# 실험적 당뇨병성 신병증에서 colchicine의 세포외 기질축적과 염증세포 침윤 억제효과

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# Colchicine Attenuates Extracellular Matrix Accumulation and Inflammatory Cells Infiltration in Experimental Diabetic Nephropathy

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**Background** : The molecular and cellular mechanisms responsible for diabetic nephropathy (DN) remain incompletely resolved. Even though the diabetic milieu perse, hemodynamic changes, and local growth factors such as angiotensin II are considered to be mediators in the pathogenesis of DN, recent studies suggest that an inflammatory mechanism may also contribute to the pathogenesis of DN. Colchicine, a drug used for acute gouty pain, has been reported to prevent renal fibrosis in various renal disease, including chronic pyelonephritis, experimental glomerulonephritis, and cyclosporine nephrotoxicity via anti-inflammatory mechanism, but the effect of colchicines on DN has never been explored. This study was undertaken to elucidate the effect of colchicine on inflammation and extracellular matrix (ECM) accumulation in experimental diabetic nephropathy.

**Methods** : Thirty-two Sprague-Dawley rats were injected with diluent (C, n=16) or STZ intraperitoneally (DM, n=16). Eight rats from each group were treated with colchicines (10 mg/kg/day) by gavage for 12 weeks (C+Col, DM+Col). At the time of sacrifice, 24-hour urinary albumin excretion was determined by ELISA. Renal fibronectin and MCP-1 mRNA expression were determined by real-time PCR, and their protein expression by Western blot and immunohistochemistry (IHC). In addition, inflammatory cell infiltration was also confirmed by IHC using anti-ED-1 antibody.

**Results** : Compared to C group, 24-hour urinary albumin excretion was significantly increased in DM group, and the increase in albuminuria was significantly inhibited by colchicine treatment (C, 0.38±0.06; DM, 1.89±0.20; DM+Col, 0.51±0.10 mg/day, $p<0.05$). Renal fibronectin mRNA and protein expression were increased by 87% and 118%, respectively, in DM compared to C rats ($p<0.05$), and colchicine administration significantly ameliorated the increased in fibronectin expression in DM rats ($p<0.05$). IHC staining also revealed that fibronectin and MCP-1 protein expression and ED-1 (+) cells were significantly increased in DM relative to C rats, and their increases were significantly inhibited by colchicines treatment. In addition, there was a significant positive correlation between fibronectin mRNA expression and the number of ED-1 (+) cells ($p<0.05$).

**Conclusion** : It suggests that colchicine has beneficial effect on DN by attenuating ECM accumulation via anti-inflammatory mechanism.