

Unilateral ureteral obstruction (UUO)

AN *IN VIVO* MODEL FOR OBSTRUCTIVE NEPHROPATHY

Model

Obstructive nephropathy refers to the syndrome caused by urinary tract obstruction, either functional or anatomic. Acute kidney injury (AKI) secondary to obstructive nephropathy is a frequent event that accounts for 5 to 10% of all acute kidney injury cases and has a great impact on the morbidity and mortality in those affected. In the elderly community, it can be present in up to 22% of AKI cases. In the adult kidney, ureteral obstruction leads to interstitial fibrosis and tubular atrophy, while urinary tract obstruction in the maturing kidneys also permanently impairs renal development. In this model, obstructive nephropathy is induced by unilateral ureteral obstruction (UUO).

Interest

This model leads to acute and complete obstruction of the ureter, mimicking the different stages of obstructive nephropathy leading to progressive renal fibrosis in an accelerated manner. It is suitable for testing candidates with antifibrotic effects.

Specie

Mouse

Model Description

- Surgical procedure: unilateral (left) ureteral ligation.
- Standard protocol duration: 2 weeks
- Pathophysiological features: tubular injury, kidney atrophy and renal fibrosis
- Reference substance: Captopril, an angiotensin-converting enzyme (ACE) inhibitor.

Parameters evaluated

- Body weight
- Weight, length and thickness of kidney
- Tubular injury: tubular dilatation semi-quantification on hematoxylin and eosin (HE)-stained sections
- Renal fibrosis: fibrosis quantification on Red Sirius-stained kidney sections by image analysis (stained surface in %)

