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**Supplementary Table S1. Multivariate analysis (Cox proportional HR): end-stage renal disease survival-free – continuous variables.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Variables** | **Label** | **Number****of** **patients** | **Number****of events** | **HR** | **95% CI** | **LRT****p-value** |
| **Model 1** |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| **Age** | per 1-yr increment | 251 | 75 | 1.038 | [1.019-1.057] | **<0.001** |
|  |
| **Brix classification** | Low | 101 | 6 | 1 | - |  |
|  | Moderate | 76 | 20 | 3.06 | [1.21-7.74] | **<0.001** |
|  | High | 74 | 49 | 16.2 | [6.85-38.04] |  |
| **Arteritis** | No | 217 | 61 | 1 | - |  |
|  | Yes | 34 | 14 | 2.69 | [1.44-5.03] | **0.002** |
| **History of diabetes**  | No | 227 | 63 | 1 | - |  |
|  | Yes  | 24 | 12 | 2.19 | [1.16-4.15] | **0.016** |
| **Model 2** |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| **Age** | per 1-yr increment | 251 | 75 | 1.027 | [1.008-1.046] | **0.005** |
|  |  |  |  |  |  |  |
| **Berden classification** | Focal | 85 | 7 | 1 | - | **0.006** |
|  | Mixed | 60 | 21 | 2.20 | [0.92-5.22] |
|  | Crescentic | 57 | 33 | 1.26 | [0.49-3.24] |
|  | Sclerotic | 49 | 14 | 3.26 | [1.37-7.76] |
| **Arteritis** | No | 217 | 61 | 1 | - |  |
|  | Yes | 34 | 14 | 2.19 | [1.18-4.06] | **0.013** |
| **Creatinine clearance** |  |  |  |  |  |  |
| **at diagnosis** | per 1-mL/min | 251 | 75 | 0.950 | [0.932-0.969] | **<0.001** |
| (ml/min/1.73 m2) | increment |  |  |  |  |  |

Abbreviations: *eGFR: estimated Glomerular Filtration Rate by MDRD formula; AAV\_A+: ANCA associated vasculitis with arteritis on kidney biopsy.*

**Supplementary Table S2. Multivariate analysis (Cox proportional HR): end-stage renal disease survival-free – continuous variables and adjustment for potential confounding factors.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Variables** | **Label** | **Number****of** **patients** | **Number****of events** | **HR** | **95% CI** | **LRT****p-value** |
| **Model 1** |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| **Age** | per 1-yr increment | 251 | 75 | 1.042 | [1.021-1.064] | **<0.001** |
|  |
| **Brix classification** | Low | 101 | 6 | 1 | - |  |
|  | Moderate | 76 | 20 | 2.66 | [1.02-6.93] | **<0.001** |
|  | High | 74 | 49 | 16.2 | [6.40-40.83] |  |
| **Arteritis** | No | 217 | 61 | 1 | - |  |
|  | Yes | 34 | 14 | 3.10 | [1.38-6.97] | **0.002** |
| **History of diabetes**  | No | 227 | 63 | 1 | - |  |
|  | Yes  | 24 | 12 | 1.89 | [0.95-3.79] | **0.07** |
| **Model 2** |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| **Age** | per 1-yr increment | 251 | 75 | 1.027 | [1.007-1.049] | **0.01** |
|  |  |  |  |  |  |  |
| **Berden classification** | Focal | 85 | 7 | 1 | - | **0.07** |
|  | Mixed | 60 | 21 | 1.92 | [0.78-4.76] |
|  | Crescentic | 57 | 33 | 1.25 | [0.46-3.37] |
|  | Sclerotic | 49 | 14 | 2.77 | [0.78-4.76] |
| **Arteritis** | No | 217 | 61 | 1 | - |  |
|  | Yes | 34 | 14 | 2.57 | [1.15-5.71] | **0.02** |
| **Creatinine clearance** |  |  |  |  |  |  |
| **at diagnosis** | per 1-mL/min | 251 | 75 | 0.944 | [0.922-0.967] | **<0.001** |
| (ml/min/1.73 m2) | increment |  |  |  |  |  |

Abbreviations: *eGFR: estimated Glomerular Filtration Rate by MDRD formula; AAV\_A+: ANCA associated vasculitis with arteritis on kidney biopsy.* After forcing all variables significantly imbalanced between ANCA\_V+ and ANCA\_V- (history of hypertension, history of cancer, C-Reactive Protein, serum albumin, haemoglobin and maintenance therapy), the arteritis status remained independently associated with renal prognosis.

