Pharmacokinetic Interaction between Lapatinib and Sorafenib Following Single and Co-Oral Administration in Rats

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SUMMARY. This study examined whether oral administration of sorafenib to the rats with lapatinib led to any pharmacokinetic interactions. Twenty-four rats were divided randomly into 3 groups, lapatinib group (lapatinib 25 mg/kg, n = 8), sorafenib group (sorafenib 15 mg/kg, n = 8) and co-administration group (sorafenib 15 mg/kg and lapatinib 25 mg/kg, n = 8). The concentration of lapatinib and sorafenib in rat plasma was determined by a sensitive and simple UPLC-MS-MS method. There was no statistical pharmacokinetics difference for lapatinib in the lapatinib group and co-administration group, the sorafenib could not influence the pharmacokinetic profile of lapatinib in rats. There was statistical pharmacokinetics difference for sorafenib in the sorafenib group and co-administration group, when co-oral administration lapatinib with sorafenib, MRT(0-t) increased from 10.7 to 13.3 h (p < 0.05), t 1/2 increased from 7.6 to 9.5 h (p < 0.01). These data indicate lapatinib could slightly influence the pharmacokinetic profile of sorafenib in rats, which might cause drug-drug interactions when using lapatinib with sorafenib.

KEY WORDS: Interaction, Lapatinib, Pharmacokinetic, Rat, Sorafenib.

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