The effect of diol on behavior in a MPTP-induced model of Parkinson’s disease in mice

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**Aim**: evaluating cognitive function using behavioral tests in mice with MPTP-induced PD-like disturbances treated with Diol.

**Modeling of PD** was performed by intraperitoneal injecting 30 mg/kg MPTP.
**Materials & methods**

Day 0

- Intraperitoneal MPTP injection 30mg/kg
- Intraperitoneal saline injection

Day 1

- Diol oral treatment 20mg/kg
- L-DOPA oral treatment 100mg/kg

Days 5-6

- Rotarod test
- Open field test

Day 7

- Passive avoidance test (learning phase)

Days 12-14

- Passive avoidance test (memory extinction)

Days 15-25

No motor deficits were revealed
Compared to mice treated with MPTP, those treated with MPTP and Diol showed a recovery in learning.
Results

Learning and extinction of passive avoidance response dynamics

Control

MPTP

MPTP+Diol

MPTP+L-DOPA

* - p<0.05; ** - p<0.01 comparing to the level prior learning; 
# - p<0.05; ## - p<0.01 comparing to the 1st day of testing (test 1).

Compared to mice treated with MPTP, those treated with MPTP and Diol showed an enhanced memory reconsolidation. L-DOPA had similar to Diol positive effect on learning while the dynamics of memory extinction was similar to that in control group.
Comparing to mice treated with MPTP, mice treated with MPTP and Diol showed:

- a recovery in learning;
- enhanced memory reconsolidation;
- no signs of motor disturbances;
- similar to the L-DOPA positive effect on learning.

Thus, the Diol indeed has beneficial effect on behavioral changes (namely cognitive deficits) in MPTP-induced model of Parkinson’s disease in mice.

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