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Use of enrofloxacin hydrochloride-dihydrate (enro-c), for the treatment of acute cases of leptospirosis in dogs

Hector os sumano, Gutierrez O.L

National Autonomous University of Mexico (UNAM), Mexico.

Abstract

Fluoroquinolones are not recommended to treat canine-leptospirosis (1). However, pharmacokinetics of enrofloxacin HCl-2H2O (enro-C) in dogs and Monte-Carlo simulations against Leptospira spp. (2) prompted a clinical study to treat acute cases of leptospirosis. The disease was initially diagnosed based on clinical signs, and liver and kidneys blood parameters (3). Later, real-time PCR from blood and micro-agglutination titers (MAT ≥ 800) confirmed or dismissed each case for this study (4, 5). In all cases an early treatment was established. Patients were randomly assigned to two groups: the gold-standard control one (GSC-g) who were treated initially with high doses of amoxicillin (20 mg/kg tid, IV) for five days, followed by a 2-week course of doxycycline (22 cases); and the experimental group (enro-CEg) whose cases were treated with IM injections of a 5% aqueous enro-C suspension (10 mg/kg/day for 10 days), followed by 1-week of enro-C administered orally (34 cases). Supportive therapy with fluids, electrolytes and urinary output assessment were set for all patients. Dog ages ranged from 1 to 5 years in both groups. In GSC-g 13 cases were regarded as treatment failure (59.09%), and were treated out of this protocol. All dogs in enro-CEg were regarded as a treatment success (100%). One month later 100% negative results from real-time PCR in urine samples was observed in all dogs from the enro-CEg, while only 77.77% (7 dogs from the remaining 9 treated) of the GSC-g were PCR-negative. Within 6–24 months of clinical follow-up, no relapses were recorded in either group. Adverse effects in the enro-CRg were inconsequential while various gastrointestinal adverse events were reported in the GSC-g. Results from this trial validate the Monte Carlo simulations with enro-C that predicted good efficacy to treat canine leptospirosis. Furthermore this report ensures high clinical and bacteriological cure rate successes.

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Biography

Hector sumano is a veterinary surgeon and a certified physician graduated from the National Autonomous University of Mexico (UNAM). His PhD in pharmacology was granted by Trinity College, Dublin. He is member of The American Academy of Veterinary Pharmacology and the Academica Veterinaria Mexicana. He has devoted his professional work to research (with more than 250 indexed articles) and works as lecturer in veterinary pharmacology at UNAM. He has written various textbooks on veterinary pharmacology and among other patents in the field of veterinary pharmacology, he patented the re-crystalized solvate enrofloxacin HCl-2H2O (enro-C) in favor of their workplace (Patent: 472715 [Mexico/Instituto Mexicano de Protección Industrial: IMPI MX/a/2013/014605 and PCT/Mx/2014/00192, Mexico City).

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