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SHAPING AOTEAROA & AUSTRALIAN KIDNEY HEALTH:

PAST, PRESENT AND FUTURE

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Renal Pathology in HIV-Patients : Insights from a Single-Center Study in Japan

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Background & Aim
Epidemiology of HIV in Japan

✓ There are 39 million people living with HIV worldwide, and 35,000 in Japan.

✓ There are about 1.5 million new infections worldwide and about 1,000 in Japan.

✓ New infections are declining, but global HIV prevalence is rising due to improved survival with ART.

*ART： Anti Retroviral Therapy

HIV patients and Chronic Kidney Disease（CKD）

✓Renal impairment occurs in 30% of HIV patients.

Gupta SK, *Clin Infect Dis.* 2005;40:1559–1585.

CKD　Stage Ⅰ - Ⅴ ：15.5–23.7%
　　Stage Ⅲ - Ⅴ ：3.5–9.7%

✓35% of HIV-related CKD progresses to ESKD

Lucas GM, *J Infect Dis.* 2008;197:1548–1557.

⇒

The prevalence of HIV-related kidney disease is increasing in Japan. However, cohort studies using kidney biopsy of HIV patients are limited in Japan.

Methods

✓We retrospectively analyzed all cases who underwent renal biopsy between 2010 and 2024 at National Center for Global Health and Medicine (NCGM),Tokyo, Japan.

✓ NCGM is one of leading hospital for infectious disease care and research in Japan.

✓Among them, 30 HIV-positive cases were detected.

✓We analyzed the clinical and pathological features of these 30 cases.

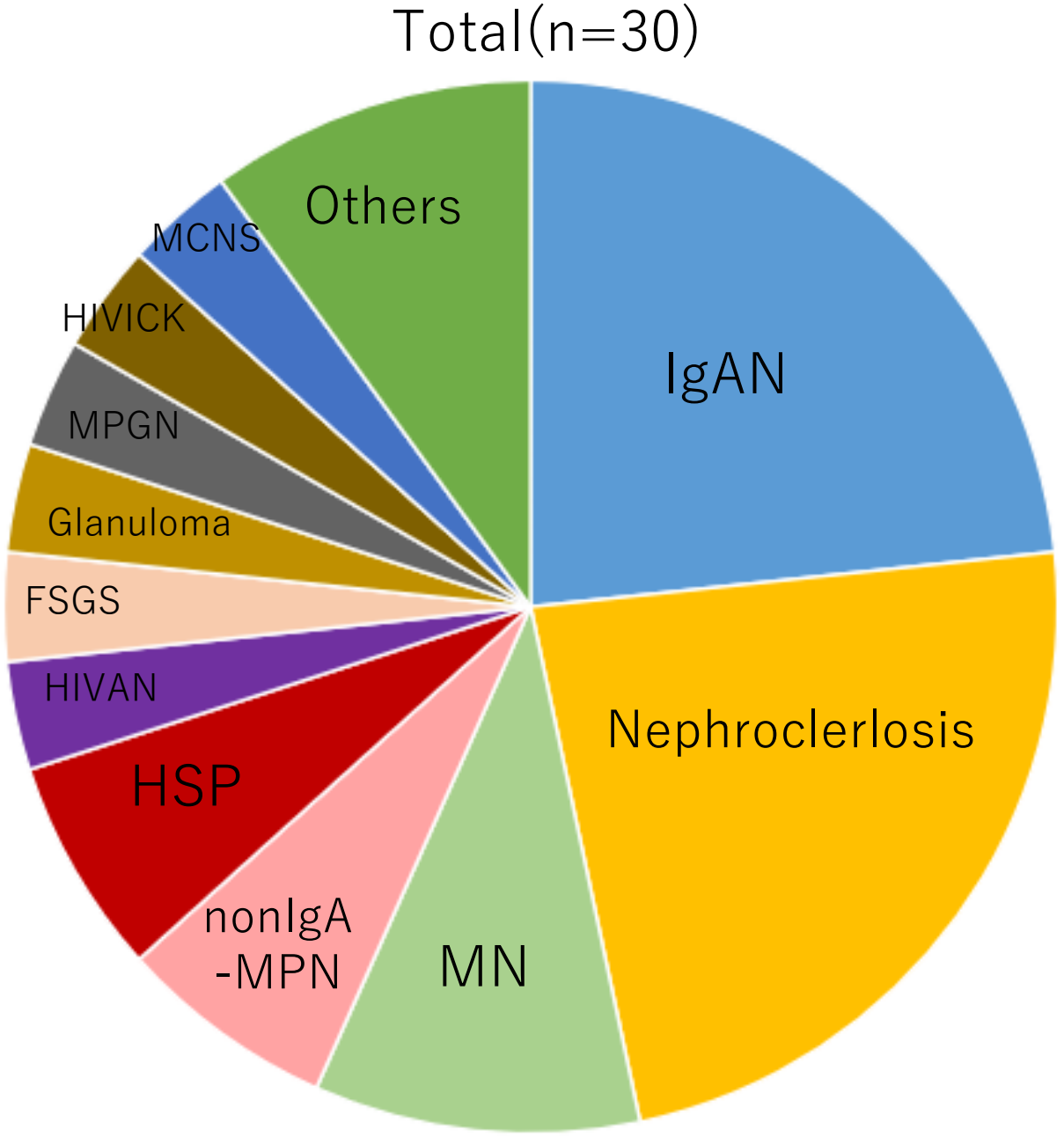
NCGM
National Center for Global Health and Medicine

