TOLERANCE AND PHARMACOKINETICS OF CATOSAL® AFTER SINGLE INTRAVENOUS AND INTRAMUSCULAR INJECTIONS IN CATTLE

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Objective: The aim of the present investigation was to assess the tolerance and pharmacokinetics of Catosal® in cattle following single intravenous (i.v.) and intramuscular (i.m.) injection.

Material and methods: To study tolerance, Catosal® was administered to young healthy cows at three different dosages (0.05., 0.15, and 0.25 ml/kg body weight), corresponding to 1X, 3X and 5X of the commonly recommended dosage of the product in cattle. Group size was N=4 for i.v. and N=6 for i.m. injection, respectively. The animals were observed for symptoms of adverse effects both systemically and at the local injection site until at least 24 hours after administration. In the study investigating the effects of i.v. injection, the daily individual milk volume was also quantified. The pharmacokinetics of Catosal® (0.05 ml/kg) were studied in 12 heifers in a cross-over design with a wash-out period of 49 days between the two treatments (i.v. or i.m., respectively). Blood was repeatedly sampled over a period of 48 hours after each administration. Serum levels of the active ingredients butafosfan and cyanocobalamin were analyzed by HPLC with tandem mass spectrometric detection and a chemoluminescence immunoassay, respectively. From the individual concentration-time profiles obtained, standard pharmacokinetic parameters were calculated using non-compartmental methods. Absolute bioavailability was calculated based on AUCinf.

Results: Catosal® was well tolerated at all dosages tested by either route of administration. Milk yield was dose-dependently increased by Catosal® treatment, and this effect was statistically confirmed at the dose of 0.25 ml/kg. Absorption into blood was fast and efficient with a bioavailability of 98% for butafosfan and 79% for cyanocobalamin, respectively, after i.m. injection of Catosal®. Within 24 hours after administration, blood levels of both ingredients reached the lower limit of quantitation.

Conclusion: It is concluded that Catosal® at the standard recommended dosage of 0.05 ml/kg and 5 times thereof is safe and well tolerated after i.v. or i.m. injection to cattle. The active ingredients are highly bioavailable upon i.m. injection and show similar pharmacokinetics upon either way of administration.