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Geonetic variations of Ampicillin in indigenous sheep and goat of Pakistan

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Environmental and genetic differences influence glomerular filtration rate, pH of blood and urine, biotransformation and overall biodisposition of drugs, which has been described by an original term “geonetics”. Geonetic variations in the indigenous populations appraise the need for describing the biodisposition and fate of different veterinary drugs. Pharmacokinetics and renal clearance of ampicillin in indigenous sheep and goats of Pakistan were investigated. “Lohi sheep” and “Beetle goats” were subjected to oral administration of ampicillin at the dose rate of 20 mg/kg and 10 mg/kg, respectively. Peak plasma concentrations of 0.39 ± 0.02 $\mu\text{g/ml}$ in sheep and 0.65 ± 0.05 $\mu\text{g/ml}$ in goats were achieved at 95.3 ± 5.95 min and 117 ± 11 min with an absorption half life of 45 ± 4 min and 29 ± 6 min, respectively. In sheep, the area under the plasma concentration curve ($\mu\text{g}\cdot\text{min/ml}$) was 103 ± 5 and in goat 175 ± 19 with relative bioavailability of 56% and 63%, respectively. Biological half life of ampicillin in sheep was 110 ± 3 min and 28.7 ± 5.8 min in goats, while renal clearance (ml/min/kg) was 0.32 ± 0.06 and 0.08 ± 0.01 in sheep and goat, respectively. Moreover, urinary excretion of ampicillin in sheep and goats was less than 1% of dose until 8 hrs post administration. The priming and maintenance doses in sheep, using MIC as 0.05 $\mu\text{g/ml}$, were suggested to be 8.8 mg/kg at 8 hr interval. Additionally, renal clearance, blood pH and protein have been found to be variable in their exotic counterparts. Identical geonetic variations in pharmacokinetics were recorded after administration of oxytetracycline and sulphadimidine. Thus, as a consequence of geonetic variations, the optimal therapeutic usage of imported drugs should be determined in the target species and their environments.

Keywords: Ampicillin, Pharmacokinetics, Renal clearance, Lohi sheep, Beetle goat

Sedative effects of oral ketamine in dog

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Ketamine is a noncompetitive N-methyl-D-aspartate (NMDA) receptor antagonist used recently as oral. In this study 18 dogs in different ages from Iranian cross races were selected. The animals were deprived from food 12 hours and their weights, vital signs; heart beats, breaths and temperature were recorded a little before administration. Certain amounts of ketamine were added to 100ml milk with 2.5 percent of fat and were given to them. Having received the milk containing the medicine, the dogs were individually screened in order to record the effect of the medicine on them; meanwhile the affection time and viability of the medicine were recorded too. The comparison of the vital signs for the aforementioned dogs, before and after administration of ketamine showed that oral ketamine in amounts of 50 to 75ml per kilogram weight has obvious sedative effects for the dogs.

Keywords: Oral ketamine, Sedative, N-methyl-D-aspartate receptor, Dog