**Supplementary Table S3**: Clinical, biological and histological comparisons of the three cohorts

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Variable** | **Training cohort** | **International cohort** | **RENVAS cohort** | **p** |
| **(N = 251)** | **(N = 145)** | **(N = 213)** |  |
| **Follow up time (months)** | 42 [12-89] | 71 [52-126] | 42 [11-84] |  |
| **AAV\_A+**  | 34 (13.5) | 16 (11) | 21 (9.9) |  0.45 |
| **Age (yr)** | 63 [52-73] | 63 [55-70] | 65 [56-74] | 0.03 |
| **Renal limited vasculitis** | 53 (21.1) | N/A | 94 (44) | <0.001 |
| ***Renal function at the time of diagnosis*** |  |  |  |  |
|  eGFR (ml/min per 1.73m²) | 24[11-46] | 23 [12-46] | 16 [10-31] | 0.07 |
|  Serum creatinine, μmol/L | 230 [128-404] | 220 [130-378] | 301 [177-469] | 0.01 |
| **ANCA specificity\*** |  |  |  |  |
|  Proteinase 3 | 77 (30.7) | 56 (39.7) | 72 (34) | 0.02 |
|  Myeloperoxydase | 164 (65.3) |  79 (56)  | 119 (56) |  |
|  None | 11 (4.4) | 6 (4.3) | 22 (10) |  |
| **CRP at diagnosis (mg/L)** | 46 [11-133] | N/A | 78 [29-134] | 0.12 |
| **Berden classification** |  |  |  | 0.001  |
|  Focal | 85 (33.9) | 52 (35.9) | 63 (29.6) |  |
|  Crescentic | 49 (19.5) | 37 (25.5) | 58 (27.2) |  |
|  Mixed | 60 (23.9) | 39 (26.9) | 71 (33.3) |  |
|  Sclerotic | 57 (22.7) | 17 (11.7) | 21 (9.9) |  |
| **ANCA Renal Risk Score**  |  |  |  | <0.001 |
| Low Moderate High | 101 (40.2)76 (30.3)74 (29.5) | 6 (4.1)91 (62.8)48 (33.1) | 65 (30.5)98 (46)50 (23.5) |  |

