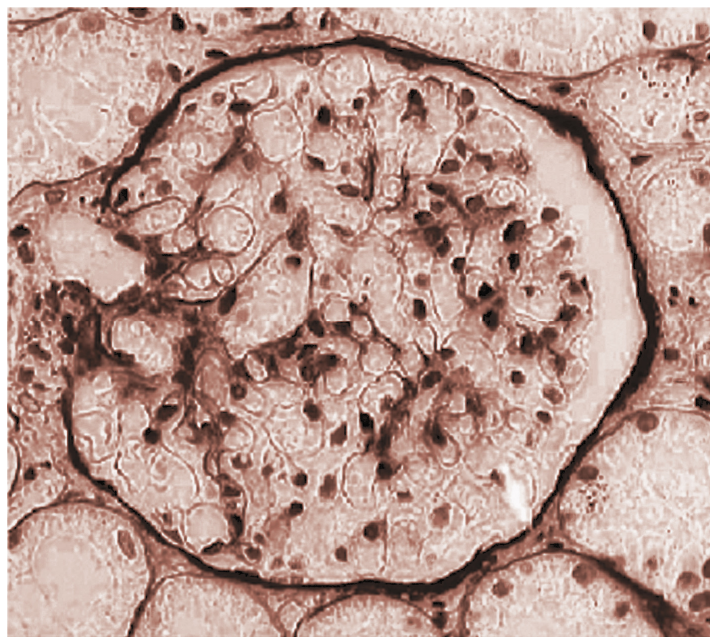


**5rd REPORT OF
THE MALAYSIAN REGISTRY
of
RENAL BIOPSY 2012**



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Malaysian Society of Nephrology



Ministry of Health Malaysia

**5rd REPORT OF
THE MALAYSIAN REGISTRY
of
RENAL BIOPSY
2012**

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Lucenia

The staff of the Clinical Research Centre

&

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2012 TO 2014**

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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.

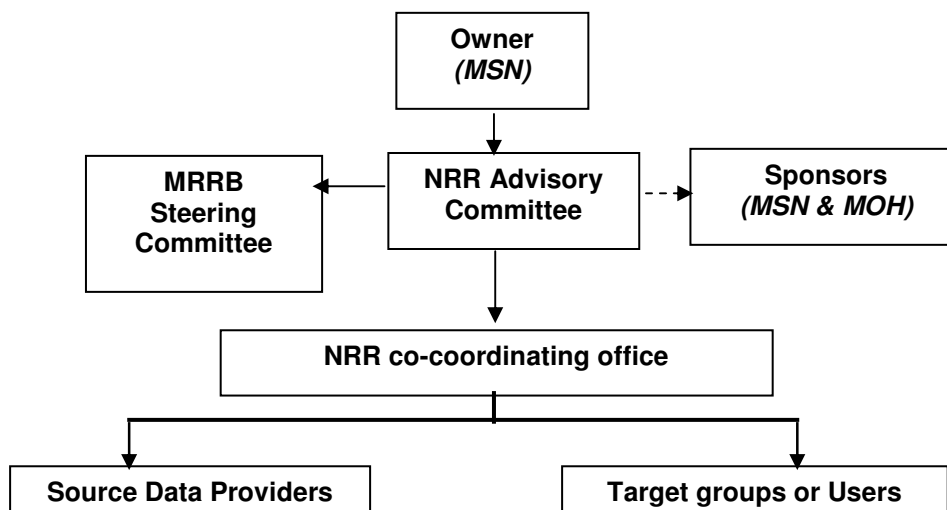
Objectives

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 established 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 Working Committee supervises its operations.

National Renal Registry office

The NRR coordinating office is the designated coordinating center. It coordinates the data collection among 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 the required data for MRRB. The SDP collects and enters data directly through the on-line web-base system. The pilot phase of the registry consists of SDPs from Ministry of Health.

Throughout this initial phase, we have refined and improved the database. In 2008, the registry is expanding to a national level to include participation from all nephrologists and renal physicians in Malaysia who perform renal biopsies. We hope the nephrology community will support us by submitting information, which is crucial to eventually improve the management of patients with Chronic Kidney Disease (CKD).

