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EFFECT OF SIMULATED MICROGRAVITY ON HEPATIC CYP2C11 IN RATS

Abstract

To provide basic research data for understanding changes of metabolic enzymes, the present study investigates the effect of simulated microgravity on hepatic CYP2C11 in rats. After the rats are tail suspended for 3, 7, 14 and 21 days, the protein expression, mRNA expression and the CYP2C11 activity are detected by western-blot, Q-PCR and HPLC-UV methods. Compared with the control group, the expression of CYP2C11 protein was increased in the 3d tail suspended (TS, 24.3%), 7d (76.9%, $p < 0.05$) and 14d (35.0%) TS rats. But CYP2C11 protein expression was slightly down-regulated with 7.45% in 21d TS rats.

The mRNA expression and activity of CYP2C11 increase significantly ($p<0.05$) in 3d and 7d TS rats compared with the control group. The 14d simulated group did not show significant effect on the mRNA expression of CYP2C11. However, CYP2C11 mRNA expression and activity was slightly decreased in 21d TS rats. This study provides basic research data for understanding changes of metabolic enzymes and might provide useful information for safety of drug use for astronauts under the microgravity condition.