SUMMARY

Comparative Plasma Dispositions of Tepoxalin, Meloxicam and Carprofen Following Oral Administration in Dogs

The aim of this study was to determine and compare the pharmacokinetic profiles of tepoxalin, meloxicam and carprofen after oral administration in dogs at doses of 10 mg/kg, 0.2 mg/kg and 2 mg/kg bodyweight, respectively.

A total of 18 cross-bred healthy dogs, 2-5 years old and weighing 15–20 kg was used in the study. The animals were allocated into three groups of six such that the mean weight of animals in each group was similar. In Group I tepoxalin (TPX) was given orally at a dose rate of 10mg/kg , in Group II meloxicam (MLX) was given orally at a dose rate of 0.2 mg/kg and in Group III carprofen (CRP) was given orally at a dose rate of 2 mg/kg. Heparinized blood samples (5ml) were collected from *vena cephalica antebrachii* one day prior to drug administration then at 1, 2, 3, 4, 5, 6, 7, 8, 10, 12, 16, 24, 32, 40, 48, 56, 72 and 96 hours post-treatment.

No adverse response was observed for any of the treatments during the study. TPX, MLX and CRP were detected in plasma between 1 h and 96 h, with acid metabolite of tepoxalin was detected 1 h and 16 h after oral administration.

The results indicated that CRP produced a significantly higher maximum plasma concentration (C_{max}:13.10±3.36 µg/ml) with rapidly absorption (t_{max}: 2.20±0.45 h) and larger area under the concentration vs. time curve (AUC: 337.34±152.59 µg.s/ml) as compared with MLX (C_{max}: 0.39±0.13 µg/ml, t_{max}: 5.00±1.41 h, AUC: 17.99±4.97 µg.s/ml) and TPX (C_{max}: 13.10±3.36 µg/ml, t_{max}: 4.00±2.97 h, AUC: 16.98±12.51 µg.s/ml) following oral administration of each drugs. In the group that meloxicam was given, the mean residence time (MRT) (MRT: 25.64±12.21 h for TPX; MRT: 56.03±13.62 h for MLX; MRT: 25.35±10.15 h

for CRP) and the half life ($t_{1/2\lambda z}$) was significantly longer ($t_{1/2\lambda z}$:19.77±9.9 h for TPX; $t_{1/2\lambda z}$: 37.91± 9.15 h for MLX; $t_{1/2\lambda z}$: 17.02±6.95 h for CRP).

In this study, regarding tepoxalin, meloxicam and carprofen, three of nonsteroidal antiinflammatory with common usages in dogs at recommended therapeutic doses, with oral administration were compared in pharmacokinetical parameters and as a result, carprofen was found significantly the highest in rate to reach the maximum concentration in plasma.

Key words; Tepoxalin, Meloxicam, Carprofen, Pharmacokinetics, Dog