

[1]程国华,彭超,李永德,等.双环己酮草酰二脲诱导精神分裂症小鼠模型胼胝体有髓神经纤维脱髓鞘的定量观测[J].第三军医大学学报,2013,35(07):598-603.

Cheng Guohua, Peng Chao, Li Yongde, et al. Quantitation of demyelination in corpus callosum of CPZ-induced mouse model of schizophrenia[J]. J Third Mil Med Univ, 2013, 35(07): 598-603.

点击复制

双环己酮草酰二脲诱导精神分裂症小鼠模型胼胝体髓鞘的定量观测(PDF) 分享到:

《第三军医大学学报》[ISSN:1000-5404/CN:51-1095/R] 卷: 35 期数: 2013年第07期 页码: 598-603 栏目: 论著 出版日期: 2013-04-15

Title: Quantitation of demyelination in corpus callosum of CPZ-induced mouse model of schizophrenia

作者: [程国华](#); [彭超](#); [李永德](#); [王芸](#); [陈林](#); [卢伟](#); [孔吉明](#); [肖岚](#); [唐勇](#)

重庆医科大学: 基础医学院人体解剖与组织胚胎教研室, 干细胞与组织工程研究室; 加拿大曼尼托巴大学人体解剖与细胞科学系; 第三军医大学基础医学部组织与胚胎学教研室, 重庆市神经科学研究所

Author(s): [Cheng Guohua](#); [Peng Chao](#); [Li Yongde](#); [Wang Yun](#); [Chen Lin](#); [Lu Wei](#); [Kong Jiming](#); [Xiao Lan](#); [Tang Yong](#)

Department of Histology and Embryology, Laboratory of Stem Cells and Tissue Engineering, College of Basic Medical Sciences, Chongqing Medical University, Chongqing, 400016, China; Department of Human Anatomy and Cell Science, University of Manitoba, Winnipeg, MB, Canada; Department of Histology and Embryology, College of Basic Medical Sciences, Third Military Medical University, Chongqing, 400038, China

关键词: [双环己酮草酰二脲](#); [精神分裂症](#); [行为学实验](#); [胼胝体](#); [脱髓鞘](#); [体视学](#)

Keywords: [cuprizone](#); [schizophrenia](#); [behavioral test](#); [corpus callosum](#); [demyelination](#); [stereology](#)

分类号: R-332; R338.11; R749.3

文献标志码: A

摘要: 目的 进一步研究双环己酮草酰二脲(cuprizone, CPZ)诱导精神分裂症动物模型胼胝体内有髓神经纤维的改变及与行为学改变之间的关系。方法 19只雄性C57BL/6小鼠被分为2组,空白对照组($n=10$)和CPZ处理组($n=9$),分别给予正常鼠饲料和混有0.2%(质量分数)CPZ的鼠饲料6周,运用旷场实验、高架十字迷宫实验、Morris水迷宫实验、探孔实验和转棒实验检测小鼠的行为学改变,运用免疫组化、透射电镜、体视学方法研究小鼠的胼胝体和其内有髓神经纤维的改变。结果 CPZ处理组小鼠在行为学实验中表现为:旷场实验中央区活动增多,高架十字迷宫开臂内活动增加($P<0.05$),提示CPZ处理小鼠的焦虑行为减少;学习记忆能力、运动能力和基

导航/NAVIGATE

[本期目录/Table of Contents](#)

[下一篇/Next Article](#)

[上一篇/Previous Article](#)

工具/TOOLS

[引用本文的文章/References](#)

[下载 PDF/Download PDF\(1370KB\)](#)

[立即打印本文/Print Now](#)

[查看/发表评论/Comments](#)

[导出](#)

统计/STATISTICS

[摘要浏览/Viewed](#) 442

[全文下载/Downloads](#) 180

[评论/Comments](#)

[RSS](#) [XML](#)

本探索行为并未受到影响 ($P>0.05$)。透射电镜研究发现CPZ模型小鼠胼胝体存在有髓神经纤维脱髓鞘改变。透射电镜和体视学研究发现, CPZ模型小鼠胼胝体体积[$(12.66 \pm 1.07) \text{ mm}^3$]较空白对照组[$(13.53 \pm 2.79) \text{ mm}^3$]无显著性下降 ($P>0.05$), 但CPZ模型小鼠胼胝体有髓神经纤维长度密度和总长度[$(0.70 \pm 0.17) \text{ km/mm}^3$ 和 $(9.06 \pm 2.56) \text{ km}$]均较空白对照组[$(1.47 \pm 0.17) \text{ km/mm}^3$ 和 $(19.75 \pm 3.70) \text{ km}$]显著下降 ($P<0.05$)。 结论 CPZ模型可以出现类似精神分裂症样症状且胼胝体内有髓神经纤维存在脱髓鞘改变。