Results：Clinical features

Median		Under-ART (n=25)	Untreated (n=5)	**Total (n=30)**
Age		49(±11)	54(±14)	**49(±11)**
Sex (Male)		22(88%)	5(100%)	**27(90%)**
Race (not Asian)		1：Black	1：Black	**2(7%)**
BMI (kg/m²)		22.5(±4.2)	23.1(±3.9)	**22.8(±4.0)**
eGFR (mL/min/1.73m2)		55.1(±17.4)	53.0(±39.9)	**55.0(±21.3)**
Urine-Protein (g/day)		0.9(±3.5)	2.0(±2.0)	**1.0(±3.1)**
Urine-Blood (+)		14(56%)	4(80%)	**18(60%)**
CD4 counts (cells/μL)		450(±238)	298(±221)	**446(±231)**
Coinfection	HBV	1	0	**1**
	HCV	2	0	**2**
	Syphilis	1	2	**3**
Complication	HT	15	2	**17**
	DM	2	0	**2**
	HL	10	0	**10**

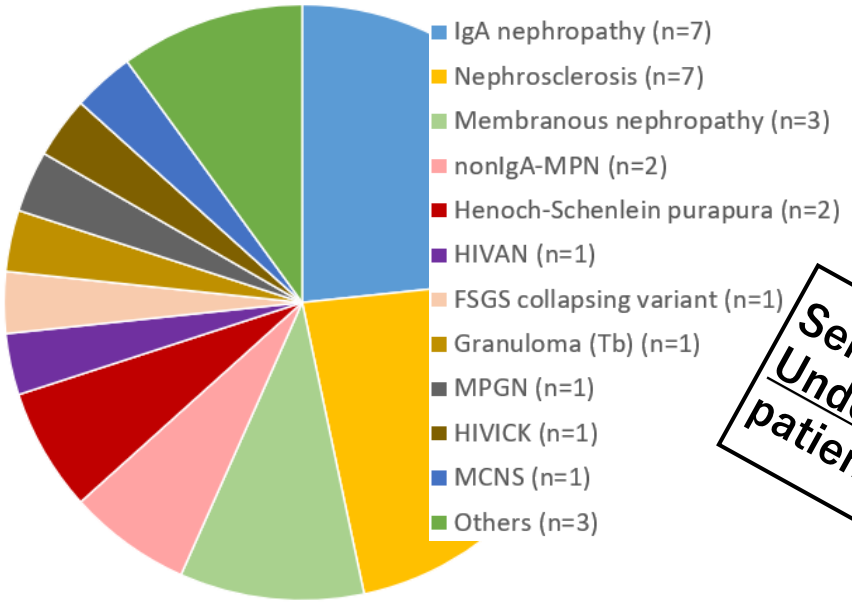
*ART： Anti Retroviral Therapy

Results：Pathological features①



- IgA nephropathy (n=7)
- Nephrosclerosis (n=7)
- Membranous nephropathy (n=3)
- nonIgA-MPN (n=2)
- Henoch-Schenlein purapura (n=2)
- HIVAN (n=1)
- FSGS collapsing variant (n=1)
- Granuloma (Tb) (n=1)
- MPGN (n=1)
- HIVICK (n=1)
- MCNS (n=1)
- Others (n=3)

