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Effect of Saraswata Churna on the Behavioural Changes in Pilocarpine Induced Rat Model of Epilepsy

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Aim and Background: The aim of the present study was to evaluate the effect of Saraswata Churna (SC) in attenuating the behavioural changes (learning and memory) in pilocarpine induced rat model of epilepsy. Saraswata Churna, an ayurvedic preparation has been used in treating many cases of neurological disorders. Evidences suggest that seizures can induce epileptogenic brain damage, and ~~that~~ uncontrolled seizure activity may be linked to the progression of the initial lesion, making the condition more severe and resulting in a variety of behavioural abnormalities.

Methodology: Four month old adult male Wistar rats (n=24) were randomly divided into four groups (n= 6/group) as Normal Control (NC), Pilocarpine Group (PI), Phenytoin Group (PH) and Saraswata Churna (SC). Epilepsy model was created by a single intraperitoneal injection (270mg/kgbw) of pilocarpine. At the end of 24 hours and 48 hours post first seizure occurrence, Phenytoin 30mg/kgbw (i.p.) and SC (308 mg/kgbw oral) were given to the respective ~~groups~~ groups~~(Phenytoin Group (PH) and Saraswata Churna group(SC)).~~ After 14 days of experimental period, learning and memory of rats were ~~evaluated~~ tested by ~~the~~ two compartment passive avoidance test. In the exploration trial, rats were placed in the middle of the box facing opposite to the entrance of small (dark) compartment and permitted to explore both the compartments for 3 minutes. Total time spent in larger and smaller compartments

and latency to enter into the dark compartment were noted. After the last trial, rats were placed in the smaller compartment; three strong electric foot shocks (50 Hz, 1.5 mA, 2sec) ~~with two-second interval was~~were given. After 48 hours of exploration trail, a retention test was carried without foot shock, during which rats were left in the larger compartment and permitted to explore both the compartments for 3 minutes. Values obtained were used for statistical analysis using SPSS 16.0 and data was expressed as mean and standard deviation.

Result:

- **Time spent in dark compartment**

Twenty-four hours after administration of the foot shock, seizure induced animals showed poor memory retention and spent more time (159 seconds) in the dark compartment. Saraswata Churna fed rats retained good memory and spent less time (90.50 seconds) when compared with Phenytoin group (126 seconds) and Seizure group animals respectively.

- **Latency to enter dark compartment**

In memory retention test, seizure ~~gorup~~ group animals ~~have~~ had taken 11.33 seconds of total latency time ~~for~~ before their first entry into the dark compartment.~~.~~ ~~W~~whereas the phenytoin injected rats ~~have taken~~ took an average of 35 seconds~~., of approximate total latency time.~~ On the contrary, Saraswata Churna administered rats took 36.17 seconds to enter the dark compartment. This result shows that the Sarswata Churna treated rats retain~~s~~ed good memory in comparison to the Seizure ~~group~~ and Phenytoin group~~s respectively~~.

Conclusion: Supplementation of SC has the potential to mitigate the functional/behavioural alteration in the epilepsy induced by pilocarpine. The present study demonstrates that SC has ~~effectively~~ the efficiency to ~~improved~~ improve learning and memory abilities in the pilocarpine induced rat model of epilepsy.