



The spectrum of biopsy-proven renal diseases in Korea

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Biopsy-proven kidney disease has been reported globally. Some of these data are based upon nationwide renal biopsy registries, while single-center-based data have also been provided from countries without registry cohorts. Because of the heterogeneity of study populations and numerous confounding components in retrospective studies, conclusions on the frequencies of renal diseases are not simple.

Definitions, diagnostic criteria, and terminologies in renal pathology have changed over the years. For instance, “mesangioliferative glomerulonephritis (MsPGN)” is a descriptive term indicating increased number of mesangial cells but is not a disease entity. According to the underlying etiology, MsPGN could be further classified as immunoglobulin A (IgA) nephropathy, lupus nephritis, C3 glomerulopathy, and so on. Therefore, analyses using the term MsPGN in previous studies [1,2] cannot be directly compared to other reports using refined terminologies. Secondly, indications for performing renal biopsy in patients suspected of kidney disease are quite different among countries, institutions, and even clinicians. In each country, socioeconomic status and health policies may affect clinicians’ decision making. Patient

demographics, including age at biopsy, have tremendous impact on the frequencies of renal diseases. Therefore, readers should keep these things in mind when they compare the results of studies.

Table 1 summarizes the previous publications on frequencies of biopsy-proven renal diseases reported in China, Japan, and South Korea [1–9]. These data show major biopsy-proven glomerular diseases in East Asian countries. China has a huge population, and even a single-center study contains many biopsy cases. Japan and Korea have employed a regular mass screening of urine from primary school to high school since 1973 and 1998, respectively, for early detection of renal diseases [10]. This program might have affected the performance of renal biopsy.

In this issue of *Kidney Research and Clinical Practice*, Yim et al [9] report another study on the frequencies of renal diseases confirmed by renal biopsy in South Korea. This analysis was based on a retrospective review of 1,924 renal biopsy results from a single tertiary university hospital. After excluding pediatric cases (age < 15 years) and kidney allograft biopsies, the most common primary glomerular disease was IgA nephropathy, and the most common secondary glomerulopathy was lupus nephritis. Minimal change disease was most frequently diagnosed in patients who were biopsied because of nephrotic syndrome.

Similar to other studies, this study has both weaknesses and strengths. Although the study comprised 13 years’ experience at a single institution, the size of the study population was smaller than those of Chinese studies. Furthermore, the data and their interpretation were less refined than those of Japanese studies based upon the national renal biopsy registry. However, this study offers several interesting findings. IgA nephropathy was most prevalent in younger patients, whereas membranous ne-

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Table 1. Major biopsy-proven glomerular diseases in East Asian countries

Authors	Publication year	Country	Renal biopsy registry	No. of cases	Patients			Most common primary GN	Most common secondary GN	Most common cause of nephrotic syndrome
					Adults	Children	KT			
Choi et al [3]	2001	Korea	No	4,514	0	0	0	MCD (adults and children)	Lupus nephritis (adults) HSPN (children)	MCD (adults and children)
Chang et al [4]	2009	Korea	No	1,818	0	X	X	IgAN	Lupus nephritis	MCD
Shin et al [1]	2017	Korea	No	818	0	X	X	MsPGN	Lupus nephritis	
Zhang et al [5]	2014	China	No	11,618	0	0	X	IgAN	Lupus nephritis	
Zhou et al [2]	2018	China	No	10,779	0	X	X	IgAN	Lupus nephritis	
Su et al [6]	2019	China	No	2,725	0	X	X	MN	HSPN	MN
Sugiyama et al [7]	2011	Japan	Yes	2,400	0	0	0	IgAN	Diabetic nephropathy	
Yokoyama et al [8]	2012	Japan	Yes	2,802	0 (elderly)	X	X	MN	ANCA-related nephritis	MN
Yim et al [9]	2020	Korea	No	1,924	0	X	X	IgAN	Lupus nephritis	MCD

ANCA, antineutrophil cytoplasmic antibody; GN, glomerulonephritis; HSPN; Henoch-Schönlein purpura nephritis; IgAN, immunoglobulin A nephropathy; KT, kidney transplantation; MCD, minimal change disease; MN, membranous nephropathy; MsPGN, mesangiol proliferative glomerulonephritis.

nephropathy was the dominant disease in elderly patients regardless of clinical presentation. The most frequently diagnosed glomerular disease in patients with hepatitis B or C seropositivity was IgA nephropathy rather than cryoglobulinemic glomerulonephritis.

Although these data cannot be assumed to be representative of the Korean population, the results are largely compatible with previous studies from Korean patients [1,3,4]. In the current study, thin basement membrane disease previously had an exceptionally high frequency but dramatically declined in recent years. As discussed in their interpretation, the indications for renal biopsy vary according to time period and institution. Over a certain period of time, renal biopsies might have been actively performed in young males who showed asymptomatic minor urinary abnormalities as qualification for military service. The fluctuating frequency of thin basement membrane disease and relatively younger age of this cohort could explain this unique finding.

Recent studies from China showed that membranous nephropathy is increasing [6,11], and this result might be associated with air pollution by particulate matter 2.5 (PM_{2.5}) [12]. However, the current study [9] did not show any significant change in frequency of membranous nephropathy according to time course. Because the Korean study analyzed data until 2013 only, it is necessary to collect more recent cases and compare them with those of China.

As expected, a nationwide renal biopsy registry had many beneficial effects, including more reliable analyses

of disease frequencies by coding the diagnoses in each institution and more reasonable clinicopathological correlations [13]. Future studies should be based on nationwide or multinational renal biopsy registries. An East Asian regional renal biopsy registry could be constructed by collaborative nephrologists in China, Japan, and Korea.

Conflicts of interest

The author has no conflicts of interest to declare.

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