

Early Prediction of Long-Term Renal Outcomes in Lupus Nephritis Using Hazard Index Equations

Farah Tamirou¹, Meggan Mackay², Maria Dall'Era³, Joanna Fishbein⁴, Kenneth C. Kalunian⁵, Brad H. Rovin⁶ and Frédéric A. Houssiau⁷, ¹Rheumatology Department, Cliniques universitaires Saint-Luc, Brussels, Belgium, ²The Feinstein Institute for Medical Research, Manhasset, NY, ³University of California, San Francisco, San Francisco, CA, ⁴The Feinstein Institute for Medical Research, New York, NY, ⁵University of California San Diego, San Diego, CA, ⁶Division of Nephrology, Ohio State University Medical Center, Columbus, OH, ⁷Pôle de pathologies rhumatismales systémiques et inflammatoires, Institut de Recherche Expérimentale et Clinique, Université catholique de Louvain, Brussels, Belgium

Meeting: 2018 ACR/ARHP Annual Meeting

Keywords: lupus nephritis and outcome measures

SESSION INFORMATION

Date: Monday, October 22, 2018

Session Title: 4M107 ACR Abstract: SLE-Clinical II: Renal & Neuropsychiatric Disease in SLE (1941-1945)

Session Type: ACR Concurrent Abstract Session

Session Time: 4:30PM-6:00PM

Background/Purpose: Early endpoints predicting long-term outcome in lupus nephritis (LN), which could be used as outcome measures in clinical trials, are still debated. Recently, a multicentric study, using an extended international database of prospectively followed LN patients, succeeded in computing equations (hazard index; HI) predicting adverse kidney outcomes, in *casu* chronic kidney disease (CKD), severe kidney injury (SKI) and renal replacement therapy (RRT). These HI were validated in a replicate cohort. The HI for CKD, SKI and RRT (calculated with data measured at one year) were significantly higher in groups with long-term poor renal outcomes after a follow-up (FU) of ≥ 4 years (Mackay M et al. Arthritis Rheumatol 2016; 68 (suppl.10), abstract 967).

Objectives: To validate the HI for CKD, SKI and RRT in an independent LN cohort followed for ≥ 4 years and to check their validity to predict outcome in patients followed for ≥ 9 years.

Methods: Data from 229 consecutive LN patients followed in a single lupus center were screened. Only those for whom clinical data were available following their first episode of proliferative and/or membranous biopsy-confirmed LN were selected. Serum creatinine and proteinuria at different time points from 102 LN patients followed for ≥ 4 years were analyzed. At last FU, patients were divided according to the presence or absence of CKD, SKI and RRT. Their respective HI, measured at one year, were compared. CKD/SKI were defined as $\geq 30\%/ \geq 50\%$ decrease in eGFR (CKD-EPI equation), compared to the highest value measured within the first year.

Results: As illustrated in the Table, the mean HI for CKD and SKI, measured at one year, were significantly higher in the groups of patients who indeed developed CKD and SKI after a FU of ≥ 4 years compared to those who did not. Importantly, the HI predictive value remained valid after a FU of ≥ 9 years. The mean HI for RRT was higher in patients who developed RRT after ≥ 4 and ≥ 9 years, but the difference was not statistically significant ($p=0.08$ and $p=0.25$, respectively), most likely due to the small numbers of RRT in this series. Of note, clinical (gender, age, mean serum creatinine, mean

proteinuria) and pathological (ISN/RPS class) characteristics did not differ at baseline between patients with poor long-term renal outcome compared to the others.

Conclusion: We confirm the validity of the HI equations as early predictors of poor renal outcomes (CKD and SKI after long-term FU). These HI tools could be used as outcome measures in LN clinical trials.

Renal outcome $\geq$ 4 years (102)	HI at one year (mean $\pm$ SD)	Renal outcome $\geq$ 9 years (76)	HI at one year (mean $\pm$ SD)
Presence of CKD (21)	0.69 $\pm$ 0.53*	Presence of CKD (18)	0.56 $\pm$ 0.63**
Absence of CKD (81)	0.30 $\pm$ 0.40	Absence of CKD (58)	0.32 $\pm$ 0.36
Presence of SKI (8)	-0.67 $\pm$ 0.36*	Presence of SKI (9)	-0.72 $\pm$ 0.44*
Absence of SKI (94)	-1.20 $\pm$ 0.47	Absence of SKI (67)	-1.22 $\pm$ 0.45
Presence of RRT (5)	-1.74 $\pm$ 0.74	Presence of RRT (6)	-1.87 $\pm$ 0.74
Absence of RRT (97)	-2.33 $\pm$ 0.74	Absence of RRT (70)	-2.28 $\pm$ 0.70

HI : hazard index; figures between brackets correspond to numbers of patients; CKD : chronic kidney disease; SKI : severe kidney injury; RRT : renal replacement therapy; *: $p < 0.005$; **: $p < 0.05$ (Mann-Whitney U-tests).

Disclosure: F. Tamirou, None; M. Mackay, None; M. Dall'Era, None; J. Fishbein, None; K. C. Kalunian, None; B. H. Rovin, None; F. A. Houssiau, None.

To cite this abstract in AMA style:

Tamirou F, Mackay M, Dall'Era M, Fishbein J, Kalunian KC, Rovin BH, Houssiau FA. Early Prediction of Long-Term Renal Outcomes in Lupus Nephritis Using Hazard Index Equations [abstract]. *Arthritis Rheumatol*. 2018; 70 (suppl 10). <https://acrabstracts.org/abstract/early-prediction-of-long-term-renal-outcomes-in-lupus-nephritis-using-hazard-index-equations/>. Accessed January 20, 2020.

ACR Meeting Abstracts - <https://acrabstracts.org/abstract/early-prediction-of-long-term-renal-outcomes-in-lupus-nephritis-using-hazard-index-equations/>

This site uses cookies: [Find out more.](#)

Okay, thanks