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Pharmacokinetics and dosage regimen of ciprofloxacin following single intramuscular administration in *Nili/Ravi* Buffalos

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The present study was undertaken with the objective to determine the pharmacokinetics and optimal dosage regimen of ciprofloxacin in *Nili/Ravi* buffalos. For this purpose, the drug was administered intramuscularly at 5 mg/kg body weight in each of eight animals. Following ciprofloxacin administration, blood samples were collected at different time intervals and analyzed for ciprofloxacin using HPLC. Pharmacokinetic parameters were calculated using two compartment open model. Peak plasma concentration (C_{max}) of ciprofloxacin, 4.89 ± 0.28 µg/mL was achieved at 0.87 ± 0.03 hours (T_{max}). Values for half life of absorption ($t_{1/2}$ abs), distribution ($t_{1/2}$ α) and elimination ($t_{1/2}$ β) were 0.45 ± 0.03, 0.45 ± 0.03 and 3.05 ± 0.20 hours, respectively. The value for apparent volume of distribution (Vd) was 1.09 ± 0.06 L/kg, area under the curve (AUC) was 20.28 ± 1.13 µg.hr/mL and total body clearance (CL) was 0.25 ± 0.02 L/hr/kg. Based on these parameters, an optimal intramuscular dosage of ciprofloxacin in adult *Nili/Ravi* buffalos was calculated as 17.86 mg/kg, to be repeated after 24 hours interval. These results show that ciprofloxacin in these buffalos has the general pharmacokinetic characteristics of a typical fluoroquinolone antimicrobial agent. That is, it has distribution, clearance and half life that are similar to other studies. Based on these results, it was concluded that calculated dose was higher than the dose recommended by the manufacturer and to avoid drug residues in the meat and antimicrobial resistance, this locally investigated dosage regimen should be strictly followed in local buffalos.

Biography

Zahid Iqbal has completed his Ph.D. in 2008 at the age of 28 years from University of Agriculture, Faisalabad, Pakistan. He is working as an Associate Professor in the Department of Pharmacology, Al-Nafees Medical College, Isra University, Islamabad Campus, Islamabad, Pakistan. He has published more than 15 papers in reputed journals and serving as technical editor of Isra Medical Journal.

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