

## **Neuroprotective effects of (-)-epigallocatechin gallate after peripheral nerve injury in adult rats**

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Recent studies have shown that (-)-epigallocatechin gallate (EGCG) has a strong antioxidant property. It could attenuate hypoxia-induced nerve injuries by decreasing the production of free radicals and lipid peroxidation. The present study, using histochemical and immunohistochemical methods, aimed to explore whether EGCG treatment might affect the diversion or provide neuroprotection of motor neurons in the hypoglossal nucleus (HN) and the dorsal motor nucleus (DMN) as well the reaction of neuroglia cells in the lower brainstem of young albino rats following nerve crush injury (CI). The present results showed that the percentage and optical density of ChAT expression in motor neurons of HN reached its nadir at 3 days after CI then progressively increased; but inclined to decrease in those of DMN at 7 days followed by a steady decrease with its nadir at 28 days. The expressions of OX42 and GFAP in microglia and astrocytes respectively peaked at 7 days and then decreased with time. High dosages (25, 50mg/kg) of EGCG treatment after CI increased the percentage and optical density of ChAT expression in motor neurons of both nuclei; motor neurons in HN responded effectively to the high dosages of EGCG treatment. Moreover, EGCG treatment decreased the immunoreactive expression of both neuroglial cells examined. In conclusion, the current study provides the first morphological evidence that EGCG might have protective effect on motor neurons by deteriorating the overreaction of neuroglial cells in the lower brainstem of rats following CI.