

## Dopamine, 5-HT and metabolite levels in certain brain areas of rats after acute and chronic administration of Lithium

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### INTRODUCTION

Lithium (Li) appears to enhance some of the actions of 5-HT though findings have been contradictory. Its effects on catecholamines are also variable. The aim of the present study was an attempt to throw more light of Li effects after acute and chronic administration, on 5-HT, DA and their metabolite levels in prefrontal cortex (PC), hypothalamus (HY) and striatum (SR) of rats.

### MATERIAL AND METHODS

Forty male wistar rats divided in 4 groups were treated as follows

#### *Acute treatment*

*Group I - Li group:* Each animal received a single I.M. injection of 0,5 ml of 100mg/Kg  $\text{Li}_2\text{CO}_3$ .

*Group II - Control group:* Each animal received a single I.M. injection of 0,5 ml 9 $\bar{6}$  NaCl.

#### *Chronic treatment*

*Group III - Li group:* As the group I for 21 consecutive days.

*Group IV - Control group:* As the group II for 21 days.

### RESULTS

A reduction of DA turnover rate was observed in the acute phase of Li administration ( $P < 0,1$ ) in the SR., while the chronic one resulted in a statistically significant increase of DA, DOPAC and HVA without influencing of DOPAC/DA. A decrease of DA turnover rate in the HY was observed after chronic Li administration  $P < 0,001$ . This is in contrast with 5-HT turnover rate that is increased both in HY and PC ( $P < 0,01$ )

### CONCLUSIONS

Our study confirms other investigators previous data where chronic Li administration provoked inhibition of 5-HT<sub>3</sub> receptors, increase of 5-HT release and decrease of 5-HT postsynaptic receptor sensitivity in PC and hippocampus. It seems that chronic Li administration provokes adaptive changes in 5-HT receptors but not in the DA receptors, at least in the studied brain areas of our work.