P-49

Effects of Rosiglitazone on Heat Shock Protein and Endothelin System in DOCA-salt Hypertensive Rats

전남대학교 의과대학 내과학교실 및 생리학교실

배은희 · 김인진 · 박정우 · 마성권 · 최기철 · 이종은 · 김수완

Effects of Rosiglitazone on Heat Shock Protein and Endothelin System in DOCA-salt Hypertensive Rats

Eun Hui Bae, In Jin Kim, Jeong Woo Park, Seong Kwon Ma, Ki Chul Choi, JongUn Lee and Soo Wan Kim

Departments of Internal Medicine and Physiology; Chonnam National University Medical School

Background : Rosiglitazone (RGZ), a peroxisome proliferator- activated subtype gamma receptor agonist, has been shown to attenuate the release of endothelin- 1 (ET- 1) and decreases protein expression of HSP60 in vascular endothelial cells, which may have beneficial vascular effects. The blood pressure lowering effects of RGZ may be associated with the changes of HSP and ET system in the vasculature and kidney. We investigated the effects of RGZ on the expression of heat shock proteins (HSP) and ET- 1 in the heart, aorta and kidney in DOCA- salt hypertension.

Methods : Male Sprague- Dawley rats (180- 200g) were used. One week after left unilateral nephrectomy, they were subcutaneously implanted with silastic DOCA (200 mg/kg) strips. Physiologic saline was supplied as a drinking water. Two weeks after the implantation, DOCA- salt rats were randomly divided into two groups. Either to receive rosiglitazone (RGT, 10 mg/kg/day) or not for another 2 weeks. Systolic blood pressure was measured by tail cuff method. The mRNA expression of ET- 1 in the kidney and aorta was determined by real time PCR. The expression of HSP was determined in the heart and kidney by semiquantitative immunoblotting.

Results : In DOCA- salt hypertensive rats, creatinine clearance was decreased. RGT treatment decreased the blood pressure and improved the creatinine clearance. The mRNA expression of ET- 1 was increased in the aorta and kidney from DOCA- salt rats, which was counteracted by RGT treatment. The protein expression of HSP70, HSP32 and HSP25 was increased in the kidney and heart in DOCA/salt rats, which was attenuated by RGT treatment in the kidney, but not in the heart.

Conclusion : Increased expression of ET- 1 in aorta and kidney may play a role in the pathogenesis of hypertension in DOCA- salt rats. The up- regulation of HSP 70, HSP32 and HSP25 in the kidney and heart may play a role to protect against the variety of tissue stresses.

Key Words : Rosiglitazone, HSP, Endothelin
Rosiglitazone, Heat shock protein, endothelin- 1