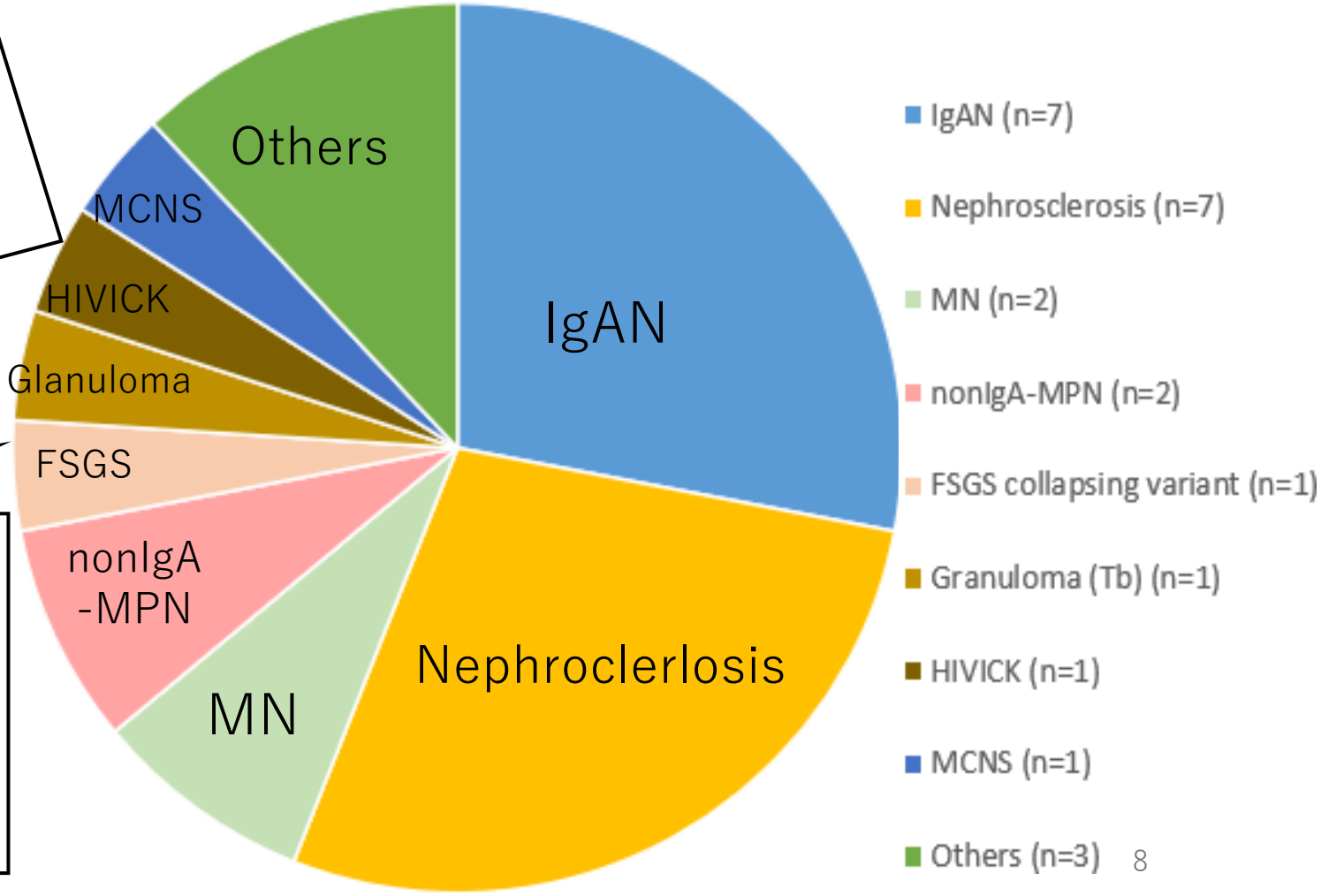
Results：Pathological features②



Total(n=30)

Selected Only Under-ART patients.

Under-ART (n=25)

