

Differential Tubular Damages in the outer Medulla in Renal Ischemia-Reperfusion Injury

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Renal ischemic injury induces tubular damages particularly in outer medulla. In the outer medulla, the S3 segment of the proximal tubule and thick ascending limb, and collecting duct are located. The purpose of this study was to examine whether the ischemic injury affect the same degrees of damage in all tubular profiles in the outer medulla. Renal ischemia- reperfusion injury was induced by clamping both renal pedicles for 30 min and animal were sacrificed at 6hr after the reperfusion. Aquaporin 1, Bumetabinde- sensitive Na⁺/K⁺/2Cl⁻ cotransporter, H⁺_ATPase and Aquaporin 2 antibodies were used to identify proximal tubule, thick ascending limb, and collecting duct respectively. In the kidney with ischemia- reperfusion injury, both proximal tubule and collecting duct cells were detached from basement membrane and were extruded into tubule lumen.

Interestingly, the collecting duct damage was specific to intercalated cells but not principal cells. There was no detectable damages in the thick ascending limb. The results demonstrate that ischemia- reperfusion injury induces different degrees of damage in the proximal tubule, thick ascending limb, and collecting duct in the outer medulla.

Key Words : 허혈- 재관류 손상

Ischemia- reperfusion injury, Outer medulla damage