CBD OIL ATTENUATES DEPRESSIVE-LIKE BEHAVIOUR INDUCED AFTER GESTATIONAL EXPOSURE TO CRACK COCAINE IN WISTAR RATS

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ABSTRACT

The use of crack cocaine during pregnancy is considered a serious public health issue, given the ease with which this substance and its metabolites cross the placental barrier, causing long-term devastating effects on the embryo or fetus, and consequently impacting the health of intoxicated children. Such adverse effects include impaired fetal growth, irritability, and convulsions in the first months of life. In addition, research suggests that children exposed to crack cocaine during pregnancy show cognitive deficits, difficulty verbalizing, aggression, anxious, and depression behaviors. Previous data from our research group has demonstrated that when Wistar rats are exposed to crack cocaine during the prenatal period, they develop different neuropsychopharmacological disorders, e.g. depressive-like behavior. Despite the various comorbidities associated with crack cocaine use, there is still a lack of effective treatment. This project aimed to evaluate the effects of cannabidiol (CBD) on the modulation of depressive-like behavior in rodents exposed to crack-cocaine pyrolysis products during the gestational period. For this, we used the forced swim test (FST). Animals exposed daily to 200 mg of crack cocaine throughout 5° - 21° gestational day (GD) were treated with 30mg/kg of CBD orally. The FTS, a test validated in the literature and considered the “gold standard” in screening for substances with antidepressant potential, evaluates depressive-like behavior in rodents. During the pre-test, the animals swim for 15 minutes, and 24 hours later, they undergo the test for 5 minutes. Immobility time and latency to immobility are measured. After the test, the animals are dried. The data shows that male and female animals exposed to crack cocaine during the gestational period show a decrease in latency to immobility and an increase in total immobility, characterizing depressive-like behavior, supporting previous findings. In contrast, animals treated with CBD were more active during the test, demonstrating the antidepressant-like effect of CBD oil. Given the negative effects of crack cocaine in triggering depressive-like behavior, new treatment methods are needed. In this context, CBD emerges as a potential new therapeutic approach. Nonetheless, conducting additional studies is crucial to gaining a deeper insight into how CBD works and to uncover its potential for new therapeutic approaches.