous alternation was evaluated using the Y-maze task. Performance of the tasks was tested on the 2nd, 7th and 14th post-surgical day. On the 14th post-surgical day, significant retention deficits in passive avoidance performance were only observed in BCCA mice injected with the 87.9 mg/kg lead. Co-exposure to cerebral oligemia and lead did not change spontaneous alternation in the Y-maze task. These results show that cerebral oligemic hypoxia combined with acute lead exposure may cause selective and long-lasting impairment in memory function.

Key words:

lead, cerebral oligemia, passive avoidance, Y-maze, memory
