

Behavioral effects of aminochrome and dopachrome injected in the rat substantia nigra

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The exact mechanism of cell death in neurodegenerative diseases remains obscure, although there is evidence that their pathogenesis may involve the formation of free radicals originating from the oxidative metabolism of catecholamines. The purpose of this study was to evaluate the degree of neurodegenerative changes and behavioral impairments induced by unilateral injection into the rat substantia nigra of cyclized o-quinones, aminochrome and dopachrome, derived from oxidizing dopamine and L-DOPA, respectively, with Mn^{3+} -pyrophosphate complex. The behavioral changes were compared with those induced after selective lesions of dopaminergic neurons with 6-hydroxydopamine (6-OHDA). Intranigral injection of aminochrome and dopachrome produced impairment in motor and cognitive behaviors. The behavioral impairment was also revealed by apomorphine-induced rotational asymmetry. Apomorphine (0.5 mg/kg sc) significantly increased rotational behavior in rats injected with aminochrome and dopachrom