



# THE RELATIONSHIP BETWEEN HISTOLOGICAL DIAGNOSIS AND THE SURVIVAL OF BOTH THE GRAFT AND THE PATIENTS AMONG RENAL TRANSPLANT RECIPIENTS IN KKM



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## Introduction

A transplant kidney biopsy remains the only definitive diagnostic tool for assessing organ dysfunction and aiding in the treatment and prognosis of kidney transplant patients.<sup>1</sup> The value of biopsy findings can vary over time based on histological findings, classifications, and drug treatments.<sup>2</sup>

## Objectives

To comprehensively investigate histological findings from a transplanted kidney biopsy can predict graft and patient's survival

## Methodology

**Study Design:** Retrospective analysis of 144 kidney transplant recipients.

**Data Collection:** Data from 144 patients were combined from a kidney transplantation registry and a renal biopsy registry spanning from 1st January 2015 to 31st December 2018.

**Statistical Analysis:** Kaplan-Meier survival analysis and Cox regression were used to determine the impact of various factors on survival rates.

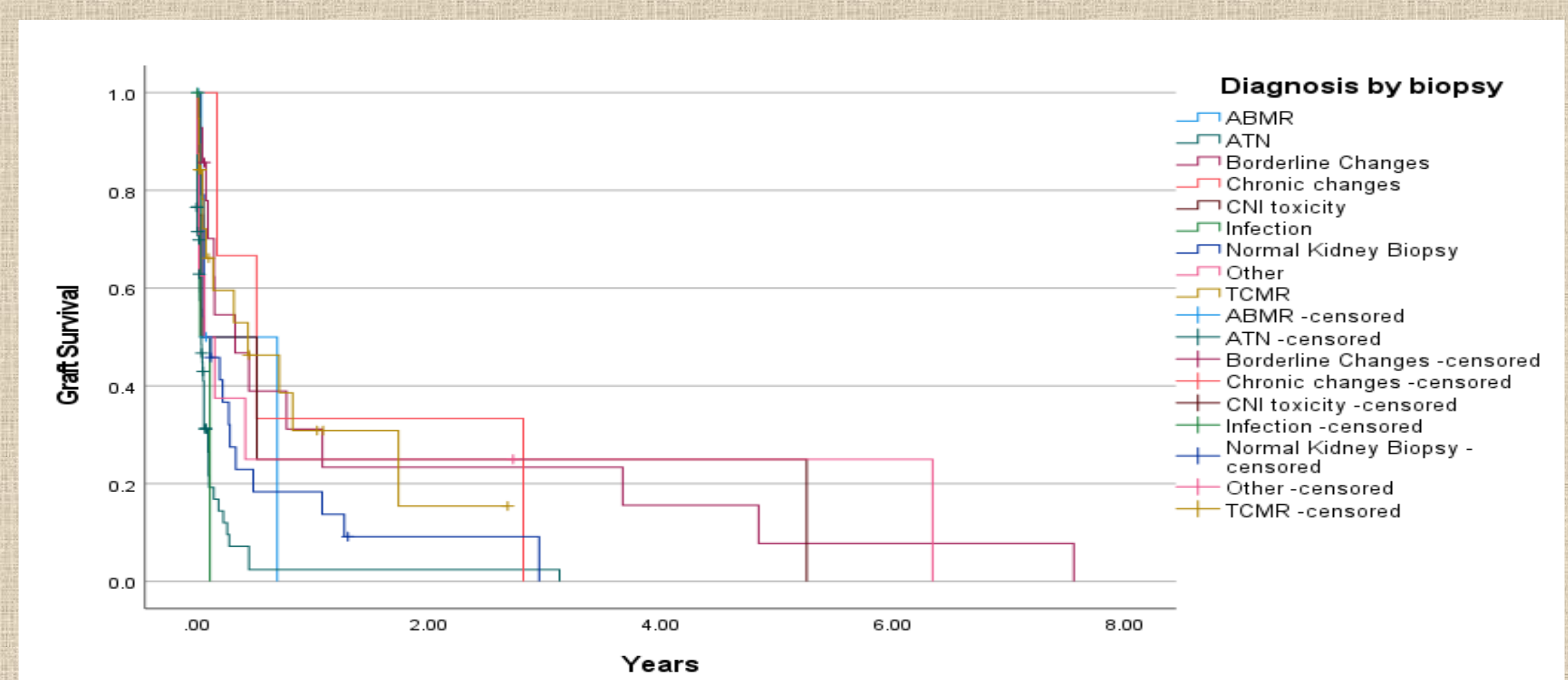
## Conclusion

From our study we highlight the significance of promptly identifying and addressing acute tubular necrosis (ATN) and T-cell mediated rejection (TCMR) in kidney transplant recipients, as these conditions are strongly associated with poorer survival outcomes.

