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COMPARATIVE CARBOPLATIN PHARMACOKINETICS IN FOUR DIFFERENT AVIAN SPECIES

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ABSTRACT

The use of chemotherapy in the treatment of avian neoplasia is largely empirical, and poorly documented. Several chemotherapeutics that are frequently used in canine and feline oncology, have been used in a small number of avian cases with encouraging results. Most of these agents were administered to birds based on mammalian dose rates, because pharmacokinetic data in birds are lacking. Important pharmacokinetic differences, however, may exist between birds and mammals, as well as between and within avian orders. The aim of this study was to describe the comparative pharmacokinetics of carboplatin in chickens (*Gallus gallus domesticus*), ducks (*Anas platyrhynchos domesticus*), pigeons (*Columba livia*) and parakeets (*Melopsittacus undulates*). Respectively 7 chickens, ducks and pigeons and 28 parakeets of one year old were used. Under general inhalation anesthesia carboplatin was administered intravenously over 3 minutes at a dose of 5mg/kg BW. Blood was withdrawn at several intervals after the start of the infusion until 24h. Plasma carboplatin concentration were determined using liquid chromatography – mass spectrometry (LC-MS/MS). Pharmacokinetic parameters like area under plasma concentration versus time curve (AUC), volume of central and peripheral compartment, distribution and elimination half-life, and systemic clearance were determined. Results showed a two compartmental model with a significant larger peripheral compartment in chickens than in ducks and pigeons ($P=0.002$). The systemic clearance was significant higher in pigeons than in chickens and ducks ($P<0.001$). The elimination half-life was significant longer in chickens than in ducks and pigeons ($P=0.006$). Carboplatin was eliminated slower in chickens compared to ducks and pigeons.

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