Predictive values of serum phospholipase A2 receptor antibody and urinary IgG, α 1-macroglobulin in patients with idiopathic membranous nephropathy and nephrotic syndrome

Lili Liu

Beijign Hospital <https://orcid.org/0000-0003-2259-8990>

Haitao Wang

Beijing Hospital

Ban Zhao

Beijing Hospital

Xin Liu

Beijing Hospital

Ying Sun

Beijing Hospital

Yonghui Mao (✉ maoyonghui0214@bjhmoh.cn)

Beijing Hospital <https://orcid.org/0000-0003-0387-729X>

Research

Keywords: idiopathic membranous nephropathy, phospholipase A2 receptor antibody, urinary IgG, urinary α 1-macroglobulin, nephrotic syndrome

Posted Date: May 28th, 2020

DOI: <https://doi.org/10.21203/rs.3.rs-29945/v1>

License: This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Table 4 Predictors of poor renal outcome by Cox regression analysis in patients with idiopathic membranous nephropathy and nephrotic syndrome

Variable	HR	95% CI	p value
Univariate analysis			
Sex, male	1.731	0.459-6.529	0.418
Age	1.021	0.981-1.064	0.307
Serum PLA2R-Ab	1.002	1.001-1.003	0.002
Creatinine	1.010	0.988-1.032	0.373
eGFR	0.985	0.960-1.011	0.206
Albumin	0.827	0.716-0.955	0.010
24-hour proteinuria	1.196	1.012-1.415	0.036
Urinary IgG/Cr	1.027	1.013-1.041	<0.001
Urinary α 1m/Cr	1.158	1.032-1.300	0.013
Urinary NAG/Cr	1.060	1.034-1.086	<0.001
Multivariate analysis			
Serum PLA2R-Ab	1.002	1.001-1.003	0.004

Figures

Figure 1

Correlation analysis between Log₂(PLA2R-ab level) and urinary IgG/Cr (Fig A), Log₂(PLA2R-ab level) and Ua1m/Cr (Fig B), UlgG/Cr and Ua1m/Cr (Fig C), 24Upro and Log₂(PLA2R-ab level) (Fig D), UlgG/Cr (Fig E), Ua1m (Fig F) in the study participants.

Figure 2

Remission rate of PLA2R-Ab (+) (Fig. A, B and C) and PLA2R-Ab (-) (Fig. D, E and F) group in 12-month observed period and at the end of follow-up. A and D: All the patients. B and E: Patients treated with immunosuppressants subgroup. C and F: Patients treated without immunosuppressants subgroup.

Figure 3

ROC curves for predicting non-remission and poor renal outcome. (A) Predicting non-remission: PLA2R-Ab > 216.93 RU/ml (AUC = 0.769, sensitivity = 76.2%, specificity = 73.3%, $p < 0.001$), U IgG/Cr > 15.29 mg/g (AUC = 0.715, sensitivity = 85.7%, specificity = 62.2%, $p = 0.002$), U α 1m/Cr > 0.3547 mg/g (AUC = 0.778, sensitivity = 81.0%, specificity = 70.0%, $p < 0.001$); (B) Predicting poor renal outcome: PLA2R-Ab > 216.93 RU/ml (AUC = 0.778, sensitivity = 81.8%, specificity = 69.0%, $p = 0.003$); U IgG/Cr > 15.76 mg/g (AUC = 0.758, sensitivity = 90.9%, specificity = 61.0%, $p = 0.005$); U α 1m/Cr > 0.3042 mg/g (AUC = 0.738, sensitivity = 90.0%, specificity = 53.0%, $p = 0.010$).

Figure 4

Kaplan-Meier survival curves of renal survival for the high and low serum anti- PLA2R-ab groups (Log rank $p= 0.002$) (Figure A), high and low UlgG/Cr groups (Log rank $p= 0.002$) (Figure B) and high and low Ua1m groups (Log rank $p= 0.007$) (Figure C). Kaplan-Meier survival curves of renal survival for group 1, 2, 3 (Log rank $p= 0.007$) (Figure D). Group 1 patients had no or only one high predictor at baseline; group 2 patients had any two high predictors at baseline; group 3 patients had triple high predictors.