

**6th REPORT OF
THE MALAYSIAN REGISTRY
of
RENAL BIOPSY
2017**

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For their hard work and contribution,*

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for support seen and unseen,**

&

All who have in one way or another supported the National Renal Registry.

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ABOUT MALAYSIAN REGISTRY OF RENAL BIOPSY

Renal biopsy remains the main investigation in the diagnosis of renal diseases. In addition, it plays a major role in determining the management and prognosis of parenchymal renal disease. The collection of demographic, clinical and laboratory data at the time of biopsy and the set up of a database are useful tools for studying renal parenchymal diseases.

The development of a renal biopsy registry in each country promotes many advantages and these include comparison in incidence of renal diseases, identification of different policies and practices in renal biopsy in different areas, linkage with other registries such as dialysis or transplant registry and identification of rare renal diseases. Thus, the registry is a source of epidemiological data and would provide useful information in the planning of health care and in organizing prospective clinical studies.

The incidence of glomerular disease varies according to population, demographic characteristics, environmental factors, socio-economic status and the prevalence of infectious diseases. At present, there is limited information on the prevalence and incidence of glomerular disease, its potential disease burden and the temporal trend in Malaysia. Hence, the Malaysian Registry of Renal Biopsy (MRRB) was set up in 2005 to address this deficiency.

The MRRB collects information about patients who undergo renal biopsy in Malaysia. The MRRB is a new component of National Renal Registry (NRR), which has been operating the Malaysian Dialysis and Transplant Registry (MDTR) since 1993.

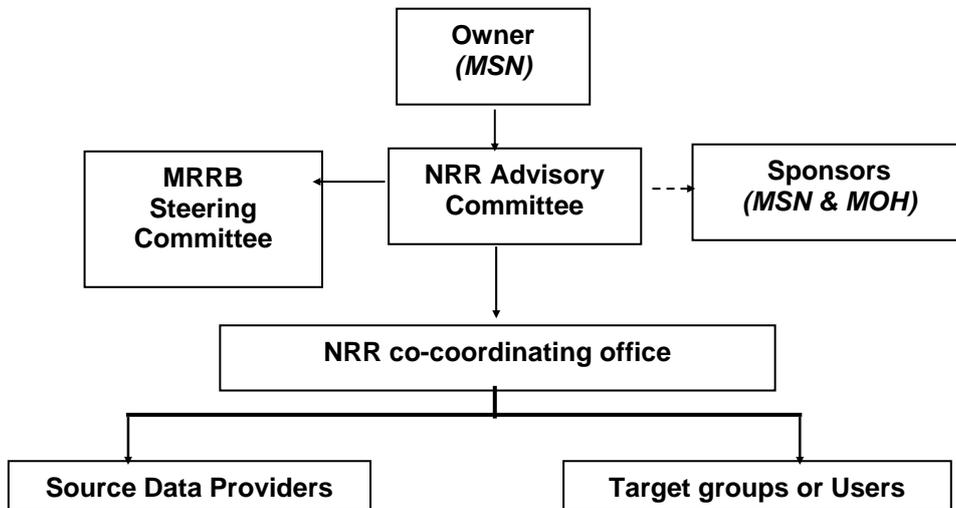
Objectives

The objectives of the MRRB registry are to:

1. Determine the disease burden attributable to glomerular disease (GD) by quantifying its incidence and prevalence, and its geographic and temporal trends in Malaysia.
2. Identify subgroups in the population at high risk of GD to whom preventive efforts should be targeted.
3. Identify potential causal and risk factors involved in GD.
4. Describe the clinical presentation and spectrum of GD.
5. Stimulate and facilitate basic, clinical and epidemiological research on GD.
6. Identify causes of allograft failure in our renal transplant population.
7. To audit the renal biopsy procedure, monitor both complications and quality of specimens in addition to identifying risk factors associated with complications.

Organization

The NRR organization is as follows:



Owner

The Malaysian Society of Nephrology (MSN) is the owner of this registry.

