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## **A new candidate of Epileptiform Convulsions model by microinjection of Colchicine into the Striatum in male Wistar rats.**

**Submission Author:** Zahra Fakhroleslam

Zahra Fakhroleslam<sup>1</sup>, Z. Fakhroleslam<sup>1,2</sup>, M. Karami<sup>2\*3</sup>, M. Roghani<sup>3,4</sup>, M.R. Jalali Nadoushan<sup>4,5</sup>

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2. 1 MSc student, Department of Biology, Faculty of Basic Sciences, Shahed University, Tehran, Iran.
3. 2 Associate Professor, Department of Biology, Faculty of Basic Sciences, Shahed University, Tehran, Iran.
4. 3 Professor, Department of Physiology, Faculty of Medicine, Shahed University, Tehran, Iran.
5. 4 Professor, Department of Pathology, Faculty of Medicine, Shahed University, Tehran, Iran.

**Background and Aim :** Epilepsy is a neurological disorder which is displayed with repeatedly epileptic convulsions. A seizure is a sudden rush of electrical activity in the brain which is occurred when clusters of nerve cells, neurons, in the brain send out the wrong signals. Colchicine, an alkaloid obtained from the plant *Colchicum autumnale*, can inhibit microtubule polymerization and disrupt the brain organization.

**Methods :** The subjects, rats (250 g), were anesthetized and placed in a stereotaxic apparatus, with the incisor bar set at approximately 3.3 mm below horizontal zero to achieve a flat skull position. After exposure of the skull, a burr hole was drilled over the striatum (AP: 0.5 mm; L: 3 mm; V: 3.6) according to the atlas of Paxinos. An injection cannula attached to a Hamilton syringe by polyethylene tubing guided 0.01-1  $\mu$ g colchicine/rat per day for three-five consecutive days. Control group only received saline solution. At the end of each injection the behavioral signs of experiment animals were recorded. The treated brain samples were collected and used for the histopathological investigation. They were dissected out and fixed in a solution of 10% formalin. The striatum region was cut coronally into 3-4 mm thick slices, embedded in paraffin and processed by the step section technique. The slices (4  $\mu$ m) were mounted and stained with both Hematoxylin-Eosin and Cresyl violet. Sections were examined under the light microscope for correct placement of injections and for lesions. The difference in neuronal density between vehicle and experimental groups was analyzed by analysis of variance (ANOVA).

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**Results :** The results obtained by monitoring of behavior in rats illustrate epilepsy like generalized seizures in some animals treated by colchicine, intra-striatal, but, destruction lesion effect was not appeared in the brain of the animals passed the injection period.

**Conclusion :** Although colchicine neurotoxic effects have been previously mentioned, but this substance is rather a disturbance alkaloid of neural processes and it can be used to create an animal model of epilepsy.

**Keywords :** Epilepsy, Colchicine, Striatum, Rat.