

근색소뇨성 급성 신부전에 노출된 쥐에서 N-아세틸시스테인의 신손상 감소효과

경상대학교병원 내과학교실¹, 임상의학연구소², 푸른내과의원³

김동욱¹ · 김진현² · 박동준¹ · 정명희² · 김현정¹ · 양종일³ · 장세호¹

N-acetylcysteine Attenuates Renal Injury in Rats Subjected to Myoglobinuric Acute Renal Failure

Dong Wook Kim¹, Jin Hyun Kim², Dong Jun Park¹, Myeong Hee Jung²
Hyun-Jung Kim¹, Jung-Il Yang³ and Se-Ho Chang¹

Department of Internal Medicine¹ Gyeongsang National University Hospital
Clinical Research Institute², Pu-run Meidical Clinic³

N- acetylcysteine (NAC) is a cysteine analog with free radical scavenging activity that is gaining use as a chemoprotective agent in animals and human trials. High dose of NAC are protective even when administered significantly before or after chemotherapy. However, no data are available regarding whether NAC acts in rhabdomyolysis. Rhabdomyolysis- induced myoglobinuric acute renal failure (ARF) accounts for about 10- 40% of all cases of ARF. We investigated NAC would ameliorate the renal damage caused by rhabdomyolysis. Male Sprague-Dawley rats received saline, NAC (150 mg/kg, i.v.), hypertonic glycerol (50 %, 8 mL/kg, i.m.) and pretreated with NAC before 30 min and hypertonic glycerol. Blood and kidney tissue were collected 24 h later to measure renal function, histological changes, and protein expression. Glycerol treatment caused severe ARF: a marked renal oxidative stress, significantly increased CK activity, urea and creatinine levels. Histopathological findings confirmed that there was renal impairment by cast formation and tubular necrosis in the tubular epithelium. The expression levels of MAPK and apoptotic factors were increased as well as functional and morphological changes in glycerol- treated group. All these factors were significantly improved by NAC pretreatment. The current results showed NAC protects against renal functional, biochemical and morphological damage caused by rhabdomyolysis in the rat. The protective effect of NAC may provide a new insight into the treatment of rhabdomyolysis- associated ARF.

Key Words : N- 아세틸시스테인, 횡문근 용해증, 신기능
N- acetylcysteine, rhabdomyolysis, renal function