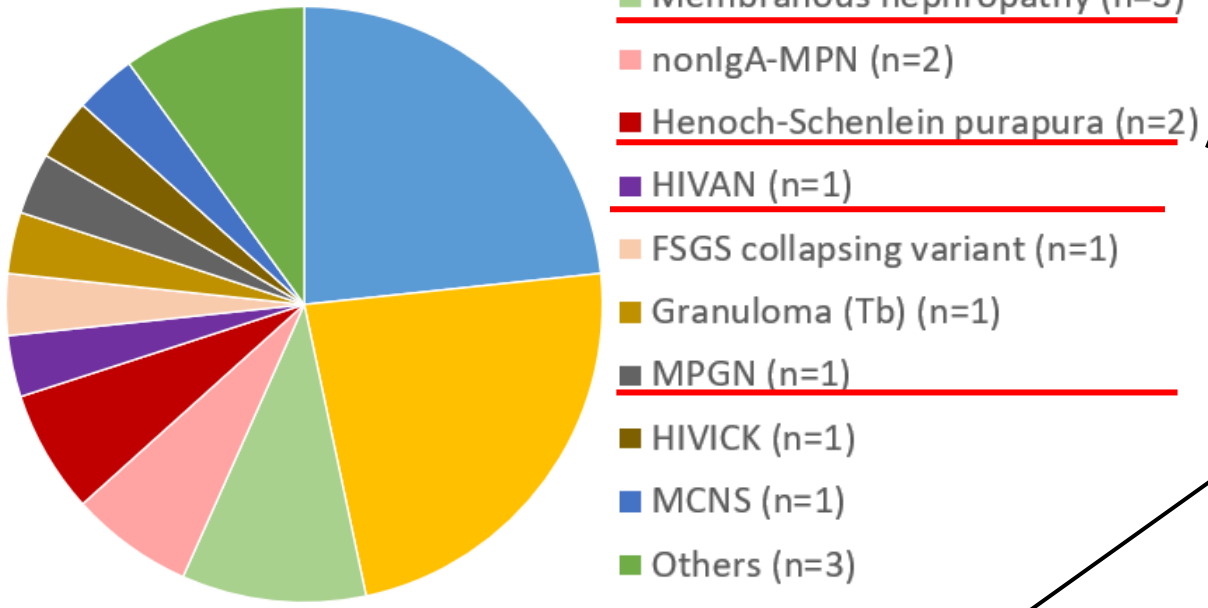


✓ All Nephrosclerosis and IgAN cases are Under-ART group.

✓ There is no HIVAN.

