Oral fondaparinux: use of lipid nanocapsules as nanocarriers and in vivo pharmacokinetic study

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Résumé en anglais	Oral anticoagulant therapy could be advanced using lipid-based nanoparticulate systems. This study examined lipid nanocapsules for their oral absorption potential as the first step in developing oral fondaparinux (Fp) novel carriers. Using phase inversion method and cationic surfactants such as hexadecyltrimethyl ammonium bromide (CTAB) or stearylamine (SA), cationic lipid nanocapsules (cLNCs), loaded with Fp on their surface, were prepared and characterized (zeta potential, size and Fp association efficiency and content). In vivo studies were conducted after single oral increasing doses of Fp-loaded cLNCs (0.5 to 5 mg/kg of Fp) in rats and the concentration of Fp in the plasma was measured by anti-factor Xa activity assay. The monodisperse, (~50 nm), positively charged Fp-cLNCs with high drug loadings demonstrated linear pharmacokinetic profiles of the drug with an increased oral absolute bioavailability (up to ~21%) compatible with therapeutic anticoagulant effect (>0.2 µg/mL).
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