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Poster Presentation

The Role of CB2 Activation in Rats Under Harmaline Toxicity

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Abstract

Introduction: *β*-carbolines are shown to have significant anti-inflammatory effect via the inhibition of some inflammatory mediators including TNF-α and PGE2. In previous studies Purkinje cell deterioration have been proposed the dominant pathogenesis of harmaline toxicity. WIN55, 212-2 is a non-selective cannabinoid CB_1 and CB_2 receptor agonist. Combination of WIN55, 212-2 and AM 251(CB1-Selective Cannabinoid Receptor blocker) can give us activation of CB2 receptor. In this study we aim to evaluate the possible protective effect of this combination against harmaline toxicity. **Materials and Methods:** 30 rats (4 weeks aged) were kept in separate cages. They were randomly distributed into 3 groups. 1) Control, 2) harmaline (30 mg/kg according to our previous pilot study) and 3) WIN55, 212-2 (1mg/kg) +AM 251(1mg/kg) as cannabinoid receptor modulation. Agents were injected i.p. Open field test was used for evaluation of rat's behavior including: mobility, Total distance movement (TDM), velocity, rearing and grooming. Also data collected from rotarod test to evaluate balance motor and balance performances and wire grip test (hanging) to asses muscle strength and balance. **Results**: Harmaline in this dose reliably affect a significant alteration in all body parts as severe tremor in which in the open field test severely decreases all parameters mentioned. On the other hand treatment with WIN55, 212-2 +AM251 increase both mobility ($p<0.0027$) and total distance movement ($p< 0.0001$) in contrast to harmaline. No significant differences were found in the velocity and rearing of harmaline group and WIN55, 212-2 +AM251. Also despite severe alteration in muscle strength and balance, there is no significant decrease in rod and hanging in rats treated by WIN1+AM251 compared to harmaline group. **Conclusion:** These results allow us to propose that treatment by WIN55,212-2 +AM251 in rats under harmaline toxicity have some positive effects on some aspects of movement by activation CB2 receptors but it needs further investigation on selective modulators and supplementary tests.

Keywords: Hrmalin, CB2, WIN55,212-2, AM251

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