

streptozotocin으로 유도되는 당뇨병성 신증 모델에서 ethyl pyruvate의 신보호 효과

서울대학교 병원 신장내과

주경돈, 오국환, 신은경, 조은진

The Reno-Protective Effect of Ethyl Pyruvate in Streptozotocin-Induced Diabetic Nephropathy Model

Kyung Don Ju, Kook Hwan Oh, Eun Kyoung Shin, Eun Jin Cho

Division of Nephrology Department of Internal Medicine Seoul National University

Pyruvate is an endogenous anti-oxidant and anti-inflammatory substance. The present study was implemented to investigate the protective effect of ethyl pyruvate (EP) against the development and progression of diabetic nephropathy in an in-vitro and in-vivo model. Rat mesangial cells cultured primarily from S-D rat were treated in high glucose(HG, 50mM) and normal glucose (NG, 5 mM) conditions. HG increased mRNA and protein expression of MCP-1, TGF- β 1, fibronectin and type IV collagen in a time dependent manner. EP decreased the mRNA and protein level of MCP-1, TGF- β 1, fibronectin and type IV collagen in a dose dependent manner. Diabetic rats were prepared by injecting streptozotocin (STZ, 65mg/kg) intraperitoneally. Those that developed diabetes after 48 h were treated with EP. Diabetic rats without EP treatment and nondiabetic rats were used for control. EP-treated diabetic rats exhibited decreased proteinuria and serum creatinine and reduced type IV collagen deposition in the glomeruli compared with nontreated diabetic rat. Parallel changes were shown in the tissue expression level of MCP-1, TGF- β 1, fibronectin and type IV collagen in the kidney. Our findings suggest that EP protects against kidney injury in the diabetic animal model.

Key Words: 당뇨병성 신증, 단백뇨

Diabetic nephropathy, Proteinuria