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Histopathological Pattern and Renal Outcomes of Patients with Kidney Biopsy at A Tertiary Care Center in Indonesia

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Objectives : The global incidence of kidney disease diagnosed by kidney biopsy, as well as their clinical outcomes, varies within age, sex, race and region. Due to the limited knowledge on histological pattern of kidney disease and their outcomes in Indonesia, we aimed to analyze kidney biopsies reports performed over 11 years at a tertiary center in Indonesia.

Methods : A retrospective cohort study of all native kidney biopsies was performed at Dr. Cipto Mangunkusumo Hospital, Jakarta, from 2011 to 2021. All subjects with acute kidney injury or indications for biopsy related to transplantation were excluded. Descriptive statistics were used to summarize demographic and clinical variables. Logistic regression models were used to analyze the relationship between clinico-histopathological factors and renal outcomes (non-dialysis kidney failure, dialysis, kidney transplantation or death at the end of follow-up).

Results : We included 683 biopsies in the analysis. The median age was 28 years (IQR, range: 15, 22.0-37.0) and 32.5% subjects were male. Hypertension (37.5%) was the predominant comorbidity with nephrotic syndrome was the most common clinical indication for biopsy (47.6%). At the time of biopsy, some patients were already on immunosuppressants (steroid/mycophenolate mofetil about 32.7%), with median eGFR 100 (IQR, range: 67.3, 59.7-127.0) ml/minute/1.73 m². Lupus nephritis was the most common histopathological findings (39.2%). At the end of study follow-up, we found all-cause mortality was 9.6%, 2.2% subjects developed kidney failure without dialysis, 2.9% undergoing chronic dialysis and 1.6% kidney transplant. Multivariate analysis showed that low eGFR (<60 ml/minute/1.73 m²) at the time of biopsy and the combination of steroid/tacrolimus were associated with worse renal outcomes (OR 3.65, 95%CI 2.26-5.89, p<0.001 and OR 19.09, 95%CI 1.938-187.9, p=0.012).

Conclusions : Lupus nephritis was the most common native kidney biopsy findings in our population with low eGFR and the use of steroid/tacrolimus were associated with worse renal outcomes.