**Supplemental Material Table of Contents**

**Supplemental Figure 1:** Patient flow at the Mayo Clinic.

**Supplemental Figure 2:** Patient flow at VHM.

**Supplemental Figure 3:** Patient flow at CUMC.

**Supplemental Table 1:** Characteristics of 101 patients with positive PLA2R antibodies and no evidence of associated disease or diabetes, for the three cohorts.

**Supplemental Table 2*:*** Biopsy characteristics of 101 patients with positive PLA2R antibodies and no evidence of associated disease or diabetes, for the three cohorts.

**Supplemental Table 1:** Characteristics of 101 patients with positive PLA2R antibodies and no evidence of associated disease or diabetes, for the three cohorts.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Patient Characteristics  n=101 | Mayo Clinic | | | VHM | | | CUMC | | |
| All Patients  (n=45) | eGFR≥60  ml/min/1.73m2  (n=36) | eGFR<60 ml/min/1.73m2  (n=9) | All Patients  (n=13) | eGFR≥60  ml/min/1.73m2  (n=8) | eGFR<60 ml/min/1.73m2  (n=5) | All Patients  (n=43) | eGFR≥60  ml/min/1.73m2  (n=35) | eGFR<60 ml/min/1.73m2  (n=8) |
| Age ‐ years | 50 (38.0 ‒ 58.0) | 47 (37.2 ‒ 54.5) | 57 (49.5 ‒ 64.0) | 53 (38.5 ‒ 72.0) | 44 (52.0 ‒ 34.7) | 73.0 (65.0 ‒ 80.0) | 52 (40.0 – 68.0) | 52 (38.0 – 68.0) | 57 (47.2 – 68.7) |
| Sex (male) ‐ (no.) % | (30/45) 67 | (24/36) 67 | (6/9) 67 | (6/13) 46 | (5/8) 63 | (1/5) 20 | (23/43) 53 | (20/35) 57 | (3/8) 38 |
| Race (Caucasian) ‐ (no.) % | (40/45) 89 | (32/36) 89 | (8/9) 89 | (11/13) 85 | (6/8) 75 | (5/5) 100 | (14/43) 33 | (11/35) 31 | (3/8) 38 |
| PLA2R titer - RU/ml | 80.0 (23.0 ‒ 154.5) | 67.5 (21.2 ‒ 159.5) | 98.0 (68.5 ‒ 212.5) | 120.0 (61.4 ‒ 369.5) | 181.5 (67.6 ‒ 374.2) | 79.2 (46.5 ‒ 498.5) | 66.8 (41.1 – 240.1)1 | 66.8 (47.6 – 246.7)1 | 55.9 (76.0)2 |
| PLA2R immunofluorescence assay Positive ‐ (no.) % | (45/45) 100 | (36/36) 100 | (9/9) 100 | (13/13) 100 | (8/8) 100 | (5/5) 100 | (34/34) 100 | (27/27) 100 | (7/7) 100 |
| Creatinine - mg/dL | 0.9 (0.7 ‒ 1.2) | 0.9 (0.7 ‒ 1.0) | 1.6 (1.4 ‒ 1.8) | 0.9 (0.7 ‒ 1.2) | 0.8 (0.7 ‒ 0.9) | 1.3 (1.1 ‒ 2.2) | 0.9 (0.7 – 1.2) | 0.9 (0.7 – 1.1) | 1.3 (1.2 – 1.5) |
| eGFR - ml/min/1.73cm2 | 90 (68.0 ‒ 104.5) | 96 (79.2 ‒ 10.7.7) | 46 (37.0 ‒ 56.6) | 83 (49.0 ‒ 90.0) | 90 (84.7 ‒ 90.0) | 42 (23.0 ‒ 57.5) | 82 (61.0 – 99.0) | 89 (72.0 – 106.0) | 52 (39.2 – 57.0) |
| Serum albumin - g/dL | 2.5 (1.9 ‒ 3.1) | 2.3 (1.9 ‒ 3.0) | 3.1 (2.0 ‒ 3.3) | 2.4 (2.0 ‒ 2.9) | 2.2 (1.7 ‒ 2.8) | 2.8 (2.3 ‒ 3.4) | 2.4 (1.9 –2.9) | 2.4 (1.9 – 2.9) | 2.5 (2.0 – 3.4) |
| Proteinuria - grams/24hr | 10.0 (5.9 ‒ 12.8) | 10.1 (6.6 ‒13.7) | 5.6 (4.4 ‒ 11.6) | 11.5 (6.8 ‒ 13.7) | 11.3 (4.6 ‒ 14.1) | 11.7 (9.7 ‒ 13.7) | 6.0 (4.3 – 10.5) | 5.4 (4.0 – 9.3) | 8.5 (5.9 –12.3) |
| Membranous Nephropathy on biopsy ‐ (no.) % | (45/45) 100 | (36/36) 100 | (9/9) 100 | (13/13) 100 | (8/8) 100 | (5/5) 100 | (43/43) 100 | (35/35) 100 | (8/8) 100 |

For continuous variables results are expressed as median (interquartile range), for discontinuous variables results are expressed as percentage (number).

