Paper ID: 24443
student

SPACE LIFE SCIENCES SYMPOSIUM (A1)
Poster Session (P)

Author: Ms. Lin Gan
China

Dr. Bo Chen
National Space Science Center, Chinese Academy of Sciences, China
Dr. Yujuan Li
China
Dr. Xiaoqiong Li
China
Prof. Fengyuan Zhuang
Beihang University, China
Prof.Dr. Yulin Deng
China

THE PHARMACOKINETIC STUDIES OF PROMETHAZINE IN RATS PLASMA UNDER THE SIMULATED MICROGRAVITY CONDITION

Abstract

Promethazine Hydrochloride (PH) is a kind of medicines used to deal with space motion sickness (SMS) by National Aeronautics and Space Administration (NASA) during manned flight in 1988. Microgravity may affect the change process such as absorption, distribution, metabolism and excretion of the drug inside the organism, which may lead to changes in the efficacy of astronauts in the space environment, and even produce toxic side effects. This paper aimed at to compare pharmacokinetics (PK) of PH in rats plasma after intramuscular administration between normal and different tail-suspended cycles. PH in rat plasma was determined by the fully-validated HPLC-MS method with Loratadine as internal standard and subjected to pharmacokinetics analysis. There were two peaks in stimulated microgravity. The parameters of rats which were tail-suspended for 3 days and 7 days were significantly decreased to those of normal group AUC0-t 662.9 8.3 μg / L • h and Cmax 486.9 8.5 μg / L. This was indicating a significant reduction in short-term simulated weightlessness rats by intramuscular injection of promethazine absorption in the body. The tail suspension significantly decreased the Vd and Cl while increased Ke a little. Tmax was delayed 0.08h. The apparent volume of distribution Vd were elevated 12.95 times and 3.97 times separately than that of normal group's 28.0 0.04 L / kg. And the clearance rate Cl were extended to 8.57 times and 3.36 times of the control group 3.6 0.3 1/h/kg, indicating that the clearance rate was slowed down after intramuscular injection of promethazine after short-term simulated weightlessness cycles.The parameters of rats tail-suspended for 21days were not shown clear pharmacokinetic trend.