

DP-020

EFFECT OF ACETAMINOPHEN ON PROGRESSION OF RENAL DAMAGE IN ADENINE-INDUCED RENAL FAILURE MODEL RAT

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ABSTRACT

Acetaminophen is known as a safety antipyretic and analgesic drug within clinically-recommended dosage, whereas acetaminophen overdose causes fatal and nonfatal liver or renal damage. Most of the nonsteroidal anti-inflammatory drug acts to control of pain reduces prostaglandin by inhibition of cyclooxygenase and exerts reduction of renal blood flow as well as analgesic effects. Therefore, nonsteroidal anti-inflammatory drug such as indomethacin is of particular concern for chronic kidney disease patients. To evaluate whether acetaminophen effects progression of renal failure, we examined the effects of oral administration of acetaminophen (150 mg/kg or 750 mg/kg) or indomethacin (5 mg/kg) for 4 weeks on renal function and oxidative stress in adenine-induced chronic renal failure model rats. Plasma concentrations of acetaminophen and metabolites were also measured during the treatment periods. The indomethacin administration was significantly decreased survival of the model rats. Whereas, both low dose (150 mg/kg) and high dose (750 mg/kg) acetaminophen groups indicated improved survival rate compared with indomethacin group. Progression of renal failure attenuated with acetaminophen 750 mg/kg after administration for 2 weeks, and maintained for 4 weeks. While, acetaminophen administration did not affect with liver function. Furthermore, acetaminophen metabolites were accumulated in plasma. Glutathione concentration in plasma was significantly recovered by acetaminophen administration. In conclusion, acetaminophen has no effect on the progression of renal damage, in part via its antioxidant effects, in adenine-induced renal failure model rat, indicating that acetaminophen might be good tolerability in chronic kidney disease patients.

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