SUPPLEMENTARY MATERIAL

**Table 1 of the supplementary material**

Univariate and Multivariable Linear Regression Analysis of the Variables Associated With Maximum Atrial Volume

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Univariate | | | | Multivariable | | | |
| Beta | Lower 95%CI | Higher 95%CI | *P* | Beta | Lower 95%CI | Higher 95%CI | *P* |
| Age, y | 0.556 | -0.134 | 1.246 | .113 |  |  |  |  |
| Male sex | -4.069 | -15.961 | 7.822 | .5 |  |  |  |  |
| BMI, kg/m2 | -0.036 | -1.382 | 1.311 | .958 |  |  |  |  |
| EuroSCORE II, % | -0.047 | -0.864 | 8.511 | .991 |  |  |  |  |
| Hypertension | 20.96 | 2.488 | 39.448 | .026 |  |  |  |  |
| Dyslipidemia | -6.259 | -20.188 | 7.67 | .376 |  |  |  |  |
| Diabetes mellitus | 0.868 | -11.486 | 13.224 | .89 |  |  |  |  |
| CAD | 2.011 | -10.159 | 14.182 | .744 |  |  |  |  |
| BB | 7.284 | -4.917 | 19.487 | .24 |  |  |  |  |
| ACE inhibitor or ARA or spironolactone | 1.721 | -11.087 | 14.531 | .791 |  |  |  |  |
| Aortic area index , cm2/m2 | -4.076 | -70.693 | 62.541 | .904 |  |  |  |  |
| LA volume index, mL/m2 | 1.662 | 1.387 | 1.937 | .0001 | 1.881 | 1.457 | 2.302 | .0001 |
| LV mass index, g/m2 | 0.341 | 0.157 | 0.524 | .0001 | 0.342 | 0.137 | 0.547 | .001 |
| LV end-diastolic diameter, mm | 0.594 | -0.263 | 1.45 | .173 | 0.787 | -0.147 | 1.721 | .098 |
| LV end-systolic diameter, mm | 0.647 | -0.313 | 1.303 | .185 | 1.184 | -0.067 | 2.436 | .064 |
| LV end-diastolic volume BP, mm | 0.155 | -0.048 | 0.358 | .133 | -0.604 | -79.64 | 78.43 | .722 |
| LV end-systolic volume BP, mm | 0.155 | -0.226 | 0.536 | .424 | 0.269 | -0.166 | 0.705 | .233 |
| LV ejection fraction BP, % | 0.119 | -0.672 | 0.911 | .766 | 0.419 | -0.732 | 1.03 | .722 |
| Mean mitral s´, cm/s | -4.401 | -11.599 | 2.795 | .228 | -3.623 | -10.49 | 3.248 | .297 |
| MAPSE, mm | 2.24 | -0.898 | 5.378 | .159 | 3.131 | -0.736 | 6.998 | .111 |
| E velocity, cm/s | 0.098 | -0.006 | 0.203 | .064 | 0.219 | -0.024 | 0.463 | .077 |
| A velocity, cm/s | -0.185 | -0.405 | 0.035 | .099 | -0.225 | -0.455 | 0.005 | .055 |
| E wave deceleration time, s | -0.01 | -0.09 | 0.074 | .817 | -0.016 | -0.107 | 0.075 | .725 |
| E/A ratio | 22.89 | 4.792 | 40.991 | .014 | 26.5 | 7.44 | 45.56 | .007 |
| Medial e´velocity, cm/s | -0.477 | -0.589 | 4.636 | .853 | 0.796 | -4.923 | 6.515 | .783 |
| Lateral e´velocity, cm/s | 1.855 | -1.573 | 5.283 | .285 | 2.907 | -0.679 | 6.494 | .111 |
| Mean e´velocity | 1.826 | -3.153 | 6.806 | .468 | 0.501 | -1.046 | 2.048 | .521 |
| Medial E/e´ratio | 1.227 | -0.147 | 2.592 | .08 | 0.799 | -0.634 | 2.23 | .21 |
| Lateral E/e´ratio | 0.477 | -0.787 | 1.742 | .454 | 0.107 | -1.148 | 1.36 | .865 |
| Mean E/e´ratio | 1.068 | -0.437 | 2.574 | .162 | 3.821 | -1.494 | 9.136 | .156 |
| RA area 4C, cm2 | 2.935 | 1.635 | 4.236 | .0001 | 3.232 | 1.834 | 4.629 | .0001 |
| RA vol 4C, mL | 0.731 | 0.299 | 1.164 | .001 | 0.626 | 0.039 | 1.214 | .037 |
| TAPSE, mm | 0.012 | -1.625 | 1.65 | .988 | -0.139 | -1.999 | 1.721 | .882 |
| Lateral tricuspide s´, cm/s | -0.806 | -3.968 | 2.355 | .613 | -2.485 | -5.899 | 0.928 | .151 |

95%CI, 95% confidence interval; ACE inhibitor, angiotensin-converting enzyme inhibitor; ARA, angiotensin receptor antagonist; BB, beta-blocker agent; BMI, body mass index; BP, biplane; CAD, coronary artery disease; LA, left atrium; LV, left ventricular; MAPSE, mitral annular plane systolic excursion; RA, right atrium; TAPSE, tricuspid annular plane systolic excursion.

