

论文

HPLC-MS(TOF)法测定人血浆中多奈哌齐的浓度

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摘要:

目的建立测定人血浆中多奈哌齐的HPLC-MS(TOF)法。方法血浆中加入内标氯雷他定后经碱化以异丙醇-正己烷(3:97)提取血浆样品,用LC/MS(TOF)联用技术,以电喷雾(ESI)作为接口技术,选择多奈哌齐的准分子离子([M+H]⁺,m/z 380)和内标氯雷他定的准分子离子([M+H]⁺,m/z 383)作为测定离子,测定人血浆中多奈哌齐的浓度。结果多奈哌齐的回归方程:As/Ai=0.0137+0.1056C,r=0.9998;线性范围为0.1~15 μg·L⁻¹,定量限为0.1 μg·L⁻¹,方法回收率和提取回收率均大于90%。结论该测定方法灵敏度高、专属性好、快速,可满足人体内药代动力学研究要求。

关键词: 多奈哌齐 高效液相色谱-质谱法 血药浓度 氯雷他定

Determination of donepezil in human plasma by HPLC-MS

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Abstract:

AimTo establish a sensitive and specific liquid chromatography-mass spectrometry (time-of-flight) [LC-MS (TOF)] method for the determination of donepezil in human plasma after an oral administration of 5 mg donepezil hydrochloride tablet. MethodsAlkalinized plasma was extracted with isopropanol-n-hexane (3:97) and loratadine was used as internal standard. Solutes were separated on a C₁₈ column with a mobile phase of methanol-acetate buffer (pH 4.0) (80:20). Detection was performed on a time-of-flight mass spectrometry equipped with an ESI interface and operated in positive-ionization mode. Donepezil quantitation was realized by computing the peak area ratio (donepezil-loratadine) (donepezil m/z 380 [M+H]⁺ and loratadine m/z 383 [M+H]⁺) and comparing them with calibration curve (r=0.9998). ResultsThe linear calibration curve was obtained in the concentration range of 0.1-15 μg·L⁻¹. The detection limit of donepezil was 0.1 μg·L⁻¹. The average recovery was more than 90%. The intra-and inter-run precision was measured to be below 15% of RSD. ConclusionThe method is sensitive, simple and rapid, so, it can meet the need of the studies on the pharmacokinetics and bioavailability of donepezil.

Keywords: HPLC-MS plasma concentration loratadine donepezil

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