Cairo University
Faculty of Veterinary Medicine
Department of Pharmacology

Pharmacokinetics of cefquinome in normal and diseased camels

A thesis presented

By

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(B.V.Sc. Cairo University, 1990)

For

The Degree of M.V.Sc.

(Veterinary Pharmacology)

Under Supervision of

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Final Decision of Judgment Committee

After reviewing the thesis presented by veterinarian/ **Ayman Yousry Ali El-Hadaky** for Master Degree in Veterinary Medical Sciences (Pharmacology).
The Judgment Committee decided to accept the presented thesis in the field of Veterinary Pharmacology.

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ABSTRACT

The aim of this work is to evaluate the pharmacokinetics of cefquinome in camels and to compare its pharmacokinetics in apparently healthy and *Trypanosoma evansi* infected camels. A single dose of cefquinome was administered intravenously and intramuscularly at 1 mg/kg to two groups of camels with a 30 days washout period in-between. Group (1) included five normal she-camels and Group (2): included five *Trypanosoma evansi* naturally infected she-camels. Plasma concentrations of cefquinome were determined by HPLC-MS/MS assay. Cefquinome concentration vs. time data after IV and IM was best fitted to a two-compartment open model in normal and infected camels. Cefquinome mean values of area under concentration–time curve (AUC) were 15.37±1.06 µg/ml.h for IV dose and 12.85±2.15 µg/ml.h for IM dose. Distribution half-lives and elimination half-lives after IV dose were 0.14±0.04 h and 3.15±0.22 h and 1.42±0.11 h and 6.68±0.87 h for IM dose. The values of total body clearance (Cl_{tot}) and volume of distribution at steady state (V_{ss}) were 0.07±0 L/kg/h and 0.27±0.02 l/kg, respectively following intravenous injection. Following a single intramuscular injection of 1 mg cefquinome /kg.b.wt. in normal camels, The pharmacokinetics parameter revealed that the maximum serum concentration (C_{max}) was 3.2±0.39 µg/ml reached at maximum time (T_{max}) at about 0.82±0.06 h, the absorption half-life [$t_{1/2ab}$] was 0.26±0.03 hours, the elimination half-life $t_{1/2\beta}$ was 6.68±0.87hours and bioavailability of 85.52±11.09 %. The present study recommended that the intravenous and intramuscular injection of cefquinome is effective against, *Streptococcus* spp., *staphylococci, Klebsiella* spp., *Pasteurella* spp., *Salmonella* spp., enteric and systemic *Escherichia coli.* at a dose rate of 1mg/kg twice daily for the normal and the naturally infected camels with *Trypanosoma evansi*, which did not suffer from fever or parasitaemia.

Keywords: Cefquinome – Pharmacokinetics – *Trypanosoma* - LC-MS/MS – camels

Dedicated to

My parents

My wife

My daughters & My sons

Who

Shared the responsibility of bringing me

up to be grateful

And

To all those who taught me

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