**Supplementary Table 1 Risk factors associated with hospital mortality *(using multiple imputation database)* patients with isolated AV surgery**

|  |  |  |
| --- | --- | --- |
| Characteristics | Univariate |  Multivariable |
|  | **OR (95% CI)** | **p-value** |  **OR (95% CI)** | **p-value** |
| Age | 1.06(1.04-1.08) | **<0.001** |  1.08 (1.07-1.09) | **<0.001** |
| Female vs male | **1.20(0.90-1.61)** | 0.220 |  \*  |  \* |
| Chronic lung disease | 2.44(1.76-3.38) | **<0.001** |  1.80 (1.52-2.13) | **<0.001** |
| Extracardiac arteriopathy | 2.58(1.76-3.78) | **<0.001** |  1.56 (1.29-1.89) | **<0.001** |
| Neurological dysfunction | 2.73(1.53-4.87) | **0.001** |  2.28 (1.71-3.03) | **<0.001** |
| Prior cardiac surgery | 3.63(2.61-5.05) | **<0.001** |  3.12 (2.64-3.69) | **<0.001** |
| Serum creatinine (>200um/L) | 6.48(3.82-10.98) | **<0.001** |  1.73 (1.19-2.51) |  **0.004** |
| Active endocarditis | 3.91(2.53-6.04) | **<0.001** |  2.39 (1.80-3.17) | **<0.001** |
| Critical preoperative state | 7.14(4.46-11.45) | **<0.001** |  1.78 (1.28-2.46) |  **0.001** |
| Unstable angina | 17.5(6.19-49.52) | **<0.001** |  2.72 (1.28-5.78) |  **0.010** |
| LV function |  |  |  |  |
|  Good | *Reference* |  |  *Reference* |  |
|  Moderate | 2.26(1.60-3.18) | **<0.001** |  1.11(0.91-1.34) |  0.283 |
|  Poor | 2.39(1.28-4.46) | **0.007** |  1.49(1.09-2.04) |  **0.013** |
| Recent myocardial infarction | 6.11(3.29-11.34) | **<0.001** |  4.05(2.91-5.64) | **<0.001** |
| Pulmonary hypertension | 4.80(3.02-7.63) | **<0.001** |  3.98(3.21-4.95) | **<0.001** |
| Emergent surgery | 5.88(3.68-9.39) | **<0.001** |  2.58(1.87-3.56) | **<0.001** |
| Prior PCI | 0.96(0.44-2.09) | 0.907 | \* | \* |
| Prior CABG | 3.39(2.13-5.41) | **<0.001** | \* | \* |
| Prior Valve Surgery | 3.60(2.34-5.52) | **<0.001** | \* | \* |
| Prior Aorta Surgery | 0.02(0.018-0.024) | **0.022** | 1.64(1.05-2.57) | **0.029** |
| Prior Other Cardiac Surgery | 1.98(0.99-3.94) | 0.053 | 3.12(2.64-3.69) | **<0.001** |

\*This variable was not significant during univariate analysis and was therefore not included in multivariate analysis for this group of patients.

AV= Aortic Valve, CABG= Coronary Artery Bypass Grafting, LV= Left Ventricular, PCI= Percutaneous Coronary Intervention

**Supplementary Table 2 Multivariable analyses of risk factors associated with in-hospital mortality in male and female patients undergoing isolated AV surgery**

