Introduction and Aims: Ischemia/reperfusion injury (I/R-I) is the leading cause of acute kidney injury. In kidney transplantation I/R-I is a major contributor to delayed graft function that complicates about 20% of transplantations and leads to post transplant dialysis need, prolonged admission, and poorer long-term graft function. Danegaptide is a selective modifier of the gap junction protein connexin 43 and has anti-arrhythmic effects. It has been shown to have cytoprotective properties by reducing myocardial infarct size in pigs. In this study we tested if Danegaptide improved renal function after two weeks in a porcine model of renal I/R-I.

Methods: Twenty pigs underwent unilateral renal I/R-I by 2 hours clamping of the left renal artery. Two weeks later the animals were re-examined by selective urine sampling. Eleven animals were randomised to Danegaptide-infusion during renal ischemia while 9 animals received placebo. GFR was measured as 51Cr-EDTA urinary clearance while renal blood flow was determined by MRI. Urine NGAL was measured as an additional marker of kidney injury.

Results: No differences in GFR were observed between the treated and non-treated animals immediately after I/R-I or at day 14 where the left and right kidneys were examined individually. Furthermore, no difference was observed in the urinary excretion of NGAL, in renal blood flow or in other markers of renal function. There were no adverse reactions to the infusion of Danegaptide.

Conclusions: Danegaptide does not improve renal function after I/R-I when administered during renal ischemia. The infusion of Danegaptide was well tolerated with no hemodynamic changes.