Conference presentation

Evaluation of the ultradiluted medication MPD 30 CH in the offspring of mice mothers treated with methylphenidate during lactation.

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Background: Methylphenidate (MPD) is a non-stimulating amphetamine that has been used for some time in the treatment of Attention Deficit Hyperactivity Disorder (ADHD) and, in adequate doses, it promotes the remission of symptoms and the improvement of important aspects, as social interaction and academic performance¹, in patients with ADHD. Literature data indicates that MPD attenuates maternal behavior in mice². According to this line of study, the work “Repeated methylphenidate administration during lactation reduces maternal behavior, induces maternal tolerance, and increases anxiety-like behavior in pups in adulthood”³ was carried out and confirmed that MPD administration during early lactation disrupts maternal behavior and causes anxiety in pups in adulthood. Would it be possible that ultradiluted and dynamized MPD change pups’ behavior? **Objective:** The aim of this study was to evaluate how the ultradiluted drug may or may not change the behavior of the animals at issue.

Material and Methods: The medication was prepared according to the Brazilian Homeopathic Pharmacopeia, in the 30 CH dilution. The present study was approved by the Ethics Committee for Animal Experimentation of the Paulista University (No. 256/14 CEP / ICS / UNIP). Animals in this study were the same of the study above mentioned, and already published. Adult male mice were grouped among 13 animals of the experimental group (adults, offspring of mothers that received MPD during pregnancy) and 9 animals from the mother-control group, which did not take MPD during pregnancy. The 22 animals took ultradiluted MPD 30 CH medication in their drinking water *ad libitum*, for 20 days. In each water drinker, 5 drops of medication were added and stirred. Behavioral tests, such as the Open Field and the Light Dark Transition Test for mice, were performed. Data was analyzed statistically by the Student's T-Test to compare parametric data from two groups and the Mann-Whitney Test for nonparametric data, where $p \leq 0.05$ is considered significant.

Results and Discussion: In the Open Field Test, from the group of mothers medicated with methylphenidate during pregnancy, before the medication MPD 30 CH, animals showed a lower mobility and a greater immobility ($p \leq 0.05$) compared to the control-animals; after medication with the MPD 30 CH, animals exhibited an increase in mobility and a decrease in immobility, leading to no statistical difference between the medication group and the control group. In the Light Dark Transition Test for mice, experimental animals spent more time in the dark box and exhibited a decrease of the Rearing, presenting an anxious behavior; after

the MPD medication, there were no more differences between experimental and control groups. Indiscriminate use of amphetamines has increased in recent years and this use, when not monitored, can cause serious adverse effects⁴. In this sense, ultradiluted medication can collaborate with the remission of possible undesirable effects. **Conclusion:** Initially, the MPD 30 CH changed the behavior shown by animals born from mothers that took methylphenidate during lactation and presented an anxious behavior as an unexpected effect. The mice that took the MPD 30 CH did not present the anxious behavior. Other experiments should be conducted to confirm the results of this study.

Keywords: Methylphenidate, Open Field, Light Dark Transition, ultradilution.

Conflict of interest: authors declare there is no conflict of interest.

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