Phosphodiesterase 5 inhibitor is effective both CKD and nephrotic syndrome models by protecting glomerular filtration barrier.

Tomita Natsumi[1], Yuji Hotta[1], Aya Naiki-Ito[2], Mayu Yoshikawa[1], Tomoya Kataoka[3], Satoru Takahashi[2], Kazunori Kimura[1,3]

[1]Dept. Hospital Pharm., Grad. Sch. Pharm., Nagoya City Univ., [2]Dept. Experimental Pathol. Tumor Biol., Grad. Sch. Med., Nagoya City Univ., [3]Dept. Clinical Pharm., Grad. Sch. Med., Nagoya City Univ.

Objective. Phosphodiesterase (PDE) 5 inhibitor is reported to have renoprotective effects, however, its mechanisms are unknown. In this study, we investigated the effects of a PDE5 inhibitor, tadalafil, on two renal dysfunction model. ***Materials and Methods.*** **1. CKD model.** We used Dahl salt-sensitive rats, which cause hypertension and CKD by high salt diet. They were divided into 4 groups, normal salt, high salt, tadalafil 1 mg/kg and 10 mg/kg treatment. **2. Nephrotic syndrome model.** Adriamycin(ADR) induced nephrotic model was used. We divided into 3 groups, control, ADR, and ADR+tadalafil 10 mg/kg. We evaluated kidney function and tissues in both models. ***Results.*** **1. CKD model.** High salt induced renal dysfunction and hypertension. Tadalafil 10 mg/kg treatment prevented renal dysfunction and hypertension. Tadalafil 1 mg/kg treatment also prevented kidney dysfunction, but not hypertension. Histopathological analysis revealed that tadalafil treatment attenuated glomerular injury. **2. Nephrotic syndrome model.** ADR injection induced high urinary protein. Two and 4 weeks of tadalafil treatment attenuated proteinuria. ***Conclusion.*** This study suggested that tadalafil is effective both CKD and nephrotic syndrome.