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 or paper CRF. The data variables collected include demography, clinical presentation, and indication 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	1st Report	2nd Report	3rd Report	4th Report	5th Report
96 Hospital Angkatan Tentera Lumut	Armed forces		√	√	√	√
Hospital Pakar Sultanah Fatimah Muar	MOH				√	√
Kuala Lumpur Hospital	MOH	√	√	√	√	√
Melaka 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	√	√	√	√	√
Selayang Hospital	MOH	√	√	√	√	√
Serdang Hospital	MOH		√	√	√	√
Sultanah Aminah Hospital	MOH	√	√	√	√	√
Sultanah Bahiyah Hospital	MOH	√	√	√	√	√
Sultanah Nur Zahirah 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		√	√	√	√
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			√	√	√
Sunway Medical Centre	Private		√	√	√	√
Teo Kidney Specialist Clinic	Private			√	√	√
Timberland Medical Centre	Private			√	√	√
Tung Shin Hospital	Private		√	√	√	
Pusat Perubatan Universiti Kebangsaan Malaysia	University					√
University Malaya Medical Centre	University		√	√	√	√
Universiti Sains Malaysia Hospital	University			√	√	√
All		13	26	28	30	31

Paediatric Centre Name	Sector	1 st Report	2 nd Report	3 rd Report	4 th Report	5 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 (Paed)	MOH	√	√	√	√	√
		7	7	6	6	6

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REPORT SUMMARY

CHAPTER 1: OVERVIEW OF RENAL BIOPSY IN MALAYSIA

This 5th report of Malaysian Registry of Renal Biopsy 2012 reports on renal biopsies performed from 1st January 2005 to 31st December 2012 .

- There were 45 participating centres from the years 2005-2012.
- In 2012, there were 15 adult and 8 paediatric Ministry of Health centres, 3 universities, 1 army hospital and 18 private centres.
- There were no new participating centres since 2010.
- There ascertainment rate has improved from 84.5% in 2010 to 95% in 2012.
- 9952 of 11219 renal biopsies that were performed from 2005-2012, were available for analysis.
- 8657(87%) of renal biopsies were done on native kidneys and 1295(13 %) were on renal allograft.
- There appeared to be more repeat graft biopsies in 2011-2012(52%) compared to the 2005-2010 period (42%).
- 66% of native kidney biopsies and 86 % of graft biopsies were done in the 15-45 years age group.
- 14 % of native kidney biopsies were done in paediatric age group less than 15 years.
- As in previous reports, native kidney biopsies were performed in more females (59.5%) compared to males (40.5%). This ratio remains unchanged since 2005.This was attributed to the higher number of females amongst patients diagnosed with SLE.
- The opposite was true for renal allograft biopsies where there were 63.5% males compared to 36.5% females.
- There were more Malays (58.1%) followed by Chinese (24.8%) in the native biopsy group. Chinese (55%) predominates in the renal allograft group.
- Seventy-five percent of biopsies received were conclusive. 24% had less than 10 glomeruli. 1.2 percent was classified as missing because the full HPE reports were not submitted to the registry.
- Fifty one percent of HPE slides were read locally and 48.4 % were sent to another centre. There is a gradual increase for biopsies to be read in the hospitals where biopsies were performed.
- Nephrotic syndrome was the leading indication for renal biopsy (40.9%) followed by asymptomatic urinary abnormalities (28.6%) and nephrotic-nephritic syndrome (9.6%).
- The commonest primary glomerulonephritis in adults were minimal change disease (32%) FSGS (29%) and IgA nephropathy (22%).
- Membranous glomerulonephritis constituted 9% of total primary glomerulonephritis.
- Lupus nephritis was the commonest secondary glomerulonephritis accounting for 80% followed by diabetic nephropathy at 11%.
- FSGS was the commonest primary glomerulonephritis in children less than 15 years age group (39.4%) followed by minimal change disease (34.7%)

CHAPTER 2: PRIMARY GLOMERULONEPHRITIS

The commonest primary glomerulonephritis found on adult kidney biopsies 2005-2012 were as follows: minimal change disease (32%), focal segmental glomerulosclerosis (29%) Ig A nephropathy (22%) and idiopathic membranous nephropathy (9%).

Caution had to be exercised when interpreting data on BP and eGFR as there were significant trends of missing data. Five year patient and renal survival rates are presented for the first time in this 5th report.

REPORT SUMMARY (con't)

Minimal Change Disease

- Accounted for 32% of total primary glomerulonephritis.
- 70% of patients present in the 15 to < 25 and 25 to < 35 age groups.
- There was a higher incidence of minimal change disease in males (65%) compared to females but there were no racial predilection.
- Nephrotic syndrome was the commonest clinical presentation at 78%.
- Most patients have normal BP (74%) and preserved renal function (73%) at presentation.
- The 5 year patient and renal survival was 94% and 98% respectively.

