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Expression of magnesium transporter SLC41A1 in the striatum of 6-hydroxydopamine-induced parkinsonian rats

Ling Lin[a,b], Meizhen Yan[b], Bin Wu[b], Renxi Lin[b], Zhihong Zheng[a,b*]

[a] *Fujian Provincial Key Laboratory of Neuroglia and Disease, Fujian Medical University, Fuzhou 350122, China*

[b] *Department of Biochemistry and Molecular Biology, Fujian Medical University, Fuzhou 350122, China*

*Corresponding author

Highlights

- 6-OHDA lesioning may alter the expression of SLC41A1 in rat model.
- SLC41A1 expression is responsive to magnesium on 6-OHDA-induced rat.
- Brain magnesium levels are reduced in PD.
- $MgSO_4$ might ameliorate the motor behavior on 6-OHDA-induced rat.

Abstract

Objectives: The aim of this study was to investigate the expression of the mammalian Mg^{2+} transporter solute carrier family 41, member 1 (SLC41A1) in the striatum (STR) of a 6-hydroxydopamine (6-OHDA)-induced rat model, and its response to magnesium before the degenerative process commenced. **Materials and Methods:** A unilateral parkinsonian rat model was induced by injection of 6-OHDA into the right medial forebrain bundle. Some rats received $MgSO_4$ (90 mg/kg/day, intraperitoneal injection) for 7 or 14 days starting from the day following the 6-OHDA injection. The extent of dopamine depletion was determined by assessing the numbers of tyrosine hydroxylase (TH)-immunoreactive neurons in the substantia nigra pars compacta (SNc) and the apomorphine (APO)-induced rotational behavior. The mRNA and protein expression of *SLC41A1* in STR were evaluated by real-time RT-PCR and