

论文

HPLC-MS/MS法测定人血浆中的左西孟旦及其主要代谢物

李少荣;陈笑艳;张逸凡;李国信;姜春梅;钟大放

1. 浙江工业大学, 浙江 杭州 310014; 2. 中国科学院 上海药物研究所, 上海 201203; 3. 辽宁中医药大学附属第二医院, 辽宁 沈阳 110034

摘要:

建立快速、灵敏、易操作的LC-MS/MS法测定人血浆中的左西孟旦及其代谢物OR-1855和OR-1896的浓度。根据待测物的不同性质, 采用两套液相色谱系统和电离方式分别测定人血浆中的左西孟旦和代谢物OR-1855、OR-1896。测定左西孟旦时, 用瑞舒伐他汀为内标, 血浆样品经甲醇沉淀蛋白, 以甲醇-15 mmol·L⁻¹醋酸铵-甲酸(55:45:0.02, v/v/v)为流动相, Capcell MG III C₁₈柱(35 mm×2.0 mm ID, 3 μm)进行分离, 采用电喷雾电离源, 以选择反应监测(SRM)方式进行负离子检测。测定代谢物OR-1855和OR-1896时, 用多索茶碱为内标, 血浆样品经乙酸乙酯萃取, 以甲醇-15 mmol·L⁻¹醋酸铵-甲酸(65:35:0.1, v/v/v)为流动相, Zorbax Extend C₁₈柱(150 mm×4.6 mm ID, 5 μm)进行分离, 采用电喷雾电离源, SRM方式进行正离子检测。测定血浆中左西孟旦方法的线性范围为0.10~50.0 ng·mL⁻¹, 定量下限可达0.10 ng·mL⁻¹; 测定血浆中代谢物OR-1855和OR-1896方法的线性范围均为0.20~100 ng·mL⁻¹, 定量下限均可达0.20 ng·mL⁻¹。本方法专属性好, 准确、快速, 适用于左西孟旦注射液的临床药代动力学研究。

关键词: 左西孟旦 OR-1855 OR-1896 液相色谱-串联质谱法 药代动力学

Determination of levosimendan and its main metabolites in human plasma with HPLC-MS/MS method

LI Shao-rong; CHEN Xiao-yan; ZHANG Yi-fan; LI Guo-xin; JIANG Chun-mei; ZHONG Da-fang

Abstract:

This paper is aimed to develop rapid, sensitive and convenient HPLC-MS/MS methods for the quantification of levosimendan and its metabolites OR-1855 and OR-1896 in human plasma. According to the different natures of the compounds, two sets of liquid chromatography and ionization modes were used for determination the concentration of levosimendan and its metabolites OR-1855 and OR-1896 in human plasma, separately. Following protein precipitation with methanol, the levosimendan and internal standard (rosuvastatin) were separated on a Capcell MG III C₁₈ column (35 mm×2.0 mm ID, 3 μm) with the mobile phase consisted of methanol-15 mmol·L⁻¹ ammonium acetate-formic acid (55:45:0.02, v/v/v). A tandem mass spectrometer equipped with electrospray ionization source was used as the detector and operated in the negative ion mode. Its metabolites OR-1855, OR-1896 and internal standard doxofylline were extracted from plasma by liquid-liquid extraction with ethyl acetate. Chromatographic separation was performed on a Zorbax Extend C₁₈ column(150 mm×4.6 mm ID, 5 μm)with the mobile phase consisted of methanol-15 mmol·L⁻¹ ammonium acetate-formic acid (65:35:0.1, v/v/v). A tandem mass spectrometer equipped with electrospray ionization source was used as the detector and operated at the positive ion mode. The linear concentration ranges of the calibration curves for levosimendan and OR-1855 and OR-1896 were 0.10-50.0 ng·mL⁻¹, 0.20-100 ng·mL⁻¹, 0.20-100 ng·mL⁻¹, respectively. The lower limits of quantification of levosimendan and OR-1855 and OR-1896 were 0.10 ng·mL⁻¹, 0.20 ng·mL⁻¹, 0.20 ng·mL⁻¹, respectively. The methods proved to be sensitive, simple and rapid, and suitable for the pharmacokinetic study of levosimendan injection.

Keywords: OR-1855 OR-1896 LC-MS/MS pharmacokinetics levosimendan

收稿日期 2008-06-11 修回日期 网络版发布日期

DOI:

基金项目:

通讯作者: 钟大放

作者简介:

扩展功能

本文信息

- ▶ Supporting info
- ▶ PDF(932KB)
- ▶ [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

- ▶ 左西孟旦
- ▶ OR-1855
- ▶ OR-1896
- ▶ 液相色谱-串联质谱法
- ▶ 药代动力学

本文作者相关文章

- ▶ 李少荣
- ▶ 陈笑艳
- ▶ 张逸凡
- ▶ 李国信
- ▶ 姜春梅
- ▶ 钟大放

PubMed

- ▶ Article by
- ▶ Article by
- ▶ Article by
- ▶ Article by
- ▶ Article by
- ▶ Article by

参考文献:

本刊中的类似文章

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"/> 9179

Copyright 2008 by 药学报