일측 요관 폐쇄 백서에서 Rosiglitazone이 산화질소 합성효소 발현에 미치는 영향

전남대학교 의과대학 내과학교실[1], 생리학교실[2]

박정우[1] · 배우균[1] · 배은희[1] · 마성권[1] · 김남호[1] · 최기철[1] · 이종은[2] · 김수완[1]

Rosiglitazone Improves the Renal Expression of Endothelial Nitric Oxide Synthase in Rats with Unilateral Ureteral Obstruction

Jeong Woo Park[1], Woo Kyun Bae[1], Eun Hui Bae[1], Seong Kwon Ma[1]
Nam Ho Kim[1], Ki Chul Choi[1], JongUn Lee[2], Soo Wan Kim[1]

Departments of Internal Medicine[1] and Physiology[2], Chonnam National University Medical School, Gwangju, Korea

Background : Prolonged ureteral obstruction results in progressive renal damage associated with renal tubular dysfunction, in which an altered regulation of local nitricoxide (NO) system play an important role. Recently, it has been demonstrated that rosiglitazone (RGZ) exerts renoprotective effects in some animal models, which may in part be related to the improvement of renal endothelial function and NO bioavailability. However, the underlying molecular mechanisms are largely undefined. The present study was designed to investigate the effect of RGZ on the local NO system in rats with unilateral ureteral obstruction (UUO).

Methods : Male Sprague-Dawley rats were unilaterally obstructed of left proximal ureters by ligation for 14 days. RGZ was treated by RGZ (10 mg/kg/day) mixed with ground chow for 14 days after UUO. The renal expression of endothelial nitric oxide synthase (eNOS), inducible NOS (iNOS) and neuronal NOS (nNOS) was determined by Western blot analysis. The contents of nitrite/nitrate (NOx) were measured in urine by a colorimetric NO assay kit.

Results : In the obstructed kidney the protein expression of eNOS and nNOS was decreased in the inner medulla, but remained unchanged in the cortex and outer medulla. The protein expression of iNOS was significantly increased in the cortex, outer medulla and inner medulla in the obstructed kidney. The treatment of RGZ ameliorated the expression of eNOS, but not that of iNOS and nNOS. The urinary excretion of NOx did not differ among the groups.

Conclusion : RGZ improves the eNOS expression in the obstructed kidney, which may at least in part play a beneficial role through an improvement of NO bioavailability.