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Pharmacokinetics and Tissue Penetration of Ceftazidime Administered During Hysterectomy and Oophorectomy in Canine Females

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***SUMMARY*. The pharmacokinetics and tissue penetration of ceftazidime during abdominal hysterectomy and oophorectomy in canine females was determined. The study consisted in Trial 1 (T1) and Trial 2 (T2). During T1 the animals (*n* = 30) received a single dose of ceftazidime (20 mg/kg) intravenously. Blood was then drawn and tissue samples removed during time intervals. For T2, 10 animals from T1 were selected for pharmacokinetic studies. The pharmacokinetic parameters (mean ± SD) were: $t_{1/2}$ = 1.03 ± 0.33 h; AUC= 100.6 ± 46.9 μg.h/mL; V_{ss} = 343.1 ± 166.8 mL/kg; CL= 174.5 ± 50.2 mL/kg. The mean ceftazidime concentrations C_{max} (0.5-1 h) and C_{min} (2-3 h) in the tissues were: right ovary = 52.8 and 0.3; left ovary = 54.6 and 0.4; body of the uterus = 38.2 and 1.1; peritoneum = 34.5 and 4.6; subcutaneous tissue = 32.3 and 8.0 and skin = 54.6 and 1.0 μg/mL, respectively. These concentrations of ceftazidime are considered sufficient to treat most surgery-associated aerobic infections.**

RESUMEN. Se determinó la farmacocinética y la penetración tisular de ceftazidima durante la histerectomía abdominal y la ooforectomía en hembras caninas. El estudio consistió en dos ensayos (T1 y T2). Durante T1 los animales (n = 30) recibieron una única dosis de ceftazidima (20 mg/kg) por vía intravenosa. A continuación se extrajo sangre y muestras de tejido a diferentes tiempos. Para T2 se seleccionaron 10 animales de T1 para realizar los estudios farmacocinéticos. Los parámetros farmacocinéticos (media ± DE) fueron: $t_{1/2}$ = 1,03 ± 0,33 h; AUC = 100,6 ± 46,9 μg.h/mL; V_{ss} = 343,1 ± 166,8 mL/kg; CL = 174,5 ± 50,2 mL/kg. Las concentraciones de ceftazidima medias de C_{max} (0,5-1 h) y C_{min} (2-3 h) en los tejidos fueron: ovario derecho = 52,8 y 0,3; ovario izquierdo 54.6 y 0.4; cuerpo del útero = 38.2 y 1.1; peritoneo = 34.5 y 4.6; tejido subcutáneo = 32.3 y 8.0 y piel = 54.6 y 1.0 mg/mL, respectivamente. Estas concentraciones de ceftazidima se consideran suficientes para tratar la mayoría de las infecciones aerobias asociados con la cirugía.

KEY WORDS: Abdominal hysterectomy and oophorectomy, Canine females, Ceftazidime, Pharmacokinetics, Tissue penetration.

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