ABSTRACT

Upregulation of Endothelin Converting Enzyme-1 correlates with Tubular Injury and Kallikrein Reduction in Kidney Fibrosis Model in Mice

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BACKGROUND: *Chronic Kidney Disease (CKD)* become one of the highest burden of disease in the world. Kidney fibrosis becomes the hallmark of CKD. Endothelin-1(ET-1) and Endothelin Converting Enzyme-1(ECE-1) may play role in kidney fibrosis. Some research observing ET-1 showing beneficial effect for slowing kidney injury progress; but the ECE-1 as the converter enzyme of ET-1 has not been studied yet.
PURPOSE: to elucidate the corelation between Endothelin Converting Enzyme-1 expression, Tubular Injury and Kallikrein expression.
METHOD: We performed Unilateral Uretheral Obstruction(UUO) in male background Swiss mice to induce kidney fibrosis. Sham operation was performed to control group (SO) (n=5). Mices were sacrificed in day 7 (D7UUO; n=5) and day 14 (D14UUO; n=5) after operation. Tubular injury score was quantified based on Periodic Acid Schiff (PAS) staining. We performed reverse transcriptase PCR (RT-PCR) to examine ECE-1 and Kallikrein expression.
RESULT: Unilateral Uretheral Obstruction(UUO) induced an increased of tubular injury scoring in D7UUO and D14UUO($p < 0,05$ VS SO), and followed by the increasing of ECE-1 Expression in D14UUO ($p < 0,05$ VS SO), also reduction of Kallikrein in D7UUO and D14UUO ($p < 0,05$ VS SO).
CONCLUSION : We revealed that upregulation of ECE-1 has strong positive corelation with Tubular Injury, whereas it has no significant corelation with reduction of Kallikrein.
KEYWORDS : Chronic Kidney Disease, Tubular Injury, ECE-1, Kallikrein, Unilateral Uretheral Obstruction.