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# 일측신적출 쥐의 아드리아마이신 신증에서 저염 섭취의 신장기능 보호효과

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# Renoprotective Effects of Dietary Salt Restriction on Adriamycin Nephrosis in Uninephrectomized Rats

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**Purpose:** Adriamycin (ADR) induces severe nonselective glomerular proteinuria in rats, and proteinuria may have a role in tubulointerstitial fibrogenesis. Although high salt intake is believed to hasten progression of chronic kidney disease, whether low salt intake may relieve proteinuria-mediated tubulointerstitial injury is not clear. This study was undertaken to test the hypothesis that tubulointerstitial fibrogenesis may be modulated by dietary salt restriction in a rat model of adriamycin nephrosis.

**Methods:** Male Sragueㆍ-Dawley rats were uninephrectomized (right side) and were randomly divided into normal-salt controls (n=5), normal-salt ADR (ADR-NS, n=7), and low-salt ADR (ADR-LS, n=8). ADR was intravenously given into the femoral vein as a single bolus (7.5 mg/kg BW). The animal experiment was continued for 6 weeks, and then kidneys were harvested for histopathologic examination.

**Results:** Remarkable proteinuria was induced by ADR administration, but it was not affected by dietary salt restriction at the end of the animal experiment (ADR-NS, 244±22 mg/d/100 g BW vs. ADR-LS, 243±23 mg/d/100 g BW). Blood pressure was not significantly different between the groups although urine sodium was significantly low in ADR-LS (55±7 mmol/d/100 g BW, $p<0.005$) compared with ADR-LS (401±57 mmol/d/100 g BW) and controls (397±21 mmol/d/100 g BW). Compared with controls (0.31±0.01 mg/dL), serum creatinine was remarkably elevated in ADR-NS (3.33±0.83 mg/dL, $p<0.01$) and significantly reversed in ADR-LS (1.68±0.66 mg/dL, $p<0.05$). In kidneys, interstitial fibrosis area estimated by Masson trichrome staining showed the similar changes; compared with controls (1.6±0.1 %area), it was remarkably increased in ADR-NS (18.1±0.9 %area, $p<0.01$) and significantly reduced in ADR-LS (9.1±0.9 %area, $p<0.005$).

**Conclusions:** In uninephrectomized rats with adriamycin nephrosis, renal function and interstitial fibrosis may be improved by dietary salt restriction. Because these results were not associated with changes in proteinuria and blood pressure, mechanisms involving salt-mediated direct tissue injury need to be explored.

**Key Words:** 섬유화, 저염, 단백뇨
Fibrosis, Salt, Proteinuria