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NEUROPROTECTIVE EFFECT OF HALOPERIDOL VS. ARIPIPRAZOLE AT HIPPOCAMPAL AND FRONTAL CORTEX AT RATS

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Objectives: The hypofrontaliety syndrome and the hippocampal alterations are correlated with the dopamine deficit secondary to D2 receptors blockade by the antipsychotic substances. The dopamine deficit amplifies the cognitive deficit, which is an important predictor for poor outcome in schizophrenia. The psychopharmacological action of aripiprazole is a dopamine modulator compared to haloperidole which is a highly potent D2 receptors blocker.

Method: We have studied 3 groups, each consisted of 5 male adults Winstar rats each (200-250g), held through the study in temperature, humidity, food and ambient stressless conditions: N1 - control group; N2 - intraperitoneal administration of haloperidol (equivalent of 3mg); N3 - administration of aripiprazole (equivalent of 10mg). After 14 days, the rats were sacrificed and sections of their frontal cortex and hippocampus. The sample brain was histopathologically processed.

Results: Compared with control group N1, the rats of group N2 (haloperidol) have shown significant alterations in frontal cortex (neuronal loss, pinocytosis and neuronal depopulation in III, IV and VI layers) and hippocampal areas (neuronal loss). The rats of group N3 (aripiprazole) have shown minimal, non-significant changes in frontal cortex and minimal loss in hippocampal areas.

Conclusion: The decrease of neuroprotection realised by haloperidole in frontal cortex and hippocampal areas suggest the aggravation of the structural cerebral abnormalities comparative to the aripiprazole action which presented a high level of neuroprotection.

https://doi.org/10.1016/S0924-9338(10)70959-7 Published online by Cambridge University Press