Sponsors

The MRRB is sponsored by the Malaysian Society of Nephrology (MSN) and the Ministry of Health, Malaysia.

NRR Advisory Committee

This is the committee appointed by the sponsors. The NRR Advisory Committee's role is to ensure that the MRRB stay focused on its objectives and to assure its continuing relevance and justification.

MRRB Steering Committee

The MRRB steering Committee supervises the operation of this registry.

National Renal Registry office

The NRR coordinating office is the designated coordinating center. It coordinates the data provided by the Source Data Providers (SDPs). It collaborates with Clinical Research Centre of Hospital Kuala Lumpur that provides epidemiological and statistical support for MRRB.

Source Data Providers (SDP)

These are centres that contribute data to the registry. The SDP collects and enters data directly through the on-line web-based system. The pilot phase of the registry consists of SDPs from the Ministry of Health.

Throughout this initial phase, we have refined and improved the database. In 2008, the registry expanded to a national level and included participation from all nephrologists in Malaysia who perform renal biopsies. It is hoped that the nephrology community will continue to support the registry by submitting data, which is crucial to eventually improve the management of patients with glomerular disease.

To participate in MRRB

Centres interested to participate in this registry please write in to NRR officially via post or email nrr@msn.org.my.

The following documents need to be completed and returned to facilitate participation.

- Centre Participation Self Reply Form
- Authorization Form
- Information Security Policy/User Agreement . One form per nominee as listed in the Authorization form. Users must have a personal mobile phone to received SMS authentication.

Upon receiving these documents, the centre shall be registered and each of the users of the MRRB shall be notified via their e-mail address.

Methodology

All patients from participating centres who undergo any kidney biopsy (native or graft) are to be enrolled into the registry.

On-line data submission is through MRRB web application and paper CRF still practice. The data variables collected include demography, clinical presentation, indications of biopsy, renal function and laboratory data at presentation and at the time of biopsy, serological markers, virology status and histopathological result. In addition, an update on outcomes in terms of significant end-points such as end stage renal disease or death will be recorded annually.

List of Source Data Providers

Adult Centre Name	Sector	1 st Report	2 nd Report	3 rd Report	4 th Report	5 th Report	6 th Report
96 Hospital Angkatan Tentera Lumut	Armed forces		√	√	√	√	√
Hospital Pakar Sultanah Fatimah Muar	MOH				√	√	√
Hospital Sultanah Nora Ismail	MOH						√
Kajang Hospital	MOH						√
Kuala Lumpur Hospital	MOH	√	√	√	√	√	√
Kulim Hospital	MOH						√
Melaka Hospital	MOH	√	√	√	√	√	√
Miri Hospital	MOH						√
Pulau Pinang Hospital	MOH	√	√	√	√	√	√
Queen Elizabeth Hospital	MOH	√	√	√	√	√	√
Raja Perempuan Zainab II Hospital	MOH	√	√	√	√	√	√
Raja Permaisuri Bainun Hospital	MOH	√	√		√	√	√
Sarawak General Hospital	MOH	√	√	√	√	√	√
Seberang Jaya Hospital	MOH						√
Selayang Hospital	MOH	√	√	√	√	√	√
Serdang Hospital	MOH		√	√	√	√	√
Sultan Haji Ahmad Shah Hospital	MOH						√
Sultanah Aminah Hospital	MOH	√	√	√	√	√	√
Sultanah Bahiyah Hospital	MOH	√	√	√	√	√	√
Sultanah Nur Zahirah Hospital	MOH	√	√	√	√	√	√
Taiping Hospital	MOH						√
Tengku Ampuan Afzan Hospital	MOH	√	√	√	√	√	√
Tengku Ampuan Rahimah Hospital	MOH	√	√	√	√	√	√
Tuanku Ja'afar Hospital	MOH	√	√	√	√	√	√
Fan Medical Renal Clinic	Private		√	√	√	√	√
Ipoh Specialist Hospital	Private		√	√	√	√	√
Klinik Perubatan & Nefrologi Fauziah	Private						√
KPJ Ampang Puteri Specialist Hospital	Private		√	√	√	√	√
KPJ Selangor Specialist Hospital	Private		√				
Lam Wah Ee Hospital	Private		√	√	√	√	√
Loh Guan Lye Specialist Centre	Private					√	√
Metro Specialist Hospital	Private		√	√	√	√	√
Normah Medical Specialist Centre	Private		√	√	√	√	√
Prince Court Medical Centre	Private			√	√	√	√
Puteri Specialist Hospital	Private						√
Seremban Specialist Hospital	Private						√
Sunway Medical Centre	Private		√	√	√	√	√
Teo Kidney Specialist Clinic	Private			√	√	√	√
Timberland Medical Centre	Private			√	√	√	√
Tung Shin Hospital	Private		√	√	√	×	×
University Malaya Medical Centre	University		√	√	√	√	√
Universiti Sains Malaysia Hospital	University			√	√	√	√
University Kebangsaan Medical centre	University					√	√
All		13	26	28	30	31	41