Beta estimate relates to 1 unit variation of atrial volume.

The multivariable model included age, sex, body mass index, hypertension, diabetes mellitus, beta-blocker use, renin-angiotensin-aldosterone inhibitors, and aortic valve area index.

**Table 2 of the supplementary material.**

Univariate and Multivariable Linear Regression Analysis of the Variables Associated With Minimum Atrial Volume

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Univariate** | | | | **Multivariable** | | | |
| Beta | Lower 95%CI | Higher 95%CI | *P* | Beta | Lower 95%CI | Higher 95%CI | *P* |
| Age, y | 0.596 | 0.06 | 1.133 | .029 |  |  |  |  |
| Male | -6.365 | -15.042 | 2.911 | .177 |  |  |  |  |
| BMI, kg/m2 | -0.286 | -1.346 | 0.773 | .594 |  |  |  |  |
| EuroSCORE II, % | 3.337 | -3.328 | 10.004 | .324 |  |  |  |  |
| Hypertension | 17.481 | 3.049 | 31.913 | .018 |  |  |  |  |
| Dyslipidemia | -3.749 | -14.666 | 7.168 | .498 |  |  |  |  |
| Diabetes mellitus | -1.51 | -11.179 | 8.159 | .758 |  |  |  |  |
| CAD | 4.612 | -5.066 | 14.292 | .348 |  |  |  |  |
| BB | 5.881 | -3.739 | 15.502 | .229 |  |  |  |  |
| ACE inhibitor or ARA or spironolactone | 4.727 | -5.299 | 14.724 | .354 |  |  |  |  |
| Aortic area index, cm2/m2 | -0.121 | -52.28 | 52.04 | .996 |  |  |  |  |
| LA volume index, mL/m2 | 1.662 | 1.387 | 1.937 | .0001 | 1.419 | 1.069 | 1.768 | .0001 |
| LV mass index, g/m2 | 0.212 | 0.066 | 0.357 | .005 | 0.219 | 0.058 | 0.381 | .008 |
| LV end-diastolic diameter, mm | 0.508 | -0.154 | 1.171 | .131 | 0.698 | -0.024 | 1.422 | .058 |
| LV end-systolic diameter, mm | 0.878 | 0.141 | 1.614 | .02 | -0.978 | -0.239 | 2.195 | .114 |
| LV end-diastolic volume BP, mm | 0.155 | -0.047 | 0.358 | .133 | 0.162 | -0.177 | 0.502 | .345 |
| LV end-systolic volume BP, mm | 0.154 | -0.226 | 0.536 | .424 | 0.111 | -0.069 | 0.291 | .226 |
| LV ejection fraction BP, % | -0.017 | -0.689 | 0.546 | .819 | -0.087 | -0.774 | 0.598 | .8 |
| Mean mitral s´, cm/s | -4.79 | -10.257 | 0.675 | .085 | -2.157 | -7.311 | 2.997 | .408 |
| MAPSE, mm | 0.41 | -1.923 | 2.744 | .727 | 1.279 | -1.568 | 4.127 | .372 |
| E velocity, cm/s | 0.056 | -0.033 | 0.136 | .216 | 0.209 | 0.017 | 0.402 | .033 |
| A velocity, cm/s | -0.172 | -0.347 | 0.004 | .056 | -0.218 | -0.401 | -0.036 | .019 |
| E wave deceleration time, s | -0.027 | -0.094 | 0.04 | .43 | -0.041 | -0.114 | 0.031 | .256 |
| E/A ratio | 19.136 | 4.707 | 32.564 | .01 | 22.45 | 7.341 | 37.56 | .004 |
| Medial e´velocity, cm/s | -0.21 | -4.113 | 3.693 | .915 | 1.653 | -2.614 | 5.92 | .443 |
| Lateral e´velocity, cm/s | 2.069 | -0.536 | 4.676 | .118 | 2.996 | 0.343 | 5.649 | .027 |
| Mean e´velocity | 2.113 | -1.686 | 5.912 | .272 | 4.17 | 0.239 | 8.101 | .038 |
| Medial E/e´ ratio | -1.068 | -0.437 | 2.574 | .162 | 0.885 | -0.263 | 2.034 | .129 |
| Lateral E/e´ ratio | 0.627 | -0.402 | 1.657 | .229 | 0.307 | -0.712 | 1.328 | .549 |
| Mean E/e´ ratio | 1.24 | 0.023 | 2.457 | .046 | 0.723 | -0.529 | 1.975 | .253 |
| RA area 4C, cm2 | 2.031 | 1.008 | 3.058 | .0001 | 2.392 | 1.294 | 3.491 | .0001 |
| RA vol 4C, mL | 0.598 | 0.264 | 0.932 | .001 | 0.719 | 0.355 | 1.082 | .0001 |
| TAPSE, mm | -0.509 | -1.706 | 0.728 | .416 | -0.434 | -1.817 | 0.949 | .534 |
| Lateral tricuspide s´, cm/s | -1.182 | -3.586 | 1.222 | .331 | -2.064 | -4.628 | 0.501 | .113 |

