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Is it possible to reverse the motor alterations with dopamine supply content in an amorphous matrix in a hemiparkinsonian rat model?

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The aim of this study was to evaluate the effect that applies an amorphous matrix with dopamine obtained by sol-gel method produces in the caudate nucleus of induced hemiparkinsonian rats. The estimation of this matrix with dopamine effects was evaluated by behavioral, histological and neurochemical tests. We used 64 male Wistar rats about 250-300 g aleatory divided in 4 groups of 8 each one with free access to water and food. The groups that conformed each experimental block were: Control (C), Lesioned (Lx); Lesion + implant (Lx-IMP) and Implant (Imp). The behavioral evaluation was made on day 1, 21, 90, 180 and 360 of the experimental phase. It was made an evaluation of the exploratory behavior and induced twist. We exanimated the fine motor in the reach test, number of induced twist with APO and we determinate the DA levels by HPLC in the SN and NC. The results showed differences ($p<0.05$) between Lx group compared with control in the test made. Also, we found statistically significant differences between Lx and Lx+Imp groups with reports of improvement in the implant group. These results suggest that the dopamine was released through the nanoporos that has the matrix with dopamine walls resulting in a frank rise in the number of squares walk in the open field test for the Lx+Imp group, less number of induced rotations, better performance in the reaching task and superior dopamine levels compare with Lx group. With these results we can conclude that a matrix with dopamine implanted in the NC of hemiparkinsonian rats causes a beneficial effect that we attributed to the released dopamine in the rats with hemiparkinsonism + implant caudate nucleus.

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Biography

P Vergara-Aragón has done her MD and PhD in Psychological Research and has worked in the Faculty of Medicine UNAM in Mexico for more than 30 years. She is collaborating with the Physics Institute of the National Polytechnique Institute. Her research is focused on the field of Parkinson Disease (PD): Study of the nigrostriatal pathway degeneration, and involved mechanism caused by rotenone and 6-OHDA; stabilization of dopamine and its use as treatment for PD; the study of the effects produced *in vivo* of a TiO2 amorphous matrix as a reservoir for dopamine in a PD model in rats; description of the cognitive implications of PD in patients; toxicity and biological implications of rotenone exposure in animal models.

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