

C047 - A model of increased impulsivity in rats with bilateral parkinsonism treated with Pramipexole

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Impulse control disorders (ICD) is a common side effect of the dopaminergic treatment in patients with Parkinson's disease, which is more associated with dopamine agonists than with levodopa. To understand its pathophysiology, reliable animal models are essential. Using the variable delay-to-signal (VDS) paradigm, impulsivity was evaluated in bilateral parkinsonian rats treated with pramipexole (PPX). In this test, rats have to introduce the snout into a nose poke that is signaled by a light (presented at variable delays) triggering the delivery of a food reward after a correct response. Reaching a stable baseline performance, a partial bilateral dopaminergic lesion with 6-OHDA was induced in the dorsolateral striatum (AP: +1mm, L: ±3.4mm, V:-4.7 mm, Bregma). Rats undertook the VDS test under 5 conditions: basal state, 6-OHDA-induced lesion, the effect of two doses of PPX (0,25mg/kg and 3mg/kg; Latin-square design), and the day after the last dose of PPX. Only the acute administration of 3 mg/kg of PPX significantly rised the number of premature responses, indicating an increase of impulsive behavior, in parkinsonian but not in sham rats. Both doses of PPX significantly decreased the accuracy of responding (correct/total number of responses) and increased the incorrect and perseverative

(compulsive behavior) responses in both parkinsonian and sham treated groups when compared with saline-treated groups. In conclusion, PPX induced attention deficit (lack of accuracy) as well as compulsive behavior in control and parkinsonian rats, but increased impulsivity only in the parkinsonian animals. This model could constitute a valid tool to investigate the pathophysiology of ICD.