|  |  |  |
| --- | --- | --- |
| **Characteristics** | **Males** | **Females** |
|  | **OR (95% CI)** | **p-value** | **OR (95% CI)** | **p-value** |
| Age | 1.07(1.06-1.08) | **<0.001** | 1.07(1.06-1.08) | **<0.001** |
| Chronic lung disease | 2.07(1.65-2.60) | **<0.001** | 1.47(1.17-1.86) | **0.001** |
| Extracardiac arteriopathy | 1.54(1.18-1.99) | **0.001** | 2.00(1.53-2.59) | **<0.001** |
| Neurological dysfunction | 2.55(1.74-3.74) | **<0.001** | 1.38(1.00-2.14) | 0.155 |
| Prior cardiac surgery | 3.31(2.52-4.34) | **<0.001** | 1.91(1.31-2.77) | **0.001** |
| Serum creatinine (>200um/L) | 1.63(1.06-2.50) | **0.026** | 2.84(1.80-4.49) | **<0.001** |
| Critical preoperative state | 2.02(1.31-3.12) | **0.001** | 1.67(1.07-2.61) | **0.024** |
| LV function |  |  |  |  |
|  Good | *Reference* |  | *Reference* |  |
|  Moderate | 1.56(1.24-1.97) | **<0.001** | 0.91(0.69-1.19) | 0.487 |
|  Poor | 1.13(0.74-1.75) | 0.568 | 3.15(2.07-4.79) | **<0.001** |
| Recent myocardial infarction | 3.60(2.28-5.70) | **<0.001** | 5.18(3.40-7.88)  | **<0.001** |
| Pulmonary hypertension | 5.59(4.22-7.42) | **0.001** | 2.23(1.59-3.11) | **<0.001** |
| Emergent surgery | 2.18(1.37-3.45) | **0.001** | 1.82(1.14-1.90) | **0.012** |
| Prior valve Surgery  | 0.49(0.32-0.73) | **0.001** | 2.90(1.87-4.48) | **<0.001** |

AV= Aortic Valve, LV= Left Ventricular

**Supplementary Table 3 Risk factors associated with hospital mortality *(using multiple imputation database)* patients with concomitant CABG+AV surgery**

|  |  |  |
| --- | --- | --- |
| Characteristics | Univariate | Multivariable |
|  | **OR (95% CI)** | **p-value** | **OR (95% CI)** | **p-value** |
| Age | 1.07(1.05-1.09) | **<0.001** | 1.06(1.03-1.09) | **<0.001** |
| Female vs male | **1.64(1.26-1.12)** | **<0.001** | **2.00(1.44-1.79)** | **<0.001** |
| Chronic lung disease | 2.11(1.57-2.84) | **<0.001** | 2.06(1.42-2.97) | **<0.001** |
| Extracardiac arteriopathy | 2.07(1.55-2.76) | **<0.001** | 1.81(1.26-2.60) | **0.001** |
| Neurological dysfunction | 0.39(0.12-1.23) | 0.107 | \* | \* |
| Prior cardiac surgery | 3.53(2.35-5.29) | **<0.001** | 4.93(3.9-7.88) | **<0.001** |
| Serum creatinine (>200um/L) | 4.21(2.55-6.98) | **<0.001** | 2.84(1.44-5.62) | **0.003** |
| Active endocarditis | 3,43(1.44-8.13) | **0.005** | 1.53(0.98-2.38) | 0.060 |
| Critical preoperative state | 5.37(3.21-8.98) | **<0.001** | \* | \* |
| Unstable angina | 6.70(4.39-10.24) | **<0.001** | 5.57(3.95-10.54) | **<0.001** |
| LV function |  |  |  |  |
|  Good | *Reference* | *Reference* | *Reference* | *Reference* |
|  Moderate | 1.80(1.34-2.42) | **<0.001** | 1.22(1.04-1.42) | **0.012** |
|  Poor | 2.78(1.77-4.36) | **<0.001** | 1.67(1.31-2.14) | **<0.001** |
| Recent myocardial infarction | 2.43(1.65-3.59) | **<0.001** | \* | \* |
| Pulmonary hypertension | 2.28(1.32-2.94) | **<0.001** | 1.44(1.12-1.86) | **0.005** |
| Emergent surgery | 6.36(3.99-10.15) | **<0.001** | 2.64(1.30-5.39) | **0.008** |
| Prior PCI | 1.34(0.87-2.01) | 0.180 | \* | \* |
| Prior CABG | 3.46(2.12-5.65) | **<0.001** | \* | \* |
| Prior Valve Surgery | 3.31(1.49-7.37) | **0.003** | \* | \* |
| Prior Aorta Surgery | 0(0-0) | 0.999 | \* | \* |
| Prior Other Cardiac Surgery | 1.54(0.74-3.19) | 0.247 | 4.57(3.78-5.54) | **<0.001** |
| Circular Arrest | 2.33(1.06-5.12) | **0.036** | 1.98(1.41-2.77) | **<0.001** |
| Total arterial grafting | 0.63(0.45-0.89) | **0.008** | \* | \* |
| Increasing number of arterial anastomosis | 0.88(0.75-1.04) | 0.128 | \* | \* |
| Total venous grafting | 1.19(0.90-1.58) | 0.220 | \* | \* |
| Increasing number of venous anastomosis | 1.28(1.15-1.42) | **<0.001** | 1.19(1.05-1.36) | **0.007** |
| Utilization of both arterial and venous grafts | 1.17(0.91-1.52) | 0.227 | \* | \* |

