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IN BRIEF

ACUTE KIDNEY INJURY

Urinary angiotensinogen and adverse outcomes in AKI

Increased urinary angiotensinogen levels could predict adverse outcomes in patients with acute kidney injury (AKI), say researchers. Alge *et al.* calculated urinary angiotensinogen-to-creatinine ratios (uAnCRs) in 45 patients who developed AKI in the intensive care unit. uAnCR was significantly higher in patients who died or developed a need for renal replacement therapy than in patients not meeting these end points. High uAnCR was also associated with an increased length of hospital stay and with a worsening of AKI.

Original article Alge, J. L. *et al.* Urinary angiotensinogen predicts adverse outcomes among acute kidney injury patients in the intensive care unit. *Crit. Care* doi:10.1186/cc12612

DIABETIC NEPHROPATHY

mTOR and podocyte apoptosis in diabetic nephropathy

Eid *et al.* report that the mTOR pathway is involved in the apoptosis of podocytes, which can cause urinary albumin excretion and kidney fibrosis in type 1 diabetes (T1D). Eid *et al.* used mouse podocytes and a T1D model to show that high glucose levels induced podocyte apoptosis through an mTOR-dependent mechanism. mTOR activation increased oxidative stress via upregulation of Nox4 and Nox1 expression and NADPH oxidase activity. Inhibition of mTOR reversed these changes, and also decreased podocyte apoptosis, reduced glomerular injury, and attenuated albuminuria.

Original article Eid, A. A. *et al.* mTOR regulates Nox4-mediated podocyte depletion in diabetic renal injury. *Diabetes* doi:10.2337/db12-1504

DENT DISEASE

Endocytosis and acidification in proximal tubule cells

A new study shows that *CLC5* mutations (which cause Dent disease) have differing effects on receptor-mediated endocytosis and endosomal acidification in proximal tubule epithelial cells (PTECs). Gorvin *et al.* found that receptor-mediated endocytic uptake of albumin and transferrin was lower in PTECs from two patients with Dent disease than in PTECs from a healthy male, and was completely abolished in cells from a third patient with Dent disease. Endosomal pH was more alkaline in two of the Dent disease cell lines.

Original article Gorvin, C. M. *et al.* Receptor-mediated endocytosis and endosomal acidification is impaired in proximal tubule epithelial cells of Dent disease patients. *Proc. Natl Acad. Sci. USA* doi:10.1073/pnas.1302063110

DIABETIC NEPHROPATHY

TLR2 involvement in diabetic nephropathy

Toll-like receptor (TLR) 2 has a major role in inducing inflammation via NFκB activation in diabetic nephropathy, according to a new study. Mudaliar *et al.* measured levels of TLR2, TLR4 and inflammatory markers in human proximal tubule cells exposed to different concentrations of glucose for 3 days or 7 days. Glucose levels that approximated the clinical diagnostic threshold for diabetes mellitus maximally increased expression of TLR2 and TLR4 and activation of NFκB. After 7 days, only expression of TLR2 and consequent NFκB binding were maintained.

Original article Mudaliar, H. *et al.* The role of Toll-like receptor proteins (TLR) 2 and 4 in mediating inflammation in proximal tubules. *Am. J. Physiol. Renal Physiol.* doi:10.1152/ajprenal.00398.2012