Paediatric Centre Name	Sector	1 st Report	2 nd Report	3 rd Report	4 th Report	5 th Report	6 th Report
Kuala Lumpur Hospital	MOH	√	√	√	√	√	√
Likas Hospital	MOH	√	√	√	√	√	√
Pulau Pinang Hospital	MOH	√	√	√	√	√	√
Selayang Hospital	MOH	√	√	√	√	√	√
Sultan Ismail Hospital	MOH	√	√	√	√	√	√
Tengku Ampuan Afzan Hospital	MOH	√	√				
Tuanku Ja'afar Hospital	MOH	√	√	√	√	√	√
		7	7	6	6	6	6

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REPORT SUMMARY

CHAPTER 1: OVERVIEW OF RENAL BIOPSY IN MALAYSIA

This 6th report of Malaysian Registry of Renal Biopsy 2017 reports on renal biopsies performed from 1st January 2005 to 31st December 2017 .

- There were 47 participating centres from the years 2005-2017.
- In 2017, there were 23 adult and 6 paediatric Ministry of Health centres, 3 universities, 1 army hospital and 14 private centres.
- 16,453 renal biopsies were reported from 2005-2017.
- The average of renal biopsy performed was 1500-1700 per year
- 88.6 % of kidney biopsies were performed on patients older than 15 years old and 10 % of these biopsies were done in patients older than 55 years old.
- There were more females (60.4%) compared to males (39.6%). This was attributed to the higher number of females amongst patients diagnosed with SLE.
- The racial distribution were Malays (57.8%), Chinese (23.7%), Indian (6.2%) and others (12.3%).
- Eighty percent of biopsies received were conclusive.
- Sixty-one percent of HPE slides were read locally and 36.4% % were sent to another centre.
- Nephrotic syndrome was the leading indication for renal biopsy (37%)
- The most common primary glomerulonephritis was minimal change disease (30.9%) FSGS (30.8%) and IgA nephropathy (21.7%)
- Lupus nephritis was the commonest secondary glomerulonephritis accounting for 79.6% followed by diabetic nephropathy at 11.6%.

CHAPTER 2: PRIMARY GLOMERULONEPHRITIS

The commonest primary glomerulonephritis found on adult kidney biopsies were as follows: focal segmental glomerulosclerosis (29.8%), minimal change disease (29.2%), Ig A nephropathy (23.3%) and idiopathic membranous nephropathy (9.7%).

Focal Segmental Glomerulosclerosis

- Accounted for 29.8% of total primary glomerulonephritis.
- Eighty percent of patients were less than 45 years old.
- Fifty-one percent presented with nephrotic syndrome.
- The prevalence of hypertension and impaired renal function increased with age.