Focal Segmental Glomerulosclerosis

- Accounted for 29% of total primary glomerulonephritis.
- The mean age at presentation was 34.4 ± 14.6 years.
- Fifty- nine percent presented with nephrotic syndrome.
- The prevalence of hypertension and impaired renal function increased with age.
- The 5 year patient and renal survival was 86% and 87 % respectively.

IgA nephropathy

- This constituted 22% of primary glomerulonephritis
- 31.3% are between the ages of 15 to 45 years
- There is slight female preponderance (54% vs. 43%) which is contrary to what is reported in literature
- Asymptomatic urine abnormality remains the most common presentation. (51%)
- Hypertension is seen in 44 .4% and eGFR < 60ml/min/1.73m² is observed in 47.1% at presentation.
- 5 year patient and renal survival were 93% and 78% respectively.

Idiopathic membranous nephropathy

- This constituted 9% of primary glomerulonephritis.
- The mean age at presentation is $45.30 + 14.97$.
- There were no gender differences but there is a predilection for Chinese race.
- Sixty-seven percent presented with nephrotic syndrome.
- Hypertension was observed in 24.8% and renal impairment was seen increasingly as age advances.
- 5 year patient and renal survival were 85% and 92% respectively.

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 81% of total secondary GN.
- Mean age at the time of biopsy in adult lupus nephritis was 30.3 ± 10.7 years.
- Male to female ratio was 1 to 6.6
- Urine abnormality (35%) was the commonest clinical presentation followed by nephrotic syndrome (27.5%).
- The commonest histopathological finding was WHO or ISN/RPS class IV or IV+V (61.3 %).
- 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.

REPORT SUMMARY *(con't)*

- 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 60% 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

CHAPTER 4: PAEDIATRIC RENAL BIOPSY

- 1224 renal biopsies were performed in 1113 children over a span of 13 years from 1999 until 2012.
- 95.6% of paediatric kidney biopsies were assessed to be adequate. This success is comparable to reports from Thailand, United Kingdom and Japan.
- There were slightly more girls (50.8 %) and this was attributed to the higher number of girls biopsied in the SLE group.
- The mean age at biopsy was 9.8± 4 years.
- The racial distribution was as follows: Malays (64%) Chinese (19 %) and Indians (7.1%)
- 37.2% were hypertensive at presentation. Calcium channel blockers and ACE inhibitors were the commonest anti-hypertensives prescribed.
- Nephrotic syndrome (50%) was the most frequent clinical diagnosis at presentation. Lupus nephritis contributed the largest group at 25 % followed by FSGS (21.4%) and minimal change disease (20.5%).
- When comparing FSGS and minimal change disease, FSGS had lower renal survival at 5 years. The renal survival for this group was 88% and 80% at 3 and 5 years respectively, whereas in the minimal change group the 3 and 5 years survival was 95% and 92% respectively.
- Patient survival was 91% and 87% at 3 and 5 years for FSGS group and was 96% and 91% at 3 and 5 years for minimal change group.
- In the paediatric lupus group that were dialysed at the time of biopsy the commonest HPE on biopsy was class IV or class V+IV.
- Renal survival for patients with lupus nephritis was 95.5% and 93.3% at 3 and 5 years respectively.
- 116 children were reported to the Malaysian Dialysis and Transplant Registry. The commonest causes of ESRD were FSGS (31.9%) advanced glomerulosclerosis (18.1%) lupus nephritis (11.2%) and IgA nephropathy. (9.5%)

CHAPTER 5: RENAL ALLOGRAFT BIOPSY

- The number of renal allograft biopsy reported has increased despite a decreasing number of new and existing renal transplant recipients for the past 8 years.
- Seventy-three percents of all renal allograft biopsies were performed in the four main transplant centres which are Hospital Kuala Lumpur, Hospital Selayang, University Malaya Medical centre and Prince court Medical Centre.
- Seventy-one percent of renal allograft biopsies were performed in the age group 25 to < 55 years.
- Gradual graft dysfunction as an indication for biopsy has increased 34.7 % in 2005 to 66.1% in 2012 (2 fold increase)
- About 40% of renal allograft biopsies were performed one year post renal transplantation.
- Rejection (acute and borderline) has remained the most common histological diagnosis and accounted for more than half of all allograft biopsies that were reported in 2012.
- The increasing trend of allograft biopsies with histological diagnosis of acute rejection appeared to have plateaued off in the last 2 years and in 2012 accounted for 38.3%.