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羟喜树碱脂质体的制备及其大鼠体内组织分布的研究

投稿时间：2010-08-17 责任编辑：马超 [点此下载全文](#)

引用本文：赵志英,谢俊,刘文一,周建平.羟喜树碱脂质体的制备及其大鼠体内组织分布的研究[J].中国中药杂志,2011,36(4):450.

DOI: 10.4268/cjcm20110415

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中文摘要:目的: 研制小粒径羟喜树碱(hydroxycamptothecin, HCPT)脂质体并考察其在大鼠体内的组织分布。方法: 采用改良溶剂注入法制备HCPT脂质体, 考察其包封率、形态、粒径、Zeta电位等, 利用荧光分光光度法进行胆固醇-磷脂比例筛选并进行脂质体相变温度的测定; 采用LC-MS/MS分别测定大鼠尾静脉注射HCPT脂质体和普通注射液后(5 mg·kg⁻¹)不同时间点各组织中的药物浓度。结果: 在所选工艺条件下, HCPT脂质体外观圆整呈球状, 平均粒径(180.5±4.5) nm, Zeta电位(-32.1±1.3) mV, 包封率为(96.83±2.32)%; 荧光测定结果显示, 最佳胆固醇-磷脂比例为1.5 : 10, 制剂相变温度约为32.5 °C; 与市售注射液相比, HCPT脂质体在主要靶器官内的药物浓度显著增高, 且作用持续时间显著延长。结论: 采用改良溶剂注入法制备的HCPT脂质体粒径小、包封率高, 体内长循环特征明显。

中文关键词: [羟喜树碱](#) [溶剂注入法](#) [组织分布](#) [粒径](#)

Study on preparation and tissue distribution of hydroxycamptothecin liposomes

Abstract: Objective: To develop HCPT liposome with small diameter and to study the tissue distribution of the HCPT liposome in rats. Method: Modified solvent-injection method was used to prepare HCPT liposome. The entrapment efficiency, morphology, size and zeta potential were also investigated. The transformation temperature and the ratio of cholesterol to phospholipids were determined by fluorescence spectrophotometry. HCPT liposome and HCPT injection (5 mg·kg⁻¹) were injected by tail vein in mice, respectively. The tissue concentrations of HCPT were determined by LC-MS/MS. Result: Under selected process conditions, the HCPT liposomes were spherical and integrated with the mean entrapment efficiency of (96.83±2.32)%, the size of (180.5±4.5)nm and the zeta potential of (-32.1±1.3) mV. It showed that the optimum proportion of cholesterol to phospholipids was 1.5 : 10, the optimum transformation temperature was 32.5 °C; HCPT liposome at a dose of 5 mg·kg⁻¹ led to higher concentration and longer duration of action compared with HCPT injection on market. Conclusion: HCPT liposome prepared by solvent-injection method was characteristic of small mean diameter, high encapsulation efficiency and long circulation *in vivo*.

keywords: [HCPT](#) [solvent-injection method](#) [tissue distribution](#) [particle size](#)

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