Results：Pathological features③

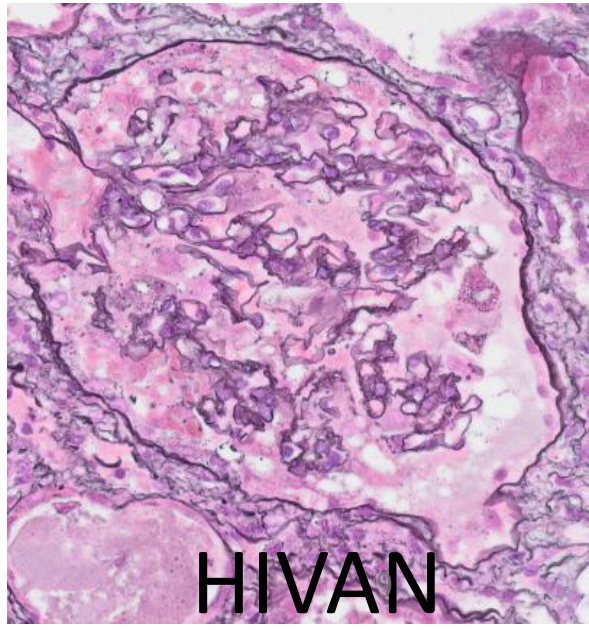
Total(n=30)



Selected Only Untreated patients.

Untreated(n= 5)

- Henoch-Schenlein purapura (n=2)
- HIVAN (n=1)
- MN (n=1)
- MPGN (n=1)



HIVAN

✓All Untreated patients are serum HIV RNA-positive.

✓No Nephrosclerosis is in Untreated group.

✓ HIVAN in Black patient

Discussion: Renal pathology in HIV patients

Kidney Diseases in HIV-positive Patients[2, 4]

HIV-associated Nephropathy (HIVAN)
Immune Complex Kidney Disease in the setting of HIV
Antiretroviral Therapy-associated Nephrotoxicity - examples:
• Tenofovir - proximal tubular dysfunction
• Protease inhibitors – crystalluria
HIV-associated Thrombotic Microangiopathy
Non-HIV Related Diseases
• Acute Interstitial Nephritis
• Amyloidosis
• Diabetic Nephropathy
• Minimal Change Disease
• Membranous Nephropathy
• Post-Infectious Glomerulonephritis

✓ HIVAN was classically considered typical.

✓ HIVAN is on the decline due to the evolution of HIV treatment.

✓ Other kidney diseases include Drug-induced, immune complex-related, and HIV-unrelated complications.

Expert Opin Pharmacother. 2018 January ; 19(1): 39–48.

Discussion: Comparison with previous cohort studies

United State (n=437)	Japan (n=10)	**Our cohort (n=30)**
58%Black, 25%White, 17%Hispanic, <1%Asian (2010～2018)	Japanese:100% (1996～2016)	**Asian:93%, Black:7% (2010～2024)**
・16%： DM ・14%： HIVAN ・13%： Drug induced TIN ・12%： FSGS ・ 9%： Nephrosclerlosis ・ 5%： IgAN ・ 3 %： MN : TIN ・ 2%： HCV-associated ICGN	・30%： DM ・20%： IgAN : Drug induced TIN ・10%： MCNS : Granulamatic TIN : TIN : Nephrosclerlosis : MGA	**・23%: IgAN** **: Nephrosclerlosis** **・10%： MN** **: MGA** **・ 7%： IgA vasculitis** **: nonIgA-MPN** **・ 3%： MCNS** **: Granulama(Tb)** **: FSGS** **: MPGN** **: HIVAN** **: HIVICK**
*Kidney International (2020) 97, 1006–1016	*Clin Exp Nephrol (2018) 22:68–77	

✓ Our cohort is the largest Japanese analysis of kidney biopsies in HIV patients.
✓ less HIVAN, as same as previous Japanese cohort
✓ no pathological Diabetic nephropathy
✓ IgA nephropathy are common in our study (= as Japanese cohort without HIV)

Conclusion

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- ✓ We analyzed Kidney biopsies of 30 HIV patients at a single center in Japan.
- ✓ This study is the largest cohort using renal pathology of HIV patients in Japan.
- ✓ Unlike previous reports, Nephrosclerosis and IgA nephropathy were the most common in this cohort.

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Thank you　for listening!!