Centro: Saúde

Curso: Medicina

Titulo: **Neuroprotective properties of the standardized extract from Camellia sinensis (green tea) and its main bioactive components, epigallocatechi**

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RESUMO

Parkinson's disease (PD) is a neurodegenerative disorder characterized by the destruction of nigrostriatal dopaminergic neurons. Current treatment is only symptomatic and, to date, no drugs are capable of inhibiting neuronal degeneration; so, there is a great demand for neuroprotective agents to prevent or slow down the progress of neurodegenerative processes in this disease. Green tea from Camellia sinensis (Theaceae) is largely consumed, mainly in Asian countries. It possesses several biological effects and, among these, antioxidant and anti-inflammatory properties. The objectives of the present study were to investigate the possible neuroprotective actions of the standardized extract from C. sinensis (CS) and its main catechins, epicatechin (EC) and epigallocatechin gallate (EGCG), in a model of Parkinson's disease in rats. For that, male Wistar rats were divided into the following groups: SO (sham-operated controls), untreated 6-OHDA-lesioned and 6-OHDA-lesioned treated orally with CS (25 or 50 mg/kg), the combination of CS (25 mg/kg) + L-DOPA (25 mg/kg), EC (10 mg/kg) or EGCG (10 mg/kg). Treatments started 1 h before the 6-OHDA lesion in the right striatum and continued daily for 2 weeks. One hour after the last drug administration, the animals were submitted to behavioral tests, euthanized and their striata and hippocampi dissected for neurochemical (striatal determinations of DA, DOPAC and HVA) and antioxidant activities (striatal TBARS and nitrite measurements), as well as immunohistochemistry and histological evaluations (striatal and/or hippocampal TH, COX-2, INOS and Fluoro-Jade assays). The results showed that, not only CS but also its catechins treatments, reverted behaviors (apomorphine-induced rotations, locomotor activity, immobility time and time to find the platform), indicating neuroprotection manifested as decrease in rotational behavior, increase in locomotor activity, antidepressive effects and improvement of cognitive dysfunction, as compared to the untreated 6-OHDA-lesioned group. Besides, CS, EC and EGCG reversed the striatal oxidative stress and immunohistochemistry and histological alterations. We also noted that CS potentiated the effects of L-DOPA when used in combination, demonstrating possible synergic actions of the drugs.These results show that the neuroprotective effects of CS and its catechins are probably and in great part due to their poweful antioxidant and anti-inflammatory properties, pointing out these drugs as potential candidates for the prevention and treatment of neurodegenerative diseases as PD.