Introduction:
Acute renal failure affects from 1% to 25% of patients in the intensive care units (ICUs) and it is associated with excess mortality. Hydration is a useful preventive measure but it is often contraindicated in critically ill patients who, on the contrary, often benefit by a strictly conservative strategy of fluid management. Fenoldopam, a selective dopamine 1-receptor agonist, increases renal blood flow and glomerular filtration rate by vasodilating selectively the afferent arteriole of renal glomerulus.
The aim of our study is to compare renal effects of fenoldopam and placebo in critically ill patients undergoing a restrictive fluid management.

Methods:
We enrolled 130 patients admitted to our ICU. Patients were assigned by randomization to study groups: fenoldopam (n=64) and placebo (n=66). Fenoldopam was infused continuously at 0,1 mcg/Kg/min and equivalent volume for placebo during a period of seven days. Creatinine, cystatin C and creatinine clearance were daily measured as markers of renal function. The incidence of AKI according to RIFLE criteria (Risk, Injury, Failure, Loss, End Stage kidney disease) was also calculated.

Results:
Patients with a negative fluid balance at the end of the week (~ -5000 ml, p=0,0001) were included in the analysis, 32 in the placebo group and 38 in the fenoldopam group. There were not significant differences in the trend of creatinine, creatinine clearance, cystatin C and in the incidence of AKI between the groups during the week of infusion.

Conclusion:
A continuous infusion of fenoldopam at 0,1 mcg/kg/min does not improve renal function and does not prevent AKI in critically ill patients undergoing a strictly conservative strategy of fluid management.

References: