Urinary cMet as a prognostic marker in immunoglobulin A nephropathy

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|                                | Group 1 (n = 42) | Group 2 (n = 15) | Group 3 (n = 62) | Group 4 (n = 55) | P value |
|--------------------------------|-----------------|-----------------|-----------------|-----------------|---------|
| Age (years)                    | 31 (20, 46)     | 36 (23, 49)     | 43 (35, 53)     | 45 (33, 60)     | 0.002   |
| Male gender                    | 31 (73.8)       | 7 (46.7)        | 33 (53.2)       | 20 (36.4)       | 0.009   |
| Smoking history                | 5 (11.9)        | 1 (6.7)         | 13 (21.0)       | 11 (20.0)       | 0.406   |
| Diabetes Mellitus              | 1 (2.4)         | 0 (0.0)         | 2 (3.2)         | 4 (7.3)         | 0.204   |
| Hypertension                   | 15 (35.7)       | 5 (33.3)        | 39 (62.9)       | 40 (72.7)       | 0.001   |
| Systolic Blood Pressure (mmHg) | 122.8 ± 16.1    | 121.5 ± 13.0    | 127.3 ± 19.5    | 129.0 ± 19.3    | 0.270   |
| Diastolic Blood Pressure (mmHg)| 76.1 ± 11.7     | 74.2 ± 9.4      | 80.9 ± 13.3     | 81.5 ± 15.7     | 0.079   |
| Body mass index (kg/m²)        | 23.6 ± 3.3      | 23.3 ± 4.0      | 24.2 ± 3.5      | 24.0 ± 3.2      | 0.681   |
| Microscopic hematuria          | 39 (92.9)       | 14 (93.3)       | 56 (90.3)       | 51 (92.7)       | 0.895   |
| SMK Lee grade                  |                 |                 |                 |                 | <0.001  |
| I                              | 4 (9.5)         | 0 (0.0)         | 0 (0.0)         | 1 (1.8)         |         |
| II                             | 28 (66.7)       | 8 (53.3)        | 28 (45.2)       | 20 (36.4)       |         |
| III                            | 9 (21.4)        | 4 (26.7)        | 17 (27.4)       | 15 (27.3)       |         |
| IV                             | 0 (0.0)         | 0 (0.0)         | 6 (9.7)         | 7 (12.7)        |         |
| V                              | 0 (0.0)         | 0 (0.0)         | 4 (6.5)         | 3 (5.4)         |         |
| Haas Class                     |                 |                 |                 |                 | 0.001   |
| I                              | 3 (7.1)         | 0 (0.0)         | 0 (0.0)         | 0 (0.0)         |         |
| II                             | 4 (9.5)         | 1 (6.7)         | 8 (12.9)        | 4 (7.3)         |         |
| III                            | 25 (59.5)       | 7 (46.7)        | 19 (30.6)       | 16 (29.1)       |         |
| IV                             | 8 (19.0)        | 4 (26.7)        | 19 (30.6)       | 18 (32.7)       |         |
| V                              | 0 (0.0)         | 0 (0.0)         | 9 (14.5)        | 8 (14.5)        |         |
| VI                             | 1 (2.4)         | 0 (0.0)         | 0 (0.0)         | 0 (0.0)         |         |
| Mesangial hypercellularity     | 42 (100.0)      | 14 (93.3)       | 58 (93.5)       | 52 (94.5)       | 0.204   |
| Interstitial fibrosis/tubular atrophy | 36 (85.7) | 8 (53.3) | 56 (90.3) | 50 (90.9) | 0.001 |
| Moderate to severe             | 7 (16.7)        | 1 (6.7)         | 18 (29.0)       | 14 (25.5)       | 0.063   |
| Interstitial inflammation      | 30 (71.4)       | 9 (60.0)        | 52 (83.9)       | 51 (92.7)       | 0.006   |
| Moderate to severe             | 3 (7.1)         | 1 (6.7)         | 15 (24.2)       | 12 (21.8)       | 0.006   |
| Vessel                         |                 |                 |                 |                 |         |
| Condition                        | Proportion (%) | Mean ± SD | Median (IQR) | p-value |
|---------------------------------|----------------|-----------|--------------|---------|
| Fibrointimal thickening         | 7 (16.7)       | 5 (33.3)  | 25 (40.3)    | 25 (45.5) | 0.023 |
| Hyaline arteriolosclerosis      | 2 (4.8)        | 1 (6.7)   | 14 (22.6)    | 11 (20.0) | 0.057 |
| Global sclerosis (%)            | 8.3 (0.0, 21.2) | 2.6 (0.0, 15.4) | 28.6 (11.7, 46.2) | 20.0 (5.3, 41.2) | <0.001 |
| Segmental sclerosis (%)         | 0.0 (0.0, 6.9) | 0.0 (0.0, 7.4) | 6.2 (0.0, 18.7) | 5.9 (0.0, 15.8) | 0.005 |
| Crescent (%)                    | 0.0 (0.0, 0.0) | 0.0 (0.0, 3.2) | 0.0 (0.0, 0.0) | 0.0 (0.0, 0.0) | 0.471 |

