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Urine-drived stem cell attenuate renal inflammation and fibrosis after renal ischemia reperfusion.

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Objectives: After renal IRI, regeneration and recovery of the renal tubular cell occurs. However, if the renal repair process is maladaptive, it progresses to renal fibrosis. The role of stem cells in kidney regeneration or fibrosis has not been fully elucidated. we evaluated the urine drived stem cells(UDSC) for renal inflammation and fibrosis after renal ischemia reperfusion(IR).

Methods: 10 week old balb/c nude male mice were used. sham, sham with UDSC, IR, IR with UDSC. UDSC were infused 1 times via tail vain 7 day After renal IR. Urine NGAL/creatinine(Cr) were checked. The kidneys were harvested at day 14 day.

Results: Urinary NGAL/Cr were significantly increased in IR mice after 14 day IR, compared to sham mice. Urinary NGAL/Cr significantly decreased in UDSC treated IR mice, compared to IR and ADSC treated IR mice. In H&E and PAS stain, renal tubulo-interstitial injury were significantly decreased in UDSC treated IR mice, compared to IR mice. In masson trichrom stain, renal fibrosis area were were significantly decreased in UDSC treated IR mice, compared to IR and ADSC treated IR mice. The renal expression of MCP-1, ostemopontine, TGF beta, alpha SMA, collagne IV, and F4/80 positive cellswere significantly decreased in UDSC treated IR mice, compared to IR mice. in vitro, alpha SMA, collagen IV, smad 2/3 were significantly increased in TGF beta treated HK2 cells.

Conclusions: UDSC ameliorate renal inflammation and fibrosis after renal IR.