Clinical Outcomes in Lupus Nephritis by Renal Response Status: A Retrospective Analysis of the Hopkins Lupus Cohort

Introduction

- Lupus nephritis (LN) is a severe manifestation of systemic lupus erythematosus (SLE).
- Approximately 25% of patients with LN develop end-stage renal disease (ESRD) within 15 years after diagnosis.
- Renal remission is a frequently assessed outcome in LN clinical trials; however, the definition of this endpoint varies across studies.

Study Design

- This retrospective analysis (GSK Study 213203) used health record data from eligible patients enrolled in the Hopkins Lupus Cohort, a long-term, longitudinal study of patients with SLE.
- PERR was a composite endpoint of estimated glomerular filtration rate (eGFR) and proteinuria thresholds. A modified PERR (mPERR) was used in this analysis to exclude urinary sediments (Figure 1).
- Renal outcomes were assessed using the Kaplan-Meier plot.

Methods

- Baseline demographics, treatment history, and clinical characteristics were included as potential confounders.

Results

- Among a total of 172 patients included in the analysis, those who achieved mPERR at 24M after biopsy were significantly more likely to experience long-term renal survival compared to patients who did not achieve mPERR at 24M.

Statistical analysis

- Associations between mPERR status and renal survival (no ESRD/death) and chronic renal insufficiency-free survival were analyzed using Kaplan-Meier plots.
- Cox proportional hazard models were used to evaluate the risk of renal death (ESRD or death), or chronic renal insufficiency during follow-up.
- The tested variables included: LN class, sex, eGFR at LN diagnosis, and a 3-month window for inclusion of laboratory data was defined around each interval date.
- To determine the real-world setting, the timing of clinical assessments varied, and a 3-month window for inclusion of laboratory data was defined around each interval date.

Objective

- This study compared long-term renal survival and chronic renal insufficiency-free survival of patients who achieved mPERR at 24M and biopsy who did not.

Objectives

- Patients with low proteinuria levels at 24M post biopsy were significantly more likely to experience long-term renal survival compared to patients who did not meet eGFR criteria for renal death.

Conclusions

- Achieving mPERR at 24M was associated with improved likelihood of long-term renal survival versus not achieving mPERR at 24M.
- No mPERR at 24M was associated with chronic renal insufficiency.
- There was a significant difference in renal survival between patients who achieved mPERR and those who did not achieve mPERR at 24M.

References

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Michelle Petri, Qinggong Fu, Yulia Green, Anuradha Madan, Daniel W Goldman, Selin Cooper-Blenkinsopp.

Risk of death or chronic renal insufficiency by mPERR status at 24M

- Patients who did not achieve mPERR at 24M were at a higher risk of renal death (ESRD or death) and chronic renal insufficiency from mPERR responders (Table 1).

Table 1: Final multiple Cox proportional hazards models for the association between mPERR category at 24M and death (ESRD/death) and chronic renal insufficiency

<table>
<thead>
<tr>
<th>Study</th>
<th>Events</th>
<th>Censored</th>
<th>HR (95% CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>mPERR at 24M</td>
<td>33</td>
<td>155</td>
<td>0.33 (0.21-0.56)</td>
<td>0.0055</td>
</tr>
<tr>
<td>mPERR at 24M</td>
<td>11</td>
<td>18</td>
<td>0.13 (0.02-0.79)</td>
<td>0.0256</td>
</tr>
<tr>
<td>mPERR at 24M</td>
<td>26</td>
<td>18</td>
<td>0.96 (0.28-3.44)</td>
<td>0.9364</td>
</tr>
<tr>
<td>mPERR at 24M</td>
<td>6</td>
<td>15</td>
<td>0.30 (0.07-1.22)</td>
<td>0.0714</td>
</tr>
</tbody>
</table>

Conclusions

- Patients who achieved mPERR at 24M were significantly less likely to develop chronic renal insufficiency during the follow-up period than patients who did not achieve mPERR at 24M (Figure 3).
- Patients who achieved mPERR at 24M were more likely to achieve long-term renal survival compared to patients who did not achieve mPERR at 24M.
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