**Laboratory findings**

| Test                          | Mean ± SD       | Median (IQR) | p-value |
|-------------------------------|-----------------|--------------|---------|
| Serum creatinine (sCr) (mg/dL)| 0.98 (0.80, 1.15) | 0.72 (0.60, 0.88) | 1.28 (0.85, 1.62) | 1.05 (0.79, 1.45) | <0.001 |
| Estimated GFR (mL/min/1.73 m²) | 89.8 (64.5, 109.4) | 113.4 (88.4, 132.3) | 55.1 (42.3, 84.2) | 62.2 (48.3, 87.6) | <0.001 |
| Urine protein/creatinine ratio (mg/mgCr) | 0.31 (0.17, 0.64) | 0.75 (0.30, 0.89) | 2.06 (1.48, 2.75) | 3.26 (2.02, 4.37) | <0.001 |
| Immunoglobulin A (mg/dL)      | 322.0 (227.0, 404.5) | 315.0 (269.0, 395.0) | 321.0 (251.0, 411.0) | 339.0 (252.5, 462.5) | 0.613 |
| Albumin (g/dL)                | 4.1 (4.0, 4.3)   | 4.0 (3.8, 4.2)   | 3.7 (3.5, 4.0)    | 3.6 (3.3, 3.8)    | <0.001 |
| hs-CRP (mg/dL)                | 0.06 (0.03, 0.17) | 0.05 (0.02, 0.35) | 0.10 (0.04, 0.24) | 0.12 (0.04, 0.43) | 0.300 |
| Total cholesterol (mg/dL)     | 160.0 (139.5, 190.0) | 178.0 (162.0, 211.0) | 205.0 (159.8, 233.0) | 194.0 (165.5, 215.5) | 0.001 |
| Uric acid (mg/dL)             | 6.2 (5.0, 7.2)   | 4.6 (4.0, 6.1)   | 6.9 (5.4, 8.1)    | 6.1 (5.2, 7.5)    | 0.022 |
| Urine cMet (ng/mL)            | 0.22 (0.00, 0.79) | 1.62 (1.20, 2.36) | 0.16 (0.00, 0.58) | 1.97 (1.39, 3.31) | <0.001 |
| Urine cMet/Cr (ng/mgCr)       | 0.002 (0.000, 0.006) | 0.018 (0.015, 0.022) | 0.001 (0.000, 0.007) | 0.023 (0.019, 0.045) | <0.001 |

| Treatment                      | Proportion (%)  | Mean ± SD | Median (IQR) | p-value |
|--------------------------------|-----------------|-----------|--------------|---------|
| Treated with RAS blockade      | 20 (47.6)       | 7 (46.7)  | 38 (61.3)    | 41 (74.5) | 0.034 |
| Treated with statin            | 8 (19.0)        | 1 (6.7)   | 24 (38.7)    | 25 (45.5) | 0.004 |
| Treated with immunosuppressive agents | 0 (0.0)   | 0 (0.0)   | 11 (17.7)    | 15 (27.3) | 0.001 |

The data are expressed as the proportion (%), mean ± SD or median (IQR).

Abbreviations: GFR, glomerular filtration rate; hs-CRP, high-sensitivity C-reactive protein; RAS, renin-angiotensin system