

Plasma and Tissue Amikacin Concentrations Following Regional Limb Perfusion of Chickens (*Gallus gallus domesticus*)

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Abstract: Intravenous regional limb perfusion (IVRLP) has been used in the treatment of pododermatitis and distal limb infections, which are significant causes of morbidity in avian species. This intravenous drug administration technique is designed to achieve high drug tissue concentrations while minimizing systemic toxic effects. Amikacin is commonly used for IVRLP in veterinary medicine, but dosing guidelines have not been established for its use in birds. The current study aimed to determine the tissue concentration of amikacin after a single IVRLP administration in healthy, euhydrated leghorn hen chickens (*Gallus gallus domesticus*). Chickens received a single IVRLP dose of 10 mg/kg amikacin and were euthanatized posttreatment at 1 hour (n = 6), 12 hours (n = 6), and 24 hours (n = 6) to assess tissue and synovial fluid concentrations of amikacin in the injected leg. Mean tissue concentrations were highest 1 hour post-IVRLP (synovial fluid = 153.0 µg/mL, metatarsal pad tissue = 26.05 µg/mL) before declining at the 12- and 24-hour time points. This indicates that administration of amikacin via IVRLP can reach minimum inhibitory concentrations of common bacterial isolates in tissues after a single treatment with 10 mg/kg amikacin. Regional limb perfusion every 24 hours is recommended, although the minimum days of treatment may be case dependent and vary based on response to therapy.