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# Evaluation of the effects that produce a micro-implant with dopamine stabilized and inserted in the caudate nucleus in hemiparkinsonism rat model induced on motor activity and its relationship to the levels of dopamine

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**Aim:** The purpose of this project was to determine the effects of an implant TiO2DA inserted in the caudate nucleus in a rat model hemiparkinsonism induced on motor activity and its correlation with dopamine and serotonin levels.

**Material & Methods:** Male Wistar rats (250-300 g) were used, which were randomly divided into 4 groups: a) control b) injury (Lx); c) Lx+implant (Lx+I); d) Implant (I). For 21 days post-injury motor activity was evaluated and for: 1. The exploration behavior, the test was recorded for five minutes, and were assessed global activity time, and inactivity time; 2. The rotational behavior was recorded for fifty minutes, through count of spins; 3. The swimming forced test evaluated the activity and inactivity in the fishbowl and test was recorded. In each group, test for determination levels of dopamine was performed, by means of HPLC.

**Results:** The exploratory behavior in the Lx group showed a decrement significative of activity exploratory regarding control group, for the other hand, Lx+I group enhanced the activity exploratory and movements in relationship to Lx group, showing similar behavior to the control group. The group I had not showed significantly difference to control group. In the rotational behavior, the control group rats showed spins to the predominant side, Lx group increased the number of spins toward contralateral injury side with respect to control group, Lx + I group revealed similar activity to control group and showed significant difference to Lx group. In the swimming force test the Lx + I group, increased significantly swimming behavior in relationship to Lx group. Implant group showed hyperactivity in swimming behavior. HPLC showed an increased level of DA in Striatum vs. Lx and Control group. The results obtained in our model suggest that the TiO2DA implant in the caudate nucleus of rats induces a beneficial effect that can be attributed to the dopamine released from the TiO2DA complexes into caudate nucleus.

## Biography

Blanca I Ketzalzin Meza-Aupart is a Medical student in the Faculty of Medicine of the National Autonomous University of Mexico (5th semester). She is a part of the program for the Support and Promotion of Student Research (AFINES) at the Faculty of Medicine. Her research project is focused on the field of Parkinson Disease (PD), specifically: Degeneration study of the nigrostriatal pathway caused by the effect of rotenone and 6-OHDA; Toxicity and biological implications to model animals caused by the exposure of Rotenone; Stabilization of Dopamine whit a TiO2 amorphous matrix and its use as treatment for PD; The study of the effects that a TiO2 amorphous matrix produces as a dopamine reservoir in PD model in rats; Description of the cognitive , motor and behavioral implications of PD in rats with induced hemiparkinsonism and; Description of the cognitive , motor and behavioral implications of PD in rats with induced hemiparkinsonism and TiO2 implant treatment.

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