

论文

HPLC-MS法同时测定大鼠血浆中苦参碱、氧化苦参碱和氧化槐果碱的浓度及其药代动力学

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摘要:

建立同时测定大鼠灌胃给予三物黄芩汤后血浆中苦参碱、氧化苦参碱和氧化槐果碱含量的HPLC-MS分析方法, 并计算了3种生物碱在大鼠体内的药代动力学参数。血浆样品经氯仿液-液萃取后, 以乙腈-0.1%甲酸水溶液(10:90)为流动相, 用Kromasil C₁₈色谱柱(4.6 mm×150 mm, 5 μm)分离, 采用电喷雾离子化源(ESI)单重四极杆串联质谱, 以选择离子检测(SIM)方式进行检测。苦参碱、氧化苦参碱和氧化槐果碱分别在10~5 000 ng·mL⁻¹、2~1 000 ng·mL⁻¹和2~1 000 ng·mL⁻¹呈良好线性关系, 提取回收率分别为89.1%~93.5%、83.9%~91.3%、85.4%~88.0%。日内及日间精密度均<15%。该法快速, 灵敏, 专属, 适用于同时测定生物样本中苦参碱、氧化苦参碱和氧化槐果碱的血药浓度。

关键词: 苦参碱 氧化苦参碱 氧化槐果碱 三物黄芩汤 HPLC-MS 血浆

Simultaneous determination of matrine, oxysophocarpin and oxymatrine in rat plasma by HPLC-MS and its application in the pharmacokinetic study

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Abstract:

To establish an HPLC-MS method for simultaneous determination of matrine, oxymatrine and oxysophocarpine in rat plasma after oral administration of herbal preparation, namely Sanwu Huangqin decoction, and the pharmacokinetic parameters were calculated as well. Matrine, oxymatrine, oxysophocarpine, and internal standard pseudoephedrine were extracted from plasma with liquid-liquid extraction, then separated on a Kromasil C₁₈ column by using acetonitrile-0.1% aqueous formic acid (10:90) as mobile phase. Electrospray ionization (ESI) source was applied and operated in positive ion mode. The linear calibration curve was obtained in the concentration range of 10-5 000 ng·mL⁻¹ for matrine, 2-1 000 ng·mL⁻¹ for oxymatrine, and 2-1 000 ng·mL⁻¹ for oxysophocarpine. The extraction recovery was 89.1%-93.5%, 83.9%-91.3%, and 85.4%-88.0% accordingly. The inter- and intra- day precision (RSD) was below 15.0% calculated from quality control (QC) samples. Matrine, oxymatrine and oxysophocarpine concentration time profile conformed to a two-compartment pharmacokinetic model. The method was shown to be effective, convenient, and suitable for simultaneous pharmacokinetic study of matrine, oxymatrine, and oxysophocarpine in rat.

Keywords: oxymatrine oxysophocarpine Sanwu Huangqin decoction HPLC-MS plasma matrine

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1. 张莹;杜娟;张勇;孙宏丽;潘振伟;吕延杰;李宝馨;杨宝峰.苦参碱、氧化苦参碱和白藜芦醇对HERG钾通道表达的影响[J]. 药学学报, 2007,42(2): 139-144
2. 袁霖;吕式琪;姚娟.氧化苦参碱对环磷酰胺抗癌活性和毒性的影响[J]. 药学学报, 1987,22(4): 245-249
3. 刘国卿;袁惠南;谢林;金小南;柳晓泉.槐果碱等苦豆子生物碱对大鼠单胺代谢及多巴胺和5-羟色胺受体的作用[J]. 药学学报, 1987,22(9): 645-649
4. 崔建芳;章观德;王慕邹.苦参与苦豆子中生物碱的高效液相层析法与薄层光密度法测定[J]. 药学学报, 1985,20(1): 59-66
5. 周斌;胡振林;张俊平;钱定华.苦参碱对纤维蛋白纤维蛋白原降解产物诱导血管细胞损伤、增殖及腹腔巨噬细胞释放IL-1的影响[J]. 药学学报, 1999,34(5): 342-344
6. 张莎莎;李志红;刘世芳.苦参碱的正性肌力作用及与细胞外钙的关系[J]. 药学学报, 1990,25(8): 638-640
7. 王平全;陆国红;周贤飏;沈金芳;陈曙霞;梅尚文;陈美芳.苦参碱的人体药代动力学[J]. 药学学报, 1994,29(5): 326-329
8. 林文;张俊平;胡振林;钱定华.苦参碱对细菌脂多糖诱导大鼠枯否细胞释放肿瘤坏死因子及白细胞介素-6的影响[J]. 药学学报, 1997,32(2): 93-96
9. 胡振林;谈冶雄;张俊平;钱定华.蛋白激酶C抑制剂对沙土鼠和大鼠实验性脑缺血所致脑水肿的影响[J]. 药学学报, 1996,31(12): 886-890
10. 胡振林;张俊平;万莫斌;余祥彬;林文;钱定华.苦参碱对脂多糖/痤疮丙酸杆菌诱导的小鼠肝炎及产生肿瘤坏死因子的影响[J]. 药学学报, 1996,31(9): 662-665
11. 金莉霞;崔燕岩;章观德.苦参生物碱的高效液相色谱法测定[J]. 药学学报, 1993,28(2): 136-139
12. 王晓红;黄圣凯.苦参碱及氧化苦参碱的药代动力学与药效动力学[J]. 药学学报, 1992,27(8): 572-576
13. 许超千;董德利;杜智敏;陈庆文;龚冬梅;杨宝峰.苦参碱、小檗胺与胺碘酮、RP58866抗心律失常作用的比较[J]. 药学学报, 2004,39(9): 691-694
14. 陈勇;陈怀侠;杜鹏;韩凤梅.LC/MS分析大鼠体内氧化苦参碱及其主要代谢物LC/MS分析大鼠体内氧化苦参碱及其主要代谢物[J]. 药学学报, 2005,40(8): 740-745

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