



中文标题 检索 药刊检索

岩舒注射液4种生物碱类成分Beagle犬体内药动学研究

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作者中文名	作者英文名	单位中文名	单位英文名	E-Mail
刘继平	LIU Jiping	中国药科大学 中药药理教研室, 江苏 南京 210009	Department of Pharmacology of Chinese Materia Medica, China Pharmaceutical University, Nanjing 210009, China	
薛梅	XUE Mei	中国药科大学 江苏省新药筛选中心, 江苏 南京 210009	Jiangsu Center for Drug Screening, China Pharmaceutical University, Nanjing 210009, China	
黄鑫	HUANG Xin	中国药科大学 江苏省新药筛选中心, 江苏 南京 210009	Jiangsu Center for Drug Screening, China Pharmaceutical University, Nanjing 210009, China	
王舒	WANG Shu	中国药科大学 江苏省新药筛选中心, 江苏 南京 210009	Jiangsu Center for Drug Screening, China Pharmaceutical University, Nanjing 210009, China	
江振洲	JIANG Zhenzhou	中国药科大学 江苏省新药筛选中心, 江苏 南京 210009 中国药科大学 药物质量与安全监察教育部重点实验室, 江苏 南京 210009	Jiangsu Center for Drug Screening, China Pharmaceutical University, Nanjing 210009, China Key Laboratory of Drug Quality Control and Pharmacovigilance of Ministry of Education, China Pharmaceutical University Nanjing 210009, China	jiangcpu@yahoo.com.cn; drugscreen@126.com
张陆勇	ZHANG Luyong	中国药科大学 江苏省新药筛选中心, 江苏 南京 210009 中国药科大学 江苏省药效研究与评价重点实验室, 江苏 南京 210009	Jiangsu Center for Drug Screening, China Pharmaceutical University, Nanjing 210009, China Jiangsu Center for Pharmacodynamics Research and Evaluation, China Pharmaceutical University, Nanjing 210009, China	

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中文摘要:目的: 建立LC-MS法测定Beagle犬血浆中苦参碱、氧化苦参碱、槐果碱、氧化槐果碱的浓度, 研究岩舒注射液在Beagle犬体内药动学过程及其参数。方法: 以野百合碱做内标, 二氯甲烷提取, 甲醇-10 mmol/L磷酸盐0.02%甲酸水溶液9:10为流动相, CN柱分离, 检测Beagle犬 $1.2 \text{ g} \cdot \text{kg}^{-1}$ 岩舒注射液后12 h内血浆样品中4种生物碱的浓度, 用DAS 2.0药动学程序处理血液浓度-时间数据, 分析药动学参数。结果: 苦参碱、氧化苦参碱、槐果碱、氧化槐果碱分别在0.01-16.0, 0.02-60.0, 0.01-4.0, 0.02-16.0 $\text{mg} \cdot \text{L}^{-1}$ 具有良好的线性关系, 平均回收率均大于90%, 精密性试验RSD小于6.4%, 稳定性试验RSD小于4.6%。静注岩舒注射液后, 4种生物碱在Beagle犬体内的药代动力学符合三室开放模型, C_{max} 与原药液中浓度比例基本相符; 苦参碱和氧化苦参碱、槐果碱和氧化槐果碱的 $AUC_{0-\infty}$ 与原药液中的比例相比均有增大, 苦参碱和槐果碱 $MRT_{0-\infty}$ 和 $t_{1/2\alpha}$ 分别小于氧化苦参碱和氧化槐果碱, 4种生物碱表观分布容积苦参碱<氧化苦参碱<槐果碱<氧化槐果碱。结论: 该方法用于岩舒注射液中苦参碱、氧化苦参碱、槐果碱、氧化槐果碱血药浓度的测定准确、灵敏、稳定性好、回收率高, 适合其药动学研究。

中文关键词: 岩舒注射液 液相色谱/质谱联用 药动学

Pharmacokinetic of four alkaloids of Yanshu injection in Beagle dogs

Abstract: Objective: For studying the pharmacokinetic of Yanshu injections in Beagle dogs, a sensitive and reproducible LC-MS method for quantitative determination of matrine, oxymatrine, sophocarpine and oxysophocarpine in dog's plasma were developed and validated using monocrotaline as an internal standard after *iv* of Yanshu injections (Sophome Flavescentis Radix and Heterosmilaxis Japonicae Rhizoma).

Method: The separation of plasma samples was performed on a CN column by isocratic elution with methanol-10 mmol $\cdot \text{L}^{-1}$ NH_4Ac -0.02% $\text{HCOOH} \cdot \text{H}_2\text{O}$ 90:10 as the mobile phase. The plasma concentration of four kinds of alkaloids were calculated in dog plasma by detection of healthy dogs given Yanshu injection fluid after in twelve hours of plasma samples. All data of concentration-time of four kinds of alkaloids were treated with pharmacokinetics program DAS 2.0. Result: MT, OMT, SP and OSP have a good linear relationship in 0.01-16.0, 0.02-60.0, 0.01-4.0, 0.02-16.0 $\text{mg} \cdot \text{L}^{-1}$, respectively. The average recoveries were more than 90% and the RSD of precision and stability of the test were less than 6.4% *iv* $1.2 \text{ g} \cdot \text{kg}^{-1}$ Yanshu injection, four kinds of alkaloids in rats meet the two-compartment open pharmacokinetic model. C_{max} and the concentration of the original liquid in the proportion of the basic line, the $AUC_{0-\infty}$ of matrine and oxymatrine, sophocarpine and oxysophocarpine compared to the original both in the proportion of liquid increases, the $MRT_{0-\infty}$ and $t_{1/2\alpha}$ of matrine and sophocarpine were less than oxymatrine and oxysophocarpine; four kinds of alkaloids apparent volume of distribution matrine < oxymatrine, sophocarpine > oxysophocarpine. Conclusion: A method with high recovery rate and good stability was established to determine the blood concentration of MT, OMT, SP, OSP in Yanshu injection and applied in its pharmacokinetics successfully.

keywords: Yanshu injection LC-MS pharmacokinetic

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