

论著

## 二氢吡啶类钙拮抗剂对多柔比星肾毒性的影响

刘丽林, 黎七雄\*

(武汉大学医学院药理学系, 湖北 武汉 430071)

收稿日期 2005-8-2 修回日期 网络版发布日期 2008-5-16 接受日期 2006-2-21

**摘要** 目的 观察二氢吡啶类钙拮抗剂对多柔比星(Dox)肾毒性的影响。方法 Dox单次 $6.5 \text{ mg} \cdot \text{kg}^{-1}$ 尾静脉注射诱导大鼠肾损伤, 造模后次日大鼠分别ig硝苯地平 $15 \text{ mg} \cdot \text{kg}^{-1} \cdot \text{d}^{-1}$ , 尼群地平 $10 \text{ mg} \cdot \text{kg}^{-1} \cdot \text{d}^{-1}$ , 氨氯地平 $5 \text{ mg} \cdot \text{kg}^{-1} \cdot \text{d}^{-1}$ , 连续30 d, 于给药后d 10, 20和30收集各组大鼠24 h尿液测尿蛋白含量, 于末次给药4 h后处死大鼠, 测血清尿素氮和肌酐含量, 测肾皮质还原型谷胱甘肽(GSH), 丙二醛(MDA), 一氧化氮(NO)含量及谷胱甘肽-S-转移酶(GST), 过氧化物歧化酶(SOD), 一氧化氮合酶(NOS)活性。结果 硝苯地平组大鼠于给药d 10和d 20对Dox肾毒性的尿蛋白有增加作用, 给药d 30时, 对尿蛋白, 血清尿素氮和肌酐均无明显影响, 对肾组织GSH, MDA, NO含量及GST, SOD, NOS活性也无明显改变; 尼群地平组大鼠于给药d 10, 20和30时, 对Dox肾毒性的尿蛋白及血清尿素氮和肌酐含量均有升高作用, 并明显增加肾组织MDA, NO含量及NOS活性, 显著降低GSH含量及 GST, SOD活性; 氨氯地平对Dox所致的尿蛋白, 血清尿素氮和肌酐含量的升高具有降低作用, 并明显降低肾组织MDA, NO含量及NOS活性, 显著增加GSH含量及GST, SOD活性。结论 硝苯地平对Dox肾毒性无明显影响, 尼群地平则有加重作用, 氨氯地平对Dox肾毒性具有保护作用。

**关键词** [二氢吡啶类](#) [硝苯地平](#) [尼群地平](#) [氨氯地平](#) [多柔比星](#) [肾毒性](#)

分类号 [R972](#)

## Effect of dihydropyridine calcium antagonists on doxorubicin-induced nephrotoxicity in rats

LIU Li-Lin, LI Qi-Xiong\*

(Department of Pharmacology, Medical College, Wuhan University, Wuhan 430071, China)

### Abstract

**AIM** To investigate whether dihydropyridine calcium antagonists can protect rats from nephrotoxicity induced by doxorubicin(Dox). **METHODS** Nephrotoxicity was induced in rats by single tail intravenous injection of Dox ( $6.5 \text{ mg} \cdot \text{kg}^{-1}$ ). Nifedipine  $15 \text{ mg} \cdot \text{kg}^{-1} \cdot \text{d}^{-1}$ , nitrendipine  $10 \text{ mg} \cdot \text{kg}^{-1} \cdot \text{d}^{-1}$ , and amlodipine  $5 \text{ mg} \cdot \text{kg}^{-1} \cdot \text{d}^{-1}$  were administered orally after Dox injection for 30 d. Urine samples were collected respectively for measuring the content of urinary protein on d 10, 20 and 30 and the rats were sacrificed 4 h after the last administration, serum urea nitrogen(UN) and serum creatinine(Cr) were tested. The contents of glutathione(GSH), malondialdehyde(MDA) and nitric oxide(NO) and activities of superoxide dismutase(SOD), glutathione-S-transferase(GST) and nitric oxide synthase(NOS) were measured in renal cortex. **RESULTS** The contents of urinary protein on d 10 and 20 in rats given nifedipine were higher than in those rats treated with Dox. The contents of urinary protein on d 10, 20 and 30, UN, Cr, MDA, NO and activity of NOS were significantly higher, but GSH level and activities of SOD, GST were significantly lower in rats given nitrendipine than those in rats treated with Dox. The contents of urinary protein on d 30, UN, Cr, MDA, NO and activity of NOS were decreased, but GSH level and activities of SOD, GST were increased in rats of amlodipine group compared with Dox group. **CONCLUSION** Nifedipine can't protect, while nitrendipine can aggravate and amlodipine can protect against the Dox induced nephrotoxicity in rats.

**Key words** [dihydropyridine](#) [nifedipine](#) [nitrendipine](#) [amlodipine](#) [doxorubicin](#) [renal toxicity](#)

DOI:

通讯作者 黎七雄 [xiongqili54321@163.com](mailto:xiongqili54321@163.com)

### 扩展功能

#### 本文信息

- ▶ [Supporting info](#)
- ▶ [PDF\(360KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [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“二氢吡啶类” 的相关文章](#)
- ▶ [本文作者相关文章](#)

- [刘丽林](#)
- [黎七雄](#)