

论文

高灵敏度LC/MS/MS法同时测定人血浆中麻黄碱和氯苯那敏

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摘要:

关键词: 麻黄碱 氯苯那敏 液相色谱-串联质谱法 药代动力学

Simultaneous determination of ephedrine and chlorpheniramine in human plasma by a highly sensitive liquid chromatography-tandem mass spectrometric method

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Abstract:

AimTo develop and validate a liquid chromatography-tandem mass spectrometric (LC/MS/MS) method for the simultaneous quantification of ephedrine and chlorpheniramine in human plasma after oral administration of a compound preparation. MethodsThe analytes and the internal standard, diphenhydramine, were isolated from plasma by protein precipitation with methanol, then chromatographed on a Zorbax SB-C₁₈ column (150 mm×4.6 mm ID) using a mobile phase consisted of methanol-water-formic acid (80:20:0.5, v/v), at a flow rate of 0.5 mL·min⁻¹. A tandem mass spectrometer equipped with electrospray ionization source was used as detector and was operated in the positive ion mode. Selected reaction monitoring (SRM) using the precursor to produce ion combinations of m/z 166→115, m/z 275→230 and m/z 256→167 were used to quantify ephedrine, chlorpheniramine and the internal standard, respectively. ResultsThe linear concentration ranges of the calibration curves for ephedrine and chlorpheniramine were 0.50-200 µg·L⁻¹ and 0.050-20.0 µg·L⁻¹, respectively. The lower limits of quantification were 0.50 µg·L⁻¹ for ephedrine and 0.050 µg·L⁻¹ for chlorpheniramine, individually. The intra- and inter-day relative standard deviation (RSD) across three validation runs over the entire concentration range was less than 9.3% for both ephedrine and chlorpheniramine. The inter-day accuracy (RE) was within ±3.4% for the analytes. Each sample was chromatographed within 3.3 min. The method was successfully used in pharmacokinetics study of ephedrine and chlorpheniramine in human plasma after oral administration of a compound preparation containing 5 mg ephedrine hydrochloride, 1 mg chlorpheniramine maleate, 50 mg phenytoin, 12.5 mg theophylline, 12.5 mg theobromine and 7.5 mg caffeine. No interaction among the six components was observed on their pharmacokinetic parameters. ConclusionThe method was proved to be highly sensitive, selective, and suitable for pharmacokinetics investigations of different compound preparations containing low dosage of both ephedrine and chlorpheniramine.

Keywords: chlorpheniramine LC/MS/MS pharmacokinetics ephedrine

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2. 高丽红;赵平;蔡水洪;柴逸峰;刘荔荔;吴玉田.超临界流体萃取拆分手性外消旋伪麻黄碱[J]. 药学学报, 2002,37

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3. 韩莹;陈笑艳;谢智勇;钟大放.液相色谱-串联质谱法同时测定人血浆中伪麻黄碱和苯海拉明[J]. 药学学报, 2003,38(1): 67-70
4. 葛庆华;周臻;支晓瑾;王浩.HPLC法同时测定人血浆中的伪麻黄碱和氯苯那敏[J]. 药学学报, 2004,39(4): 281-284
5. 李临;崔建芳;崔凯荣;周屹;王慕邹.尿中麻黄碱类药物的气相色谱检测法[J]. 药学学报, 1991,26(1): 67-71
6. 聂利华;张小腾;姚守拙.涂圈压电传感器提取频移法测定微量麻黄碱及其在制剂分析中的应用[J]. 药学学报, 1991,26(4): 311-314
7. 金晓;崔凯荣.用(+)-FLEC手性试剂自动柱前衍生高效液相色谱法拆分麻黄碱类药物对映体[J]. 药学学报, 1994,29(2): 122-127
8. 邵刚;吴芳;王德胜;朱荣;罗旭.柱前荧光标记高效液相色谱法对血浆中*l*-麻黄碱和*d*-伪麻黄碱的定量分析[J]. 药学学报, 1995,30(5): 384-389
9. 金晓;王杉;张长久.尿中麻黄碱类药物的HPLC定量分析[J]. 药学学报, 1994,29(5): 375-379
10. 杨丽莉;屠锡德.气相色谱-质谱法测定血中伪麻黄碱[J]. 药学学报, 1993,28(9): 709-713
11. 梁宏晔;于如暇;杨清华;倪坤仪.共轭方向法在HPLC流动相条件优化中的应用——麻黄碱、伪麻黄碱的分离[J]. 药学学报, 1991,26(1): 49-52
12. 梁宏晔;于如暇;杨清华;倪坤仪.HPLC测定九分散中麻黄碱、伪麻黄碱和士的宁的含量[J]. 药学学报, 1990,25(11): 849-853
13. 张建生;田珍;楼之岑.十二种国产麻黄的品质评价[J]. 药学学报, 1989,24(11): 865-871
14. 徐本明;毕同香.多波长吸收度比值差法的研究与应用[J]. 药学学报, 1989,24(5): 360-365
15. 陈勇;沈少林;陈怀侠;韩凤梅.HPLC-ESI-ITMSⁿ法鉴定麻黄碱及其大鼠体内主要代谢产物[J]. 药学学报, 2005,40(9): 838-841
16. 曾纪琰.麻黄碱—PVC膜电极的制备及其应用[J]. 药学学报, 1982,17(11): 841-846

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