*\* One patient from the training cohort and six patients from the international cohort were positive for both antiPR3 and antiMPO ANCA. Data for ANCA was not available in 10 patients from the international cohort. Abbreviations: ANCA: antineutrophil cytoplasmic antibody; yr: year; eGFR: estimated glomerular filtration rate; CRP: C-Reactive Protein; AAV\_A+: ANCA associated vasculitis with arteritis on kidney biopsy. Quantitative data are presented as median [interquartile range] or mean (+/-SD) and qualitative data as n(%), as appropriate*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Variable** | **Training cohort** |  | **International cohort** **(N = 145)** |  | **RENVAS cohort** **(N = 213)** | ***p*** |
| **(N = 251)** | ***p*** | ***p*** |
|  | **ANCA associated vasculitis A-** | **ANCA associated vasculitis A+** |  | **ANCA associated vasculitis A-** | **ANCA associated vasculitis A+** |  | **ANCA associated vasculitis A-** | **ANCA associated vasculitis A+** |  |
| **N** | 217 | 34 |  | 129 | 16 |  | 192 | 21 |  |
| **Follow up time** | 42 [16-95] | 34 [5-55] |  | 72 [48-121] | 64 [60-80] |  | 42 [11-85] | 46 [8-72] |  |
| **Age** | 62[51-71] | 72[58-79] | 0.003 | 63 [56-70] | 67[47-73] | 0.5 | 64 [56-74] | 75 [66-79] | 0.007 |
| **Renal limited vasculitis**  | 49 (22.6) | 4 (11.8) | 0.18 | N/A | N/A |  | 85 (44.3) | 9 (42.9) | 0.9 |
| ***Renal function at the time of diagnosis*** |  |  |  |  |  |  |  |  |  |
|  eGFR (ml/min per 1.73m²) | 24[12-47] | 20[10-40] | 0.43 | 23 [12-44] | 29[11-60] | 0.65 | 16[10-31] | 23[13-50] | 0.1 |
|  Serum creatinine, μmol/L | 230 [128-400] | 271 [160-501] | 0.51 | 220 [130-350] | 192 [125-451] | 0.85 | 309 [181-492] | 256 [115-371] | 0.07 |
| **ANCA specificity\*** |  |  | 0.21 |  |  | 0.44 |  |  | <0.001 |
|  Proteinase 3 | 71 (32.7) | 6 (17.6) |  | 51/120 (42.5) | 5/15 (33.3) |  | 69 (35.9) |  3 (14.3) |  |
|  Myeloperoxydase | 138 (63.6) | 26 (76.5) |  | 68/120 (56.7) | 11/15 (73.3) |  | 102 (53.1) | 17 (81) |  |
|  None | 9 (4.1) | 2 (5.9) |  | 6/120 (5) | 0 (0) |  | 21 (11) | 1 (4.7) |  |
| **CRP at diagnosis (mg/L)** | 31 [9-92] | 177 [111-220] | <0.001 | N/A | N/A |  | 68 [22-131] | 134 [118-164] | 0.006 |
| **Berden classification** |  |  | 0.039 |  |  | 0.85 |  |  | 0.01 |
|  Focal | 75 (34.6) | 10 (29.4) |  | 45 (34.9) | 7 (43.8) |  | 52 (27.1) | 11 (52.4) |  |
|  Crescentic | 42 (19.3) | 7 (20.6) |  | 33 (25.6) | 4 (25) |  | 55 (28.6) | 3 (14.3) |  |
|  Mixed | 46 (21.2) | 14 (41.2) |  | 35 (27.1) | 4 (25) |  | 65 (33.9) | 6 (28.5) |  |
|  Sclerotic | 54 (24.9) | 3 (8.8) |  | 16 (12.4) | 1 (6.2) |  | 20 (10.4) | 1 (4.8) |  |
| **ANCA Renal Risk Score**  |  |  | 0.027 |  |  | 0.47 |  |  | 0.28 |
| Low Moderate High | 91 (41.9)59 (27.2)67 (30.9) | 10 (29.4)17 (50.0)7 (20.6) |  | 6 (4.7)79 (61.2)44 (34.1) | 0 (0)12 (75)4 (25) |  | 57 (29.7)87 (45.3)48 (25) | 8 (38.1)11 (52.4)2 (9.5) |  |

**Supplementary Table S4: Comparison of AAV\_A- and AAV\_A+ patients in the three cohorts**

*In the EUVAS cohort: 5 patients in the AAV\_A- group and 1 patient in the AAV\_A+ group were positive fort both anti MPO and PR3 ANCA. Data for nine patients in the AAV\_A- group and 1 patient in the AAV\_A+ group were not available. Abbreviations: ANCA: antineutrophil cytoplasmic antibody; yr: year; eGFR: estimated glomerular filtration rate; CRP: C-Reactive Protein; AAV\_A+: ANCA associated vasculitis with arteritis on kidney biopsy. Quantitative data are presented as median [interquartile range] or mean (+/-SD) and qualitative data as n(%), as appropriate.*



**Supplementary Figure 2:** **Overall survival of ANCA associated vasculitis patients with or without arteritis on index kidney biopsy.** Kaplan-Meier curves, log-rank test. Abbreviation: ANCA: anti-neutrophil cytoplasmic antibodies

**Supplementary Figure 3: End-stage renal disease (ESRD)-free survival of ANCA associated vasculitis patients classified as low and moderate risk according to the ANCA renal risk score, with or without arteritis**. A) International cohort. B) RENVAS cohort. Kaplan-Meier curves, univariable Cox model. *Abbreviations: HR: hazard ratio; ANCA: anti-neutrophil cytoplasmic antibodies*