



Effects of age on the pharmacokinetics of single dose sulfamethazine after intravenous administration in cattle

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RESUMEN

Sulphonamides are still being used widely, influenced by the low cost and the efficacy against many common bacterial infections, since they present a broad spectrum of activity. The aim of this study was to determine the effect of age on the pharmacokinetic/pharmacodynamics (PK/ PD) integration of intravenous sulfamethazine (60 mg/kgbw) in cattle, and the possible therapeutic outcomes. Six healthy female calves, at the age of one, three, seven and fifteen weeks were used. Normality analysis was assessed with the Shapiro-Wilk test. Non-parametric tests for paired data were used. Plasma concentrations were quantified using HPLC/uv. Differences were found between one-three-weeks-old calves and seven-fifteen-weeks-old calves, in pharmacokinetic parameters (clearance, area under the concentration-time curve and elimination half-life) and in the PK/PD integration. The ratios obtained in PK/PD integration ($T > MIC$, WAUC) confirm that it is necessary to apply twice the dose of sulfamethazine in ≥ 7 weeks-old cattle to reach a satisfactory dosage regimen ($MIC \geq 32 \mu g/mL$).

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