# **Table S1. Regression lines of eGFR according to the Mayo Imaging Classification**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | MIC | Total | Male | Female |
| K=130 mL/m |
|  | 1A | eGFR = 127.18 - 1.09 x age | eGFR = 117.12 - 0.96 x age | eGFR = 134.73 - 1.19 x age |
|  | 1B | eGFR = 150.87 - 1.60 x age | eGFR = 140.81 - 1.47 x age | eGFR = 158.43 - 1.70 x age |
|  | 1C | eGFR = 164.79 - 2.15 x age | eGFR = 154.73 - 2.02 x age | eGFR = 172.35 - 2.25 x age |
|  | 1D | eGFR = 167.67 - 2.47 x age | eGFR = 157.61 - 2.34 x age | eGFR = 175.23 - 2.57 x age |
|  | 1E | eGFR = 154.71 - 2.50 x age | eGFR = 144.65 - 2.37 x age | eGFR = 162.27 - 2.60 x age |
| K=150 mL/m |
|  | 1A | eGFR = 130.87 - 1.12 x age | eGFR = 120.16 - 0.97 x age | eGFR = 138.91 - 1.23 x age |
|  | 1B | eGFR = 153.47 - 1.71 x age | eGFR = 142.77 - 1.56 x age | eGFR = 161.51 - 1.82 x age |
|  | 1C | eGFR = 161.62 - 2.15 x age | eGFR = 150.92 - 2.00 x age | eGFR = 169.67 - 2.26 x age |
|  | 1D | eGFR = 165.90 - 2.46 x age | eGFR = 155.20 - 2.31 x age | eGFR = 173.94 - 2.57 x age |
|  | 1E | eGFR = 163.88 - 2.93 x age | eGFR = 156.49 - 2.78 x age | eGFR = 175.23 - 3.04 x age |

Regression lines were calculated using mixed-effect models with age, Mayo Class, and sex as fixed effects, and with age \* Mayo Class and age \* sex as interaction effects. Mayo Class was classified using the initial eHTKV-calculated using K=130 mL/m and K=150 mL/m.eGFR, estimated glomerular filtration rate; Mayo Class, Mayo Imaging Classification; eHTKV-, estimated height-adjusted total kidney volume growth rate ().

# **Table S2. ROC analysis of initial eHTKV- cutoff values to predict eGFR decline to 15 mL/min/1.73 m2 for censored ages**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Censored age (years)  | Area under ROC curve (95% CI) | AHTKV- cutoff value (%/year)  | Sensitivity | Specificity | Positive predictive value | Likelihood ratio |
| K=130 mL/m | K=150 mL/m | *P* |
| 60  | 0.636 (0.586-0.686) | 0.636 (0.585-0.686) | 0.9808 | 4.31  | 60.2  | 60.0  | 52.8  | 1.50  |
| 65  | 0.636 (0.588-0.684) | 0.636 (0.588-0.684) | 0.8646 | 4.09  | 60.9  | 61.0  | 59.2  | 1.56  |
| 70  | 0.636 (0.590 -0.681) | 0.636 (0.591-0.682) | 0.8577 | 3.99  | 60.8  | 60.8  | 62.3  | 1.55  |

The eGFR at 60, 65, and 70 years was estimated using individually calculated eGFR regression lines. Using ROC analyses, cutoff values of the initially measured eHTKV- to predict eGFR decline to 15 ml/min/1.73m2 at censored ages were calculated. As there was no significant difference in the area under the ROC curve between eHTKV- (K=130 mL/m) and eHTKV- (K=150 mL/m), only K=130 cutoff values are shown. ROC, receiver operating characteristic curve; eHTKV-, estimated height-adjusted total kidney volume growth rate; K, K is a constant in the equation of eHTKV-; CI, confidence interval.

# **Table S3. Comparison of the hazard ratio of ESRD between high-risk and referent subgroups**

|  |  |  |
| --- | --- | --- |
| K=130 mL/m |  | K=150 mL/m |
| Comparison subgroup based on initial eHTKV-  |  | Multivariate hazard ratio adjusted by sex (with 95% CI) | *P*-value |  | Comparison subgroup based on initial eHTKV-  | Multivariate hazard ratio adjusted by sex (with 95% CI) | *P*-value |
| (%/year) |  |  | (%/year) |  |
| ≤4.0 |  | 1 (referent) | <0.0001 |  | ≤3.5 | 1 (referent) | <0.0001 |
| 4.0< |  | 11.43 (5.23 - 24.97) |  | 3.5< | 10.40 (4.68 - 23.10) |
| 3.0< ≤4.0 |  | 1 (referent) | <0.0001 |  | 2.5< ≤3.5 | 1 (referent) | <0.0001 |
| 4.0 <  |  | 6.64 (2.79 - 15.82) |  | 3.5< | 7.69 (3.15 - 18.77) |

Results were derived from Cox's proportional hazards model. Comparison was made between high-risk ESRD and two referent subgroups. *P*-values were derived from the chi-square test. eHTKV-, estimated height-adjusted total kidney volume growth rate  (%/year); ESRD, end-stage renal disease; CI, confidence interval.

# **Figure S1. Time-dependent area under the curve (AUC) and 95% confidence interval using the entire data set**



The mean area under the time-dependent receiver operating characteristic curve (AUC) was compared between K=130 mL/m and K=150 mL/m using Uno's Concordance Statistic [23]. The estimated mean difference ± SEM was 0.0044 ± 0.0024 (P=0.0693).

# **Figure S2.** **Regression lines of eGFR according to the Mayo Imaging Classification**



A: Change in the estimated glomerular filtration rate (eGFR) according to five Mayo Imaging Classification (Mayo Class) subgroups, which were divided using eHTKV- calculated using K=130 mL/m or K=150 mL/m.

B: Comparison of eGFR regression lines of Mayo Class.

Regression lines were calculated using mixed-effect models with age, Mayo Class, and sex as fixed effects, and with age \* Mayo Class and age \* sex as interaction effects (Table S3). Mayo Class was classified using the initial eHTKV-.

# **Figure S3. Renal survival Kaplan-Meier curve until receiving renal replacement therapy according to subgroups divided by the initial eHTKV-.**



The two dotted horizontal lines indicate renal survival probability of 50% and 70%.