Minimal Change Disease

- Accounted for 29.2% of total primary glomerulonephritis.
- There is a clear predominance in second and third decades of life.
- There was a higher incidence of minimal change disease in males (63%) compared to females.
- Nephrotic syndrome was the commonest clinical presentation at 70%.
- Nineteen percent were hypertensive at biopsy.

REPORT SUMMARY *(cont'.)*

IgA nephropathy

- This constituted 23.3% of primary glomerulonephritis
- There is slight female preponderance (59.3% vs. 40.7%) which is contrary to what is reported in literature
- Asymptomatic urine abnormality remains the most common presentation. (50%)
- There is increased risk of renal impairment with increasing age

Idiopathic membranous nephropathy

- The peak incidence is in the ages 25 to 55 years of age.
- There were more males than females (53.8% vs. 46.2%)
- Fifty-nine percent presented with nephrotic syndrome and 24% had asymptomatic urinary abnormalities.
- Hypertension was observed in 50%.
- Thirty percent had e-GFR less than 60 mls/min .

CHAPTER 3: SECONDARY GLOMERULONEPHRITIS

The commonest secondary GN reported was lupus nephritis. Diabetic nephropathy was the second commonest glomerular disease reported.

Lupus nephritis

- Accounted for 80.8% of total secondary GN.
- Mean age at the time of biopsy in adult lupus nephritis was 30.7 + 10.8 years old
- Male to female ratio was 9:1.
- Urine abnormality (36.7%) was the commonest clinical presentation followed by nephrotic syndrome (25.3%).
- The commonest histopathological finding was WHO or ISN/RPS class IV or IV+V (54.3%).
- There was no clear correlation between histopathological findings and clinical presentation. However, class IV or class IV+V were more likely to present with symptomatic renal disease.
- The prevalence of hypertension was higher in class IV or class IV +V.
- The prevalence of impaired kidney function correlated with histopathological findings. Class IV was more likely to have impaired renal function.
- About 2/3 of cases with lupus nephritis fulfilled 4 or more American Rheumatological Association (ARA) criteria at presentation.
- Fulfilling the ARA criteria does not predict the severity of renal lesion.

REPORT SUMMARY *(cont'.)*

CHAPTER 4: PAEDIATRIC RENAL BIOPSY

- 1883 renal biopsies were performed in 1842 children.
- Ministry of Health centres accounted for 96.5% biopsies performed
- Eighty percent of paediatric kidney were assessed to be adequate.
- The mean age at biopsy was 9.82 ± 3.97 years.
- The racial distribution was as follows: Malays (64%) Chinese (17.4 %) and Indians (5.7%)
- Nephrotic syndrome was the most frequent clinical diagnosis presentation at 50%.
- Lupus nephritis contributed the largest group at 26 % followed by minimal change (23%) and FSGS (20.6%)
- When comparing FSGS and minimal change disease, FSGS had lower renal survival at 5 years. The renal survival for this group was 89% and 81% at 3 and 5 years respectively, whereas in the minimal change group the 3- and 5-years survival was 95% and 93% respectively.
- In the paediatric lupus group that were dialysed at the time of biopsy the commonest HPE on biopsy was post infectious GN (23%) and lupus nephritis (22.3%).
- Renal survival for patients with lupus nephritis was 92% and 89% at 3 and 5 years respectively.
- Complications following renal biopsies were reported in 3.6 %. Bleeding was the commonest complication.
- Risk of complications were higher in children who had reduced GFR, in particular dialysis dependant renal failure.

CHAPTER 5: RENAL ALLOGRAFT BIOPSY

- The number of renal allograft biopsy reported has increased despite a static number of new and existing renal transplant recipients for the past 13 years.
- University Malaya Medical centre and Kuala Lumpur Hospital accounted for half of allograft biopsies performed between 2005-2017.
- Majority of renal allograft biopsies were performed in the age group 25-54 years.
- Almost half of renal allograft biopsies were performed one year post renal transplantation.