

The effect of heat stress on the induced hepatic drug metabolizing system in rats.

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Abstract

The activity of the hepatic oxidative drug metabolizing system has been investigated in an experimentally-induced heat stress animal model pretreated with phenobarbitone. Female rats, unacclimatized and untrained were pretreated for 3 days with phenobarbitone as the inducing agent for the drug metabolizing systems. On the fourth day, they were restrained and exposed to an ambient temperature of 40 degrees C. One hour after acute exposures to such conditions, the activities of hepatic cytochrome P450, cytochrome b5 and NADPH cytochrome c reductase were significantly decreased in the induced animal model. Further, cytochrome P450 isozymes observed by SDS-gel electrophoresis were significantly decreased. In addition, the hypnotic effect of pentobarbitone was significantly increased. It is concluded that the activity of the hepatic oxidative drug metabolizing enzymes was decreased in induced drug metabolism systems exposed to heat stress conditions