Title	**Pharmacokinetics Study and Biodistribution of HCPT-loaded Tributyrin Emulsion in Rats**
Keywords (up to 5)	*pharmacokinetics, biodistribution, HCPT, Tributyrin*
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Abstract	This study aims to investigate the pharmacokinetic profiles and biodistribution of hydroxycamptothecin (HCPT) after i.v. infusion of HCPT-loaded Tributyrin Emulsion (Tri-HCPT-E) to the normal SD rats or rats expressing higher LDL receptor. Compared to HCPT injection, the clearance of L-HCPT in Tri-HCPT-E group decreased by 123 times, while volume of distribution decreased by 9 times in the normal rats. The AUC ratio of Tri-HCPT-E to HCPT injection in the normal rats was increased 120 times in L-HCPT and twice in C-HCPT, respectively. The result suggests that Tri-HCPT-E greatly retained HCPT in the blood circulation and significantly protected HCPT in its active lactone form. The highest HCPT concentration in liver was 16.6 μg/g in Tri-HCPT-E treated normal rats, compared with 1.7 μg/g in the HCPT injection treated normal rats. The result indicates the liver targeting was approximately 10-times enhanced in Tri-HCPT-E group. Compare to normal rats, the AUC of L-HCPT reduced by 30% and the Ke, V and CL of HCPT were significantly higher in 17α-ethynylestradiol pre-treated rats. The HCPT concentrations in liver and spleen were significantly lower in 17α-ethynylestradiol pre-treated rats. This altered pharmacokinetics and biodistribution in the pre-treated rats were possibly due to higher uptake of HCPT in tissues with up-regulated LDL receptors, leading to an increase in the distribution and metabolism of HCPT. This may have a profound influence on the therapeutic effects of cancer chemotherapy, since over-expression of LDL receptor were found in many tumor cells[1,2,3].
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