INTRODUCTION AND AIMS: The occurrence of anti-angiotensin II type 1 receptor antibodies (anti-AT1R Abs) is thought as a risk factor for transplant injury but the relationship of the AT1 Receptor expression and presence of anti-AT1R Abs with graft loss in renal transplantation has not been assessed. The aim of our study was to evaluate the expression of AT1 Receptor in patients with occurrence of anti-AT1R Abs and its relationship with graft loss in patients who had the renal transplant biopsy for cause.

METHODS: AT1 Receptor immunoreactivity was analyzed in the 153 renal transplant biopsies. The evaluation of AT1 Receptor expression was performed using immunohistochemical methods. AT1 Receptor expression was analyzed in five compartments: (1) glomeruli, (2) renal blood vessels (small and intermediate arteries), (3) peritubular capillaries, (4) tubular epithelium and (5) interstitium based on three-step scale. The biopsy was assessed according to Banff criteria. Anti-AT1R Abs were analyzed by ELISA. Level >90 U/L was considered as positive.

RESULTS: The study included 153 renal transplant patients in 1 year observation after the biopsy. The renal allograft biopsy was performed between 6 days and 24 years after transplantation. The number of 62/153 (40.5%) patients had anti-AT1R antibodies [anti-AT1R (+)/pts] and 31/153 (20.2%) developed expression of AT1 Receptors in biopsy [AT1 (+)/Receptors pts]. We observed 15/62 (24.19%) anti-AT1R(+) and AT1(-)/Receptors patients on the contrary to 22/91 (24.17%) anti-AT1R(-) but of AT1(-)/Receptors pts. Graft loss in anti-AT1R(+) pts, AT1(+) Receptors patients was 5/15 (33.3%) vs. 1/22 (4.5%) in the anti-AT1R(-) pts. AT1(-)/Receptors pts during 1 year observation (p=0.031). Moreover, the diagnosis of AMR in anti-AT1R(+) pts, AT1(-)/Receptors was noticed in 6/15 (40%) pts comparing to 3/22 (13.6%) in anti-AT1R(+) pts AT1(-)/Receptors but did not reached statistical significance.

CONCLUSIONS: The presence of anti-AT1R Abs together with the expression of AT1 Receptor may be associated with significantly higher graft loss but also more AMR diagnoses. The relevance of correlation between anti-AT1R Abs and AT1 Receptor should be considered for better transplant immunological risk assessment.