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RESEARCH ARTICLE

Comparative pharmacokinetics of three commercial preparations of 10% enrofloxacin following oral route in goats

V.K. GOND, R.K. NIRALA **AND** C. JAYACHANDRAN

ABSTRACT..... In the present investigation, a comparative pharmacokinetics study of three commercial preparations of enrofloxacin (10%) was studied in five healthy female goats @5mg/kg b.wt. The samples of plasma were collected at different time interval *i.e.* 0.042, 0.083, 0.125, 0.333, 0.5, 0.75mn and 1, 1.5, 2, 3, 4, 6, 8, 10, 12 and 24 h after oral administration of drugs. Estimation of enrofloxacin was done by HPLC method. The selected pharmacokinetics parameters were calculated using one compartment open model. The drug was present significantly at lower concentration in brand II and brand III. As compared to brand I from 0.042 to 3 h except at 1 h, the brand II was significantly lower as compared to brand I only. From 4 - 10 h the concentrations of the drug in plasma did not show any significant difference between brand I, II and III. The therapeutic concentration (0.125 µg.ml^{-1}) was maintained upto 12 h in brand I and brand III. The drug was only present in brand III at 24 h. The absorption half-life ($t_{1/2}$ Ka) of brand III was significantly higher (0.83 ± 0.18 h) as compared to brand I (0.39 ± 0.06 h), but more or less similar to brand II (0.61 ± 0.11). Higher value of $t_{1/2}$ Ka of brand III showed the slow absorption of the drug. The value of elimination half-life ($t_{1/2}$ β) of brand III (4.33 ± 0.58h) was found to be significantly higher as compared to brand I (2.94 ± 0.16) and brand II (2.47 ± 0.22 h). Mean absorption time (MAT) of brand III (2.69 ± 0.58 h) was noted to be significantly higher as compared to brand I (1.06 ± 0.38) and brand II (0.55 ± 0.32 h). Brand I (4.24 ± 0.78 µg.ml^{-1}) attained maximum concentration (C_{max}) as compare to brand II (1.66 ± 0.23 µg.ml^{-1}), but non-significantly higher as compared to brand III (2.18 ± 0.32 µg.ml^{-1}). Time to attain maximum concentration (t_{max}) of all the brands were noted to be non-significant with a mean of 1.70 ± 0.12, 1.60 ± 0.18 and 1.30 ± 0.12 h for brand I, II and III, respectively. Over all this supports its frequency of use in treating septicemia, respiratory tract, urinary tract, skin, soft tissue, bone joint infections etc. in goat and all the three brands of ENR substituted for each other.

KEY WORDS..... Pharmacokinetics, Enrofloxacin, Antibacterial, Brands, HPLC, Goats

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Author for Correspondence -

V. K. GOND
Department of Animal Husbandry and Veterinary Science, Tirhut College of Agriculture (R.A.U.) Dholi, MUZAFFARPUR (BIHAR) INDIA
Email: vijayrau2012@gmail.com

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