95%CI, 95% confidence interval; ACE inhibitor, angiotensin-converting enzyme inhibitor; ARA, angiotensin receptor antagonist; BB, beta-blocker agent; BMI, body mass index; BP, biplane; CAD, coronary artery disease; CI, confidence interval; LA, left atrium; LV, left ventricular; MAPSE, mitral annular plane systolic excursion; RA, right atrium; TAPSE, tricuspid annular plane systolic excursion.

Beta estimate relates to 1 unit variation of atrial volume.

The multivariable model included age, sex, body mass index, hypertension, diabetes mellitus, beta-blocker use, renin-angiotensin-aldosterone inhibitors, aortic valve area index.

**Table 3 of the supplementary material**

Univariate Cox Regression Analysis of the Variables Associated With the Incidence of Atrial Fibrillation After AVR

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Univariate | | | |
| HR | Lower 95%CI | Higher 95%CI | *P* |
| Age, y | 1.036 | 0.994 | 1.08 | .087 |
| Male sex | 1.178 | 0.61 | 2.274 | .624 |
| BMI, kg/m2 | 0.992 | 0.925 | 1.063 | .816 |
| EuroSCORE II, %\* | 0.765 | 0.46 | 1.273 | .303 |
| Hypertension | 5.35 | 0.733 | 39.1 | .098 |
| Dyslipidemia | 0.659 | 0.311 | 1.404 | .281 |
| Diabetes mellitus | 1.205 | 0.621 | 2.338 | .581 |
| CAD | 0.64 | 0.324 | 1.261 | .201 |
| BB | 0.952 | 0.492 | 1.842 | .886 |
| ACE inhibitor or ARA or spironolactone | 1.137 | 0.548 | 2.357 | .73 |
| Statin | 0.875 | 0.383 | 1.999 | .752 |
| AVR alone vs AVR + CABG | 0.684 | 0.311 | 1.503 | .345 |
| Mean aortic gradient, mmHg | 0.998 | 0.971 | 1.026 | .902 |
| Aortic area index, cm2/m2 | 4.596 | 0.089 | 236.1 | .448 |
| LV mass index, g/m2 | 1.006 | 0.996 | 1.016 | .208 |
| LV end-diastolic diameter, mm | 0.987 | 0.948 | 1.027 | .539 |
| LV end-systolic diameter, mm | 0.943 | 0.883 | 1.007 | .082 |
| LV end-diastolic volume BP, mm | 1.002 | 0.98 | 1.024 | .834 |
| LV end-systolic volume BP, mm | 1.001 | 0.99 | 1.012 | .842 |
| LV ejection fraction BP, % | 1.04 | 0.999 | 1.093 | .054 |
| Mean mitral s´, cm/s | 1.248 | 0.854 | 1.814 | .243 |
| MAPSE, mm | 1.103 | 0.938 | 1.295 | .233 |
| E velocity, cm/s | 1.003 | 0.991 | 1.015 | .664 |
| A velocity, cm/s | 0.997 | 0.985 | 1.009 | .62 |
| E wave deceleration time, s | 1.003 | 0.998 | 1.007 | .16 |
| E/A ratio | 1.572 | 0.664 | 3.723 | .303 |
| Medial e´velocity (cm/s) | 0.925 | 0.693 | 1.232 | .556 |
| Lateral e´velocity, cm/s | 0.936 | 0.775 | 1.132 | .498 |
| Mean e´velocity | 0.898 | 0.684 | 1.178 | .439 |
| Medial E/e´ ratio | 1.036 | 0.968 | 1.108 | .297 |
| Lateral E/e´ ratio | 1.043 | 0.977 | 1.111 | .202 |
| Mean E/e´ ratio | 1.05 | 0.973 | 1.134 | .209 |
| RA area 4C, cm2 | 0.977 | 0.885 | 1.078 | .648 |
| TAPSE, mm | 0.9336 | 0.861 | 1.012 | .095 |
| Lateral tricuspide s´, cm/s | 1.103 | 0.95 | 1.282 | .196 |

95%CI, 95% confidence interval; ACE inhibitor, angiotensin-converting enzyme inhibitor; ARA, angiotensin receptor antagonist; BB, beta-blocker agent; BMI, body mass index; BP, biplane; CABG, coronary artery bypass graft; CAD, coronary artery disease; CI, confidence interval; HR, hazard ratio; LA, left atrium; LV, left ventricular; MAPSE, mitral annular plane systolic excursion; RA, right atrium; TAPSE, tricuspid annular plane systolic excursion.