

## 论文

### 2,4-二羟基二苯甲酮对DMN致小鼠急性肝毒性保护作用

祝靛靛, 吴学银, 刘昕, 贾凤兰, 张宝旭

北京大学医学部公共卫生学院毒理系 国家中医药管理局重点研究室, 北京 100191

#### 摘要:

**目的** 探索2,4-二羟基二苯甲酮(BP-1)对二甲基亚硝胺(DMN)所致小鼠急性肝损伤的保护作用。**方法** 将体重18~22 g的ICR小鼠随机分为对照组、模型组、BP-1低、中、高组(200、400、800 mg/kg)灌胃给药4 d,末次给药30 min后腹腔注射给予DMN 22 mg/kg,24 h处死,测定谷丙转氨酶(ALT),谷草转氨酶(AST),乳酸脱氢酶(LDH)活性;测定肝脏还原性谷胱甘肽(GSH),氧化型谷胱甘肽(GSSG)和丙二醛(MDA)含量;观察肝脏病理组织学变化。**结果** 与对照组比较,模型组小鼠血清ALT、AST、LDH活性均明显升高( $P<0.01$ ),MDA含量 $[(0.256\pm 0.059)\mu\text{mol/g}]$ 升高( $P<0.01$ ),肝小叶出现大量坏死细胞;与模型组比较,BP-1各剂量组小鼠血清ALT、AST、LDH水平均明显下降( $P<0.05$ ),肝组织中GSH/GSSG比值升高( $P<0.01$ ),高剂量BP-1组小鼠肝脏MDA含量 $[(0.062\pm 0.034)\mu\text{mol/g}]$ 明显下降( $P<0.01$ ),肝小叶坏死区域减少。**结论** 2,4-二羟基二苯甲酮对DMN所致小鼠急性肝损伤有保护作用。

**关键词:** 2,4-二羟基二苯甲酮(BP-1) 肝脏毒性 二甲基亚硝胺(DMN) 保肝作用

### Protective effect of 2,4-dihydroxybenzophenone on DMN induced acute hepatotoxicity in mice

ZHU Liang-liang, WU Xue-yin, LIU Xin, et al

Department of Toxicology, Public Health Institute, Peking University Health Science Center, Beijing 100191, China

#### Abstract:

**Objective** To investigate the protective effect of 2,4-dihydroxybenzophenone (BP-1) on acute hepatotoxicity induced by dimethylnitrosamine(DMN) in mice.**Methods** Twenty-five male ICR mice with body weight of 18-22 g were divided into control group,model group,low,moderate,and high dose BP-1 exposure group (200,400,and 800 mg/kg).BP-1 was administrated to the mice in exposure groups for 4 days and DMN was injected into the mice 30 min after BP-1 administration on the 4th day.Twenty-four hours after the treatment,all mice were killed and activities of serum alanine aminotransferase (ALT),aspartate aminotransferase (AST),and lactate dehydrogenase (LDH) were measured.The contents of reduced glutathione (GSH),oxidized glutathione (GSSG),and malonaldehyde (MDA) were also determined.Histopathological changes of liver were observed.**Results** Serum ALT,AST and LDH activities of DMN group were significantly increased compared with those of the vehicle control group ( $P<0.01$  for all).The content of MDA was increased to  $0.256\pm 0.059\mu\text{mol/g}$  ( $P<0.01$ ).Histopathological observations revealed a severe injury of liver.Serum ALT,AST and LDH activities of BP-1 group were significantly decreased compared with those of the model group ( $P<0.05$  for all).The ratio of GSH/GSSG was increased and the content of MDA was decreased( $0.062\pm 0.034\mu\text{mol/g}$ , $P<0.01$ ).Histopathological observations also revealed an ameliorated change of liver.**Conclusion** The results indicate that 2,4-dihydroxybenzophenone has protective effect on acute hepatotoxicity induced by DMN in mice.

**Keywords:** 2,4-dihydroxybenzophenone hepatic toxicity protective effect on DMN liver

收稿日期 2013-03-26 修回日期 网络版发布日期 2013-06-06

DOI: 10.11847/zgggws2014-30-02-24

基金项目:

重大新药创制科技重大专项(2009ZX09103-007)

通讯作者: 张宝旭, E-mail: bxzhang@bjmu.edu.cn

作者简介:

## 扩展功能

### 本文信息

- ▶ Supporting info
- ▶ PDF(1098KB)
- ▶ [HTML全文]
- ▶ 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
- ▶ 引用本文
- ▶ Email Alert
- ▶ 文章反馈
- ▶ 浏览反馈信息

### 本文关键词相关文章

- ▶ 2,4-二羟基二苯甲酮(BP-1)
- ▶ 肝脏毒性
- ▶ 二甲基亚硝胺(DMN)
- ▶ 保肝作用

### 本文作者相关文章

- ▶ 祝靛靛
- ▶ 吴学银
- ▶ 刘昕
- ▶ 贾凤兰
- ▶ 张宝旭

### PubMed

- ▶ Article by ZHU Liang-liang
- ▶ Article by WU Xue-yin
- ▶ Article by LIU Xin
- ▶ Article by et al
- ▶ Article by

参考文献：

- [1] 李春辉, 潘理会, 申兴斌, 等. 二甲基亚硝胺诱发大鼠肝纤维化发生机理的研究[J]. 承德医学院学报, 2006, 23(2): 116-119.
- [2] 胡志峰, 李忻, 何燕, 等. DMN诱导的肝纤维化模型伴肾损害的实验观察[J]. 中国中医基础学杂志, 2010, 16(4): 291-294.
- [3] 高甲山, 鲍建国, 于中山. 2, 4-二羟基二苯甲酮生产废水处理的研究[J]. 上海化工, 2008, 12(33): 9-12.
- [4] He YY, Zhang BX, Jia FL. Protective effects of 2, 4-dihydroxybenzophenone against acetaminophen-induced hepatotoxicity in mice[J]. World J Gastroenterol, 2011, 17(21): 2663-2666.
- [5] 吴学银, 薛茹, 刘昕, 等. 2, 4-二羟基二苯丙酮对可卡因致小鼠肝毒性及神经毒性的保护作用[J]. 北京大学学报: 医学版, 2012, 44(3): 421-425.
- [6] 敬挺, 王璐, 贾凤兰, 等. 2, 4-二羟基二苯丙酮对CCl<sub>4</sub>致小鼠急性肝损伤的保护作用[J]. 中国新药杂志, 2011, 20(8): 684-687.
- [7] Giboney PT. Mildly elevated liver transaminase levels in the asymptomatic patient[J]. Am Fam Physician, 2005, 71: 1105-1110.
- [8] 张万里, 王国胜, 潘黎正, 等. 二甲基甲酰胺暴露性肝损伤与脂质过氧化关系[J]. 中国公共卫生, 2007, 23(11): 1369-1370.

本刊中的类似文章

1. 张进, 王迎, 孙启时. 花锚中3种黄酮对小鼠肝损伤保护作用[J]. 中国公共卫生, 2009, 25(5): 587-589

文章评论 (请注意: 本站实行文责自负, 请不要发表与学术无关的内容! 评论内容不代表本站观点.)

反馈人	<input type="text"/>	邮箱地址	<input type="text"/>
反馈标题	<input type="text"/>	验证码	<input type="text"/> 3590