



Renal prognosis in patients with new-onset microscopic polyangiitis and granulomatosis with polyangiitis requiring dialysis and potential predictor of renal function recovery

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ANCA-associated vasculitis (AAV) is a rare autoimmune disorder that typically provokes inflammation in the small-sized vessels [1]. Although AAV may involve any organ in the human body, the most commonly affected sites in AAV include the upper and lower respiratory tract and kidneys, with differences in organ involvement reported between the classical disease subtypes of microscopic polyangiitis (MPA), granulomatosis with polyangiitis (GPA), and eosinophilic granulomatosis with polyangiitis [2]. A typical clinical finding in patients with AAV and renal involvement is rapidly progressive glomerulonephritis with a pathologic feature of pauci-immune crescentic glomerulonephritis observed in affected tissues [3]. In patients with suspected autoimmune disease presenting with abrupt deterioration of renal function and/or abnormal findings in urinalysis, performing renal biopsy aids in establishing diagnosis and therapeutic decision making. Of note, it has been described that the prognosis of patients with AAV is unfavorable, and up to 20%~25% of patients with AAV experience loss of kidney function requiring dialysis. Traditionally recognized risk factors for end-stage renal disease (ESRD) in AAV include rapid decline in kidney function, especially requiring dialysis, and inadequate treatment [4]. These factors should be considered for patient prognostication. However, the long-term renal outcome and recovery from ESRD—which has been reported in approximately 30% to 40% of the patients in previous studies [5,6]—has been poorly described in Korean patients with AAV and remains to

be better understood.

A recent study by Lee et al. [7] entitled ‘Recovery and long-term renal outcome of patients with anti-neutrophil cytoplasmic antibody-associated vasculitis who are on dialysis at presentation’, recently published in the *Journal of Rheumatic Diseases*, investigated the recovery rate and long-term outcomes of kidney function in 34 MPA and GPA patients who initially presented with renal impairment requiring dialysis in a tertiary referral center. The key findings from this study showed that 38.2% (13/34) of patients with MPA and GPA discontinued dialysis during follow-up while 61.8% (21/34) continued dialysis, showing numerical estimates consistent with the existing literature [5]. Furthermore, when comparing the baseline characteristics of the patients that continued dialysis compared to those who did not, it was revealed that clinical manifestations of ear, nose, and throat (ENT) were more common and estimated glomerular filtration rate (eGFR) were higher among patients who stopped dialysis. The higher proportion of ENT manifestations in patients with improved renal outcomes could be related to the fact that ENT involvement confers a better prognosis in AAV [8], and its absence is recorded as +1 point in the five-factor score, an index that is associated with patient prognosis [9]. Additionally, the evaluation of histopathologic findings among 24 patients that had available renal pathology, revealed that the proportion of normal glomeruli ($p<0.001$) and reduced interstitial fibrosis ($p=0.024$) was significantly lower in patients who

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recovered from ESRD. Finally, multivariable analysis showed that the proportion of normal glomeruli was associated with dialysis discontinuation (odds ratio=1.29, 95% confidence interval 0.99~1.68; $p=0.063$), although this did not reach statistical significance.

The observations from this study provides valuable data describing the long-term renal prognosis in patients with AAV in South Korea, and confirms that MPA is the most common AAV subtype, which is often associated severe renal impairment [10]. Importantly, the Berden classification criteria, that divides renal histopathologic finding of AAV into focal, cresenteric, mixed, and sclerotic subtypes [11], was comparable between the groups and could not predict renal recovery along with baseline eGFR in this population. Although the relatively small sample size limited the ability to draw firm conclusions, the study suggested a potential association between the proportion of normal glomeruli and kidney function recovery in these patients. Further studies are necessary to determine factors that could predict recovery in patients with MPA and GPA presenting with dialysis initially. Moreover, the proportion of patients with maintenance therapy tended to be higher in the dialysis discontinuation group in the present study. Future investigations should also address the benefits of implementing optimal treatment to preserve renal function in patients with MPA and GPA, given that treatment inadequacy is related to ESRD in AAV and that remarkable strides have been recently made in the therapeutic recommendations for this disease [12].

In summary, this study found that approximately 40% of patients with MPA and GPA who present with dialysis at initial diagnosis experienced improvement of renal function and did not require dialysis. The proportion of normal glomeruli was a clinical predictor that appeared to have relationship with this improvement and may inform clinicians in estimating the long-term renal outcome of patients with MPA and GPA.

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CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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