Pharmacokinetics of oxamniquine in rabbit and rat

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Abstract:

The pharmacokinetics of the schistosomicidal agent oxamniquine (6-hydroxmethyl-2-isopropylaminomethyl-7-nitro-1,2,3,4-tetra hydroquinoline) were studied in 8 (4 male, 4 female) New Zealand White rabbits and 5 female Wistar rats, following intravenous administration (15 mg/kg). The pharmacokinetic parameters (mean +/- SD) in the rabbit and rat, respectively, were as follows: plasma clearance, 65.5 +/- 33 and 17.2 +/- 5.7 ml/min/kg; steady-state volume of distribution, 7.9 +/- 4.5 and 2.1 +/- 0.5 l/kg; terminal elimination half-life, 1.8 +/- 0.3 and 1.8 +/- 0.9 h. Oxamniquine appeared to be widely distributed in both species, although significantly higher in the rabbit. Similarly, plasma clearance was significantly higher in the rabbit. Using reported estimates of liver blood flow and fractions excreted unchanged in urine of the rabbit and rat, calculations based on blood clearances indicated that oxamniquine has a low hepatic extraction ratio (0.2) in the rat and an intermediate hepatic extraction ratio (0.6) in the rabbit. From separate experiments, however, hepatic extraction appeared to be low in the rabbit, suggesting that oxamniquine disposition is probably broadly similar in both rabbit and rat