**eGFR:** Estimated glomerular filtration rate; **PLA2R:** Anti-phospholipase A2 receptor.

1. ELISA was performed in 10 of 43 patients (8 of 35 with eGFR≥60 and 2 of 8 with eGFR<60).
2. Since PLA2R titer was performed in only 2 of 8 cases, results are reported as mean and standard deviation.

**Supplemental Table 2*:*** Biopsy characteristics of 101 patients with positive PLA2R antibodies and no evidence of associated disease or diabetes, for the three cohorts.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Mayo Clinic | | | VHM | | | CUMC | | |
| PLA2R positive  (n=45) | eGFR≥60 ml/min/1.73m2  (n=36) | eGFR<60  ml/min/1.73m2  (n=9) | PLA2R positive  (n=13) | eGFR≥60  ml/min/1.73m2(n=8) | eGFR<60 ml/min/1.73m2 (n=5) | PLA2R positive  (n=43) | eGFR≥60 ml/min/1.73m2(n=35) | eGFR<60 ml/min/1.73m2 (n=8) |
| Mesangial/endocapillary proliferation - (no.) % | (1/44) 2 | (1/36) 3 | (0/8) 0 | (7/13) 54 | (3/8) 38 | (4/5) 80 | (10/43) 23 | (8/35) 23 | (2/8) 25 |
| Full house immunofluorescence - (no.) % | (0/43) 0 | (0/34) 0 | (0/9) 0 | (1/13) 8 | (0/8) 0 | (1/5) 20 | (0/43) 0 | (0/35) 0 | (0/8) 0 |
| Electron microscopy with secondary features\* - (no.) % | (5/41) 12 | (2/32) 6 | (3/9) 33 | (4/13) 31 | (2/8) 25 | (2/5) 40 | (4/43) 9 | (3/35) 9 | (1/8) 13 |
| Mesangial deposits - (no.) % | (5/43) 12 | (2/34) 6 | (3/9) 33 | (3/13) 23 | (2/8) 25 | (1/5) 20 | (3/43) 7 | (2/35) 6 | (1/8) 13 |
| Subendothelial deposits - (no.) % | (0/41) 0 | (0/32) 0 | (0/9) 0 | (0/13) 0 | (0/8) 0 | (0/5) 0 | (1/43) 2 | (1/35) 3 | (0/8) 0 |
| Tubuloreticular inclusions - (no.) % | (1/41) 2 | (1/32) 3 | (0/9) 0 | (0/13) 0 | (0/8) 0 | (0/5) 0 | (0/43) 0 | (0/35) 0 | (0/8) 0 |
| Total Renal Chronicity Score - Mean (SD) | 1.0 (1.3) | 0.7 (1.0) | 2.2 (1.6) | 3.4 (3.3) | 1.7 (2.7) | 6.2 (2.2) | 1.5 (1.9) | 1.1 (1.4) | 3.0 (2.8) |
| Additional findings | FSGS (n=2), Focal GBM duplication (n=1),  Capillary loop thrombi (n=1), ATI (n=2), AIN (n=1) | Focal GBM duplication (n=1),  Capillary loop thrombi (n=1), ATI (n=1) | FSGS (n=2), ATI (n=1), AIN (n=1) | ATI (n=1) | ATI (n=1) |  | FSGS lesion (n=1),  Intracapillary fibrin thrombi (n=2),  ATI (n=1) | FSGS Lesion (n=1),  Intracapillary Fibrin Thrombi (n=2) | ATI (n=1) |

\*Electron microscopy showing subendothelial, mesangial, tubular basement membrane electron dense deposits, or presence of endothelial tubuloreticular inclusions. **AIN:** Acute interstitial nephritis; **ATI:** Acute tubular injury; **eGFR:** Estimated glomerular filtration rate; **EM:** Electron microscopy; **FSGS:** Focal segmental glomerulosclerosis; **GBM:** Glomerular basement membrane; **no:** Number; **PLA2R:** Anti-phospholipase A2 receptor; **SD:** Standard deviation

**Supplemental Figure 1:** Patient flow at the Mayo Clinic.

**Supplemental Figure 2:** Patient flow at VHM.   
† Three patients had malignancy and diabetes

**Supplemental Figure 3:** Patient flow at CUMC.