\*This variable was not significant during univariate analysis and was therefore not included in multivariate analysis for this group of patients.
AV= Aortic Valve, CABG= Coronary Artery Bypass Grafting, LV= Left Ventricular, PCI= Percutaneous Coronary Intervention

**Supplementary Table 4 Multivariable analyses of risk factors associated with in-hospital mortality in male and female patients undergoing concomitant CABG+AV surgery**

|  |  |  |
| --- | --- | --- |
| **Characteristics** | **Males** | **Females** |
|  | **OR (95% CI)** | **p-value** | **OR (95% CI)** | **p-value** |
| Age | 1.07(1.06-1.08) | **<0.001** | 1.06(1.05-1.08) | **<0.001** |
| Chronic lung disease | 2.28(1.90-2.74) | **<0.001** | 1.33(1.02-1.73) | **0.033** |
| Extracardiac arteriopathy | \* | \* | 1.61(1.26-2.06) | **<0.001** |
| Neurological dysfunction | \* | \* | \* | \* |
| Prior cardiac surgery | 4.41(3.39-5.75) | **<0.001** | 5.94(4.33-8.13) | **<0.001** |
| Serum creatinine (>200um/L) | \* | \* | 9.21(5.95-14.25) | **<0.001** |
| Critical preoperative state | 1.74(1.17-2.60) | **0.007** | \* | \* |
| Endocarditis | \* | \* | 7.98(3.67-17.34) | **<0.001** |
| Unstable angina | \* | \* | 10.92(7.57-15.76) | **<0.001** |
| LV function |  |  |  |  |
|  Good | *Reference* |  | *Reference* |  |
|  Moderate | 0.16(1.35-1.98) | **<0.001** | 0.82(0.63-1.06) | 0.128 |
|  Poor | 2.36(1.80-3.10) | **<0.001** | 0.55(0.061-0.40) | **<0.001** |
| Emergency operation | 4.79(3.34-6.86) | **<0.001** | 1.94(1.20-3.14) | **0.007** |
| Recent myocardial infarction | 1.01(0.74-1.37) | 0.960 | 1.15(0.80-1.63) | 0.453 |
| Pulmonary hypertension | 2.10(1.56-2.83) | **<0.001** | \* | \* |
| Prior PCI | 1.40(1.12-1.75) | **0.003** | 1.33(1.02-1.73) | **0.033** |
| Circular Arrest | 2.42(1.52-3.85) | **<0.001** | 2.24(1.28-3.90) | **0.005** |
| Total arterial grafting | 1.39(1.01-1.92) | **0.043** | 1.20(1.11-1.30) | 0.086 |
| Total venous grafting | \* | \* | 1.20(0.98-1.48) | 0.086 |
| Increasing number of venous anastomosis | 1.20(1.10-1.31) | **<0.001** | 1.20(1.11-1.30) | **<0.001** |
| Utilization of both arterial and venous grafts | 1.46(1.17-1.82) | **0.001** | 1.20(0.98-1.48) | 0.086 |

\*This variable was not significant during univariate analysis and was therefore not included in multivariate analysis for this group of patients. LV= Left Ventricular, PCI= Percutaneous Coronary Intervention