Abstract: **Objective** To investigate the changes of the myelinated fibers in the corpus callosum of the cuprizone (CPZ)-induced mouse model of schizophrenia, and the relationship between the demyelination changes and the behavioral abnormalities in this animal model. **Methods** Nineteen male C57BL/6 mice were randomly divided into 2 groups, control group ($n=10$) and CPZ-treated group ($n=9$). The mice in the later group were fed with a diet of 0.2% (w/w) CPZ mixed into standard rodent chow for 6 weeks. The mice in control group were fed standard lab chow and lab water. The behavioral changes of the animals were investigated with a series of behavioral tests. The changes of the corpus callosum and the myelinated fibers in the corpus callosum were studied with immunohistochemical assay, transmission electron microscopy and stereological methods. **Results** The CPZ-treated mice displayed more activities in the central area of open field ($P<0.05$) and in the open arms of elevated plus maze ($P<0.05$), which suggested that the anxiety behavior in the CPZ-treated mice was reduced when compared to the control. Morris water maze demonstrated that there was no working memory deficit in the CPZ-treated mice compared to the control ($P>0.05$). There was no abnormality in the motor function and basic exploration ability in the CPZ-treated mice when compared to the control. There were demyelination changes in the corpus callosum of the CPZ-treated mice. There was no significant difference in the total volume of the corpus callosum between the CPZ-treated mice and the control (12.66 ± 1.07 vs $13.53 \pm 2.79 \text{ mm}^3$). The length density and total length of the myelinated fibers in the corpus callosum were significantly decreased in CPZ-treated mice than control mice (0.70 ± 0.17 vs $1.47 \pm 0.17 \text{ km/mm}^3$, 9.06 ± 2.56 vs $19.75 \pm 3.70 \text{ km}$, $P<0.05$). **Conclusion** CPZ-treated mice display schizophrenia-like behaviors and demyelination change in the corpus callosum.

参考文献/REFERENCES:

程国华, 彭超, 李永德, 等. 双环己酮草酰二胺诱导精神分裂症小鼠模型胼胝体有髓神经纤维脱髓鞘的定量观测[J]. 第三军医大学学报, 2013, 35(7): 598-603.

相似文献/REFERENCES:

- [1] 刘力, 秦晓霞, 黄永进, 等. 精神分裂症认知功能障碍与事件相关电位P300的相关性研究[J]. 第三军医大学学报, 2007, 29(23): 2286. LIU Li, QIN Xiao-xia, HUANG Yong-jin, et al. Relationship between cognitive disorders in schizophrenia and event-related potential P300[J]. J Third Mil Med Univ, 2007, 29(07): 2286.
- [2] 黄平, 杨泽云. 中药血府逐瘀汤辅助阿立哌唑治疗闭经的精神分裂症对照观察[J]. 第三军医大学学报, 2011, 33(06): 625. Huang Ping, Yang Zeyun. Controlled observation of traditional Chinese medicine Xuefuzhuyu decoction combined with aripiprazole in treatment of schizophrenic patients with antipsychotic-induced amenorrhea[J]. J Third Mil Med Univ, 2011, 33(07): 625.
- [3] 李大奇, 苏华龙, 吴胜. 648例首发精神分裂症用药情况[J]. 第三军医大学学报, 2011, 33(06): 643.
- [4] 彭超, 程国华, 王芸, 等. 双环己酮草酰二胺诱导的精神分裂症样小鼠大脑皮质体积及有髓神经纤维的体视学观测[J]. 第三军医大学学报, 2013, 35(08): 717. Peng Chao, Cheng Guohua, Wang Yun, et al. Stereological observation of cerebral cortex volume and myelinated fibers in cerebral cortices of cuprizone-induced schizophrenia-like mice[J]. J Third Mil Med Univ, 2013, 35(07): 717.

[5]黄嘉璐,穆建坤,孟召友,等.少突胶质细胞前体细胞在双环己酮草酰二胺诱导的脱髓鞘模型中的变化特点[J].第三军医大学学报,2013,35(12):1237.

Huang Jialu,Mu Jiankun,Meng Zhaoyou,et al.Characteristics of oligodendrocyte precursor cells in cuprizone-induced demyelination models[J].J Third Mil Med Univ,2013,35(07):1237.

[6]郭菁,李雷雷,黄婷,等.米氮平辅助治疗精神分裂症阴性症状疗效与安全性的Meta分析[J].第三军医大学学报,2013,35(18):1984.

Guo Jing,Li Leilei,Huang Ting,et al.A Meta analysis on efficiency and safety of mirtazapine in treatment of negative symptoms in schizophrenia[J].J Third Mil Med Univ,2013,35(07):1984.

[7]李凤,陈明,李小刚.误诊为精神分裂症的额颞叶痴呆1例[J].第三军医大学学报,2013,35(22):2494.

[8]李永德,王芸,程国华,等.不同双环己酮草酰二胺剂量诱导小鼠行为学改变及海马CA1区和DG区内有髓神经纤维改变[J].第三军医大学学报,2013,35(13):1331.

Li Yongde,Wang Yun,Cheng Guohua,et al.Different doses of cuprizone induce mice behavior alterations and changes of myelinated nerve fibers in hippocampal CA1 and DG regions[J].J Third Mil Med Univ,2013,35(07):1331.