

论文

氟尿苷二丁酸酯固体脂质纳米粒的制备和肝靶向性研究

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摘要:

采用薄膜-超声分散法制备氟尿苷二丁酸酯(FUDRB)固体脂质纳米粒(FUDRB-SLN)和半乳糖苷(G₂)修饰的FUDRB-SLN(FUDRB-G₂SLN)。透射电镜研究其形态及粒径分布;凝胶色谱法测定载药量、包封率。结果表明, FUDRB-SLN和FUDRB-G₂SLN的粒径分别为(137.5±11.1)nm和(95.0±10.7)nm, 载药量分别为9.64%和8.56%, 包封率分别为99.81%和96.23%。为比较其肝靶向作用, 小鼠尾静脉给药后, HPLC法测定氟尿苷(FUDR)在血清及肝、肾、肺匀浆中的浓度, 计算出FUDR-sol、 FUDRB-SLN和FUDRB-G₂SLN的肝靶向效率分别为2.56、 5.90和8.28。FUDRB-G₂SLN组480 min时在肝脏中仍可检测到FUDR。这些结果说明FUDRB-SLN和FUDRB-G₂SLN在小鼠体内具有良好的肝靶向性, G₂修饰的SLN是一种良好的药物载体, 可使药物选择性地导向肝细胞, 且具有缓释作用。

关键词: 固体脂质纳米粒 氟尿苷 肝靶向性

Preparation and liver targeting of floxuridinyl dibutyrate solid lipid nanoparticles

LI Jin-juan; YANG Guang-de; WANG Hong-ying; ZHANG San-qi

Abstract:

This paper described the preparation and liver targeting traits of new solid lipid nanoparticles (SLN) containing floxuridinyl dibutyrate (FUDRB) modified with β -D-galactosides (G₂). FUDRB-SLN and FUDRB-G₂SLN were prepared by thin layer ultrasonic technique. Transmission electron microscopy micrograph analysis demonstrated that the particle sizes of FUDRB-SLN and FUDRB-G₂SLN were (137.5±11.1) nm and (95.0±10.7) nm. Drug loading were 9.64% and 8.56%, and entrapment efficiency were 99.81% and 96.23%, respectively. The concentrations of floxuridine (FUDR) in serum and some organs (liver, kidney and lung) were determined by RP-HPLC after *iv* administration of SLN. FUDR release was confirmed, and a significant enrichment of SLN modified with G₂ was observed in liver with G₂ complex (targeting rates of SLN-G₂ was 8.28 for liver) in comparison with FUDR-sol (targeting rate was 2.56). FUDR could be detected in liver in mice at 480 min after *iv* administration of FUDRB-G₂SLN. These results suggested that incorporation of G₂ (4%-5%, *g/g*) into SLN enhanced the liver targeting-ability of FUDRB. SLN containing G₂ could be a useful drug carrier system for liver targeting.

Keywords: floxuridine liver targeting solid lipid nanoparticle

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