

Abstract Submission No.: A-0172**Kidney biopsy can help to predict renal outcomes of patients with type 2 diabetes**

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Objectives : In patients with type 2 diabetes mellitus (T2DM), diabetic kidney disease (DKD) is diagnosed based on clinical features. A kidney biopsy is used only in selected cases. This study aimed to reconsider the role of a biopsy in predicting renal outcomes.

Methods : Clinical and laboratory parameters and renal biopsy results were obtained from 237 patients with type 2 diabetes who underwent renal biopsies at Soonchunhyang University Cheonan Hospital between January 2000 and March 2020 and were analyzed.

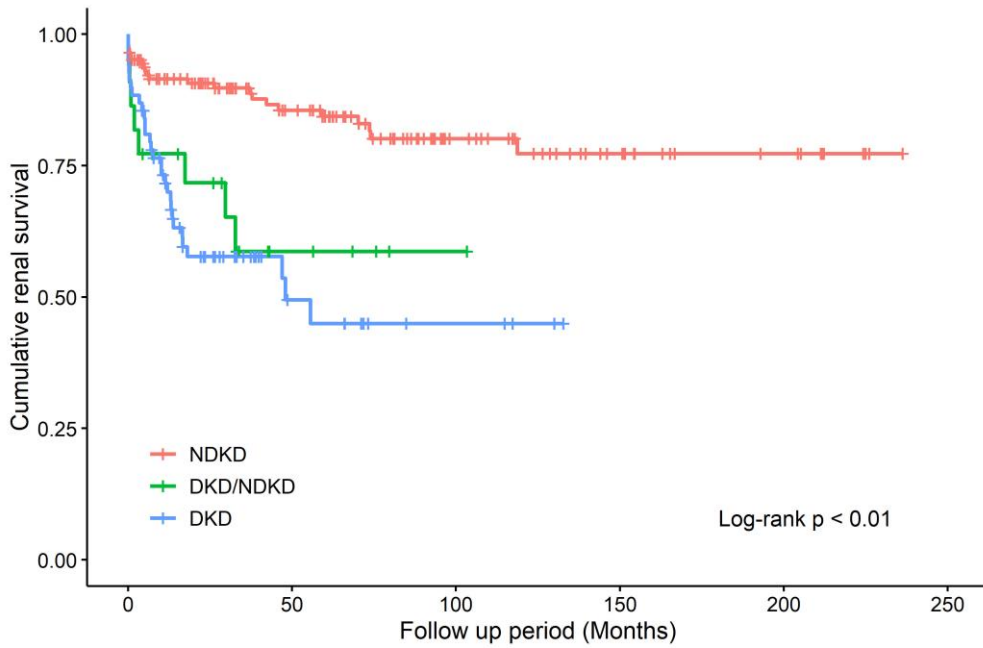
Results : Of 237 diabetic patients, 29.1% had DKD only, 61.6% had non-diabetic kidney disease (NDKD), and 9.3% had DKD with coexisting NDKD (DKD/NDKD). Of the patients with DKD alone, 43.5% progressed to end-stage kidney disease (ESKD), while 15.8% NDKD patients and 36.4% DKD/NDKD patients progressed to ESKD ($p < 0.01$). eGFR and 24-hour urinary protein values were not correlated with progression to ESKD in the DKD, NDKD, and DKD/NDKD groups. In the DKD-alone group, pathologic features like $\geq 50\%$ global sclerosis ($p < 0.01$), tubular atrophy ($p < 0.01$), interstitial fibrosis ($p < 0.01$), interstitial inflammation ($p < 0.01$), and the presence of hyalinosis ($p = 0.03$) were related to worse renal outcomes. The Cox regression model showed a higher risk of progression to ESKD in the DKD/NDKD group (hazard ratio (HR) = 2.73, $p = 0.03$), $\geq 50\%$ global sclerosis (HR = 3.88, $p < 0.01$), and the degree of mesangial expansion (moderate, HR = 2.45, $p = 0.05$; severe, HR = 6.22, $p < 0.01$).

Conclusions : In patients with T2DM, a kidney biopsy can help in identifying patients with NDKD for appropriate treatment, and it has predictive value.

Cox regression model by variable.jpg

Variables	Hazard ratio (95% CI)	p-value
Group		
DKD alone (n=69)	Reference	
NDKD (n=143)	1.47 (0.52 – 4.14)	0.46
DKD/NDKD (n=22)	2.73 (1.09 – 6.85)	0.03
Age		
Age	0.89 (0.69 – 1.15)	0.39
Female		
Female	0.56 (0.31 – 1.00)	0.05
BMI		
BMI	0.98 (0.91 – 1.06)	0.69
MAP		
MAP	1.13 (0.94 – 1.36)	0.20
Hypertension		
Hypertension	1.37 (0.65 – 2.86)	0.40
eGFR		
eGFR	0.95 (0.94 – 0.97)	<0.01
24hr urinary protein^a		
24hr urinary protein ^a	1.32 (1.09 – 1.60)	<0.01
Global sclerosis		
<25%	Reference	
≥25% <50%	0.96 (0.49 – 1.88)	0.91
≥50%	3.88 (1.75 – 8.59)	<0.01
Mesangial expansion		
None or Mild	Reference	
Moderate	2.45 (1.02 – 5.85)	0.05
Severe	6.22 (2.34 – 16.55)	<0.01
Tubular atrophy		
None or Mild	Reference	
Moderate	1.63 (0.70 – 3.82)	0.26
Severe	1.42 (0.45 – 4.47)	0.55
Interstitial fibrosis		
None or Mild	Reference	
Moderate	1.06 (0.48 – 2.36)	0.88
Severe	0.80 (0.3 – 2.17)	0.66
Hyalinosis		
Hyalinosis	1.46 (0.63 – 3.42)	0.38

Cox regression model by variable.jpg



No. at risk		0	50	100	150	200	250
NDKD	146	78	36	18	9	0	0
DKD/NDKD	22	5	1	0	0	0	0
DKD	69	11	4	0	0	0	0