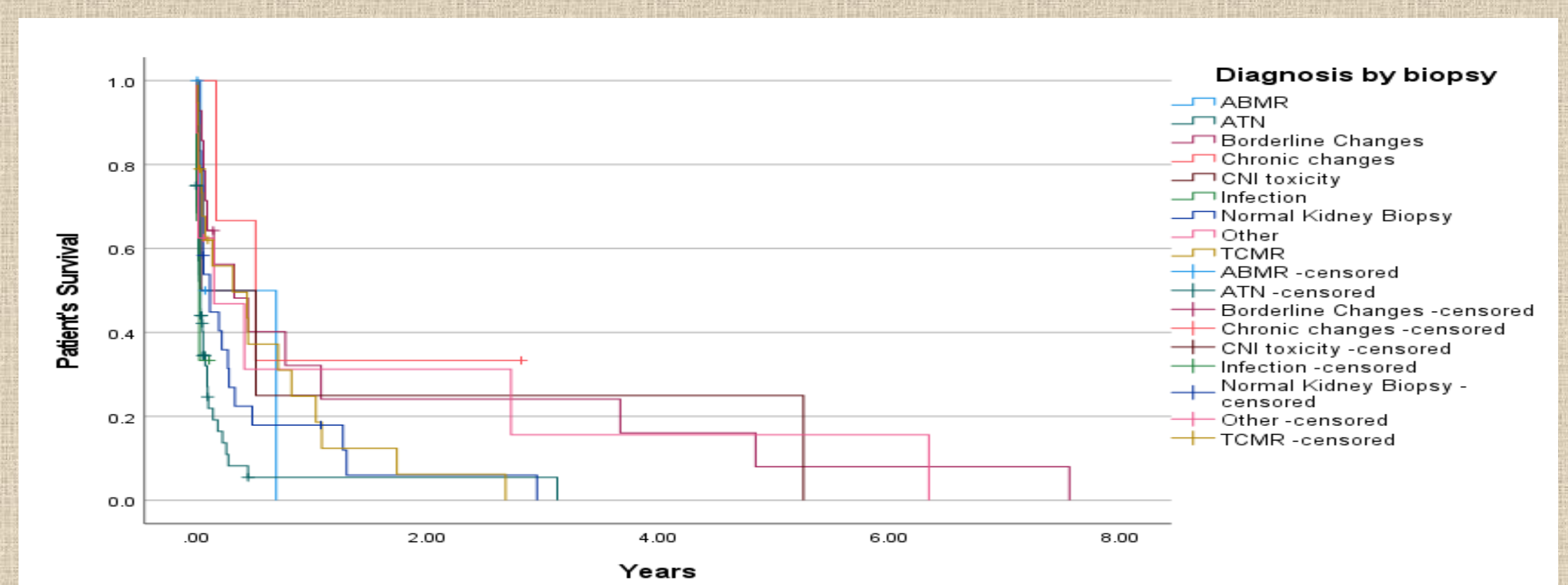
## Result

Graft survival after biopsy was shorter for patients with Acute Tubular Necrosis (HR 3.41, CI:1.79-6.51) which is statically significant.

T-Cell Mediated Rejection (HR 3.47,CI:1.24-9.70) and Acute Tubular Necrosis (HR 3.14,CI:1.79-5.51) are critical predictors of patient's survival, showing a statistically significant increase in the risk of adverse outcomes



Graft survival data and Kaplan–Meier curves according to histological diagnosis based on biopsies



Patient survival data and Kaplan–Meier curves according to histological diagnosis based on biopsies

Factors	B	Wald	p	HR	95.0% CI	
					Lower	Upper
ABMR	0.44	0.48	0.486	1.55	0.45	5.30
ATN	1.14	15.84	0.001*	3.14	1.79	5.51
Borderline Changes	-0.22	0.36	0.549	0.80	0.38	1.66
TCMR	1.24	5.63	0.018*	3.47	1.24	9.70
Chronic changes	-0.51	0.47	0.492	0.60	0.14	2.58
CNI toxicity	-0.07	0.02	0.896	0.93	0.31	2.79
Infection	1.08	2.04	0.153	2.95	0.67	12.99
Normal Kidney Biopsy	0.60	3.14	0.077	1.82	0.94	3.54

Cox regression analysis of death-censored graft survival according to the histological diagnosis of biopsy, in univariate and adjusted model

Factors	B	Wald	p	HR	95.0% CI	
					Lower	Upper
ABMR	0.54	0.61	0.436	1.66	0.47	5.90
ATN	1.23	13.89	0.001*	3.41	1.79	6.51
Borderline Changes	-0.11	0.67	0.797	0.90	0.40	2.04
Chronic changes	-0.02	0.01	0.980	1.02	0.29	3.61
CNI toxicity	-0.07	0.01	0.909	1.07	0.33	3.44
Infection	1.12	2.11	0.146	3.1	0.68	13.93
TCMR	0.50	1.90	0.17	1.64	0.810	3.30
Normal Kidney Biopsy	0.12	0.61	0.806	1.13	0.43	2.97

Cox regression analysis of death-censored patient survival according to the histological diagnosis of biopsy, in univariate and adjusted model

1. Canpolat T, Ozdemir BH, Torun D, Caliskan K, Haberal M. Four-year analyses of renal graft biopsies: a single-center pathology experience. *Exp Clin Transplant*. 2017;15(2):171-178.  
 2. Nasic S, Mólne J, Stegmayr B, Peters B. Histological diagnosis from kidney transplant biopsy can contribute to prediction of graft survival. *Nephrology (Carlton)*. 2022 Jun;27(6):528-536. doi: 10.1111/nep.14028. Epub 2022 Feb 24. PMID: 35150598; PMCID: PMC9302625.