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Transient Unilateral Renal Ischemia/reperfusion Induces Alteration in the Contralateral Kidney

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Unilateral ischemia induces alterations of the contralateral kidneys. However, detailed alterations are poorly understood. We investigated morphologic and biochemical changes in the contralateral kidney after unilateral renal ischemia in mice. Mice were subjected to 30 min of unilateral renal ischemia and kidneys were harvested at 3 and 9 days after the ischemia. Ischemia increased kidney weight in the contralateral kidney. After ischemia the medial thickness of the cortical artery in the contralateral kidney significantly increased overtime. In the contralateral kidney cell proliferation occurred as reflected by the increases of BrdU- incorporation. BrdU-positive cells expressed most of the podocytes in the contralateral kidney. There was capillary ballooning of glomeruli, glomerular capillary adhesion to Bowman's capsule, mesangial cell proliferation, obliteration of Bowman's space, and loss of glomerular capillary in the contralateral kidneys after ischemia. Phosphorylation of ERK and JNK was elevated in the contralateral kidney after ischemia/reperfusion. These results indicate that unilateral renal ischemia induces the morphologic and biochemical changes of the contralateral kidneys.

Key Words : 단측성 허혈/재관류, 세포재생
Unilateral ischemia/reperfusion, Cell proliferation