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# Pharmacokinetics of ceftiofur after single intravenous and intramuscular injections in rabbits

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Ceftiofur is a broad spectrum third generation cephalosporin antibiotic developed especially for use in animals. The aim of present study is to determine the pharmacokinetics of ceftiofur and its metabolites after single intravenous (IV) and intramuscular (IM) injections at a dose of 2.2 mg/kg BW in rabbits. Six healthy, male, 7-9 months, 3.14±0.28 kg rabbits were used for the study. In pharmacokinetic study, the crossover design was performed. The withdrawal interval between the phases of the study was 15 days. Ceftiofur sodium was administered by IV bolus and IM injections at the dosage of 2.2 mg/kg BW to each rabbit. Plasma concentrations of desfuroylceftiofur were determined using the high-performance liquid chromatography. Plasma concentration–time curve of desfuroylceftiofur was best fitted to a two-compartment open model. Following IV injection, the major pharmacokinetic parameters (mean±SD) were distribution half-life (t1/2α) 0.34±0.07 h, elimination half-life (t1/2β) 2.75±0.59 h, volume of distribution at steady state (Vdss) 260±71 mL/kg, area under the plasma concentration-time curve (AUC) 20.47±1.86 µg.h/mL, total body clearance (ClT) 108±10 mL.h/kg. After IM administration, the principal pharmacokinetic parameters (mean±SD) were absorption half-life 0.09±0.03 h, peak plasma concentration 9.94±1.35 µg/mL, time to peak concentration 0.25 h, t1/2α 0.31±0.16 h, t1/2β 2.84±0.68 h, AUC 20.11±2.49 µg.h/mL. The bioavailability after IM injection was 98±4.4%. Results indicated that ceftiofur was absorbed quickly and excellent bioavailability after IM administration. Single IV and IM injections of ceftiofur at a dose of 2.2 mg/kg may be effective to maintain the minimum inhibitory concentration (MIC) upto 12h in rabbits against susceptible pathogens with MIC≤1 µg/ml.

## Biography

Kamil UNEY (PhD, Assoc. Prof.) is currently working in Faculty of Veterinary Medicine, Selcuk University, Turkey, as teaching staff and principal investigator in Department of Pharmacology and Toxicology since 2003. He graduated from Selcuk University, Faculty of Veterinary Medicine (2001). He received Pharmacology and Toxicology degree from Selcuk University, Graduate School of Health Sciences (2007). His current research projects are studies including pharmacokinetics, therapeutic drug monitoring, the development and validation of method in drug analysis and producing of quality control sera. He has also studies in the drug metabolism, transporter proteins and the use of probe drugs in animals.

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