

论著

戊巴比妥钠处理后SD大鼠体内外精子运动功能分析

宋翼升, 周国亮, 由振强, 辛艳飞, 黄敏聪, 宣尧仙

浙江省医学科学院安全性评价研究中心, 浙江 杭州 310013

收稿日期 2012-9-14 修回日期 2013-4-16 网络版发布日期 2013-10-18 接受日期

摘要 目的 观察戊巴比妥钠对大鼠体内外精子运动功能的影响。方法 ① 体外实验:大鼠精子悬液密度为 $(6.36\sim 6.78)\times 10^5\text{ L}^{-1}$,加入戊巴比妥钠使其终浓度为0, 0.1, 1, 10, 100和1000 $\mu\text{mol}\cdot\text{L}^{-1}$, 孵育1和2 h后, 分别用计算机辅助精子分析仪检测精子活力及运动功能参数, 包括曲线运动速度(VCL), 平均路径速度(VAP), 直线运动速度(VSL), 鞭打频率(BCF), 精子头侧摆幅度(ALH), 直线性(LIN)和前向性(STR)。② 体内实验:大鼠ip给予戊巴比妥钠0.04 $\text{g}\cdot\text{kg}^{-1}$, 于15, 60及120 min后迅速取出单侧附睾尾, 制备精子悬液;精子悬液稀释密度为 $(4.95\sim 7.46)\times 10^5\text{ L}^{-1}$, 用计算机辅助精子分析仪检测精子活力及运动功能参数VCL, VAP, VSL, BCF, ALH, LIN和STR。结果 ① 体外实验:与正常对照组相比, 戊巴比妥钠0.1, 1, 10, 100和1000 $\mu\text{mol}\cdot\text{L}^{-1}$ 对精子活力及运动参数VAP, VSL, VCL, ALH, BCF, STR和LIN无明显影响, 单个精子运动轨迹呈直线前进性, 与正常对照组相似。② 体内实验:大鼠经ip给予戊巴比妥钠后, 精子运动功能参数VAP, VSL, VCL, ALH, BCF, LIN和STR与正常对照组比较均无显著性差异, 单个精子运动轨迹呈直线前进性, 与正常对照组相似。结论 在本实验条件下, 戊巴比妥钠对精子的运动功能无明显影响, 可以作为生殖毒性实验雄性大鼠的麻醉用药。

关键词 [戊巴比妥钠](#) [大鼠精子](#) [精子运动功能](#)

分类号 [R99](#) [R971.2](#)

Analysis of sperm motility in rats after pentobarbital sodium treatment *in vivo* and *in vitro*

SONG Yi-sheng, ZHOU Guo-liang, YOU Zhen-qiang, XIN Yan-fei, HUANG Min-cong, XUAN Yao-xian

Center of Safety Evaluation, Zhejiang Academy of Medical Sciences, Hangzhou 310013, China

Abstract

OBJECTIVE To evaluate the effect of pentobarbital sodium on sperm motility (MOT) in rats. **METHODS** ① *In vitro* Sperms from distal cauda epididymis in rats were suspended in M199 supplemented with 0.5% fetal calf serum and sperm concentration was adjusted to about $(6.36\sim 6.78)\times 10^5\text{ L}^{-1}$. The sperm suspensions were incubated with pentobarbital sodium 0, 0.1, 1, 10, 100, 1000 $\mu\text{mol}\cdot\text{L}^{-1}$ for 1 and 2 h. MOT was assessed by computer-aided sperm analysis. ② *In vivo* Rats was ip given pentobarbital sodium 0.04 $\text{g}\cdot\text{kg}^{-1}$. After 15, 60, 120 min pentobarbital sodium exposure, sperms were collected from the distal cauda epididymis and sperm suspension $(4.95\sim 7.46)\times 10^5\text{ L}^{-1}$ was prepared. The sperm curvilinear velocity (VCL), average path velocity (VAP), straight line velocity (VSL), beat cross frequency (BCF), amplitude of lateral head movement (ALH), linearity(LIN), and straightness(STR) in the cauda epididymis *in vitro* and *in vivo* were assessed by computer-aided sperm analysis. **RESULTS** ① *In vitro* Compared with normal control group, there were no significant differences in motion parameters MOT, VCL, VAP, VSL, BCF, ALH, LIN and STR in pentobarbital sodium groups. The sperm in the pentobarbital sodium groups exhibited progressive and straight courses, as in the control group. ② *In vivo* There was no obvious difference between pentobarbital sodium groups and normal control group. The sperm exhibited progressive and straight courses as in the normal control group. **CONCLUSION** Pentobarbital sodium does not affect sperm motion as assessed, which is potentially applicable to reproductive toxicology studies.

Key words [pentobarbital](#) [spermatozoa](#) [sperm motility](#)

DOI: 10.3867/j.issn.1000-3002.2013.05.013

通讯作者 宣尧仙, E-mail: nndsvc@mail.hz.zj.cn, Tel: (0571)87568016 nndsvc@mail.hz.zj.cn

扩展功能

本文信息

▶ [Supporting info](#)

▶ [PDF\(1364KB\)](#)

▶ [\[HTML全文\]\(0KB\)](#)

▶ [参考文献](#)

服务与反馈

▶ [把本文推荐给朋友](#)

▶ [加入我的书架](#)

▶ [加入引用管理器](#)

▶ [复制索引](#)

▶ [Email Alert](#)

▶ [文章反馈](#)

▶ [浏览反馈信息](#)

相关信息

▶ [本刊中 包含“戊巴比妥钠”的 相关文章](#)

▶ 本文作者相关文章

- [宋翼升](#)
- [周国亮](#)
- [由振强](#)
- [辛艳飞](#)
- [黄敏聪](#)
- [宣尧仙](#)