Guleng Amu, J Vet Sci Technol 2017, 8:4(Suppl)
DOI: 10.4172/2157-7579-C1-024

Guleng Amu

Inner Mongolia Agricultural University, China

Pharmacokinetics of specific probe drugs of CYP1A enzyme: The acetaminophen in Bactrian camels

Acetaminophen is a medication used to treat pain and fever, also is a specific probe substrate of CYP1A enzyme. The pharmacokinetic characteristics of Acetaminophen in Bactrian camels were studied in this paper. The experimental Bactrian camels were randomly divided into two groups: group probe drug only and group enzyme inhibitor plus probe drug, respectively. A crossover design was carried out in two experimental periods following 15 days of drug clearance period. Acetaminophen was intramuscularly injected to 6 female camels by 4 mg/kg in group probe drug only, and equal number of female camels was intramuscularly administered by 4 mg/kg of Acetaminophen following 4 consecutive days of intramuscular administration of lomefloxacin by 0.4 mg/kg in group enzyme inhibitor plus probe drug. And then the blood samples were collected at different time intervals after administration of Acetaminophen, and the plasma was separated by centrifugation. The plasma concentration of Acetaminophen was determined by high-performance liquid chromatography (HPLC) after the samples' protein was precipitated by methanol directly, and the pharmacokinetic parameters of Acetaminophen were calculated by WinNonLin 7.0. The pharmacokinetic parameters of Acetaminophen in group probe drug only and in group enzyme inhibitor plus probe drug were as follow: the elimination half-life (T1/2) was 7.34±0.57 h and 8.98±0.31 h, the time to peak concentration (T_{max}) was 1.70±0.51 h and 0.833±0.31 h, the maximum plasma concentration of (C_{max}) was 1.27±0.83 μg/mL and 1.53±0.46 μg/mL, the area under the curve (AUC_{0-t}) was 7.60±0.45 μg•h/mL and 10.71±0.25 μg•h/mL, the apparent volume of distribution (V_d) was 3787.81±236.37 mL/kg and 2885.98 ±73.11 mL/kg, the clearance (CL) was 359.35±33.49 mL/h/kg and 222.75±8.79 mL/h/kg, and the mean residence time (MRT)was 10.35±0.84 h and 13.04±0.55 h, respectively. Therefore, the Acetaminophen was rapidly absorbed and slowly eliminated by Bactrian camel, and the Bactrian camels' CYP1A enzyme was significantly inhibited by lomefloxacin which can increase the $T_{1/2}$, C_{max}, AUC and MRT of Acetaminophen and reduce the T_{max} of Acetaminophen in Bactrian camel of China.

Biography

Guleng Amu is currently working as a Professor in College of Science, Inner Mongolia Agricultural University. Her research interests are mainly focused on Biomedical Engineering and Biological Physics.

amoolg@163.com

Notes: