

Table S1. Euroscore II variables included in the model.

	Variable
1	Sex (Males)
2	Sex (Females)
3	Age
4	GFR
5	EF preop
6	MPAP
7	COPD (Grade 3-4)
8	Arteriopathy
9	Mobility limitation
10	Previous operations
11	Preop instability
12	Diabetes
13	CCS (Grade 3-4)
14	Recent MI
15	NYHA (Grade 3-4)
16	Urgency
17	EF
18	Euroscore

The table lists the standard EuroSCORE II variables among survivors and non-survivors after isolated CABG. As neither of patients had endocarditis, thoracic surgery, and all patients had isolated CABG, these variables were excluded. **Abbreviations:** **GFR** – Glomerular Filtration Rate, **EF** – Ejection Fraction, **MPAP** – Mean Pulmonary Artery Pressure, **BSA** – Body Surface Area, **COPD** – Chronic Obstructive Pulmonary Disease, **CCS** – Canadian Cardiovascular Society (Angina Classification), **MI** – Myocardial Infarction, **NYHA** – New York Heart Association (Heart Failure Classification), **CABG** – Coronary Artery Bypass Grafting.

Table S2. Preoperative variables included in the model.

	Variable
1	Height (cm)
2	Weight (kg)
3	BMI
4	Body Surface Area (m ²)
5	Dyslipidemia
6	Hypertension
7	Atrial fibrillation
8	TIA
9	Family history
10	Smoker
11	Anti-coagulation drugs
12	Cancer
13	PAD (none)
14	Kidney disease
15	Last pre-operative creatinine (mg/dl)
16	Carotid stenosis
17	Previous vascular surgery/amputation
18	Previous MI
19	Ventilated preop
20	Left- or right-heart catheterisation
21	Perioperative PCI
22	Triple vessel disease
23	Instable Angina-pectoris
24	Cardiogenic shock
25	MI <6 hours before CABG

The table lists clinical and laboratory parameters collected preoperatively but not included in the original EuroSCORE II. **Abbreviations:** COPD – Chronic Obstructive Pulmonary Disease; CCS – Canadian Cardiovascular Society; MI – Myocardial Infarction; NYHA – New York Heart Association; BSA – Body Surface Area; PAD – Peripheral Artery Disease; TIA – Transient Ischemic Attack; PCI – Percutaneous Coronary Intervention; CABG – Coronary Artery Bypass Grafting.

Table S3. Postoperative variables included in the model

	Variable
1	Max. creatinin-value (n)
2	Max. CK-value (U/l)
3	Max. CK-MB value (U/l)
4	Max. Troponin-T (ng/ml)
5	Perioperative MI
6	Cardiac complications (none)
7	Stroke
8	Neurological non-cerebro complications (none)
9	Kidney failure
10	Pulmonary complication (none)
11	Other complications (none)

The table lists postoperative clinical and laboratory variables available within the first five days following surgery. **Abbreviations:** **CK** – Creatine Kinase; **CK-MB** – Creatine Kinase Myocardial Band; **MI** – Myocardial Infarction; **ng/ml** – Nanograms per millilitre; **U/l** – Units per litre; **CABG** – Coronary Artery Bypass Grafting.

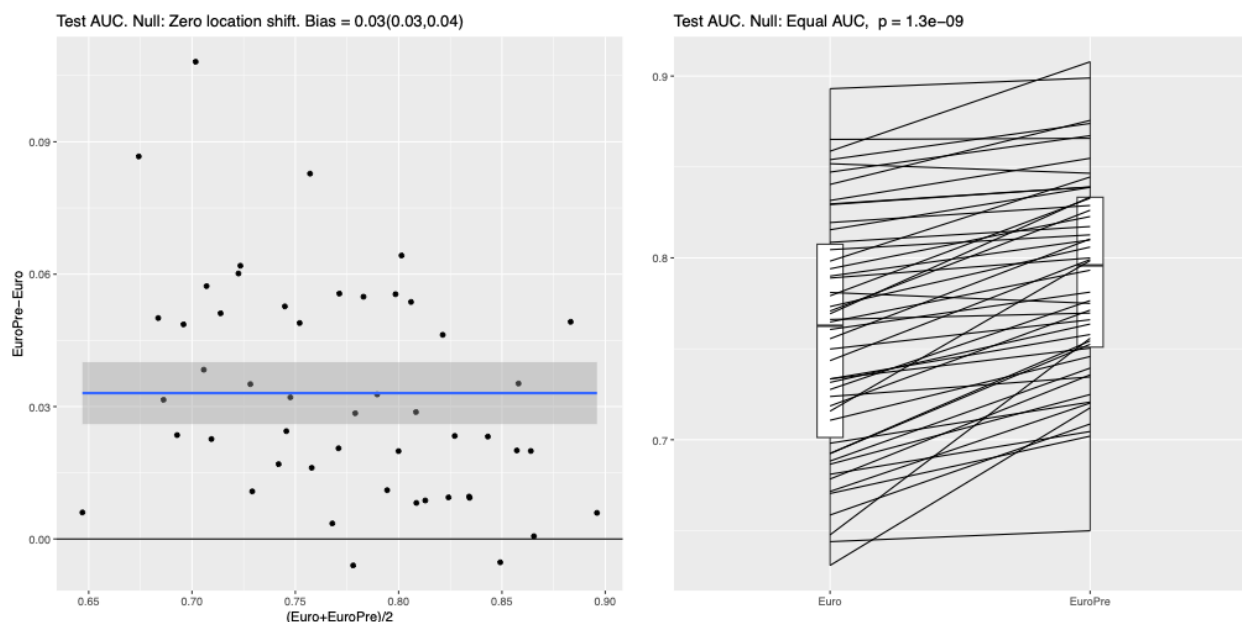


Figure S1. Random Forest: Comparison of AUC Between Model I (EuroScore II + additional Pre-operative variables) and Baseline Model (EuroScore II). This figure compares AUC for the Random Forest classifier trained on the baseline EuroSCORE II variables (“Euro”) and an extended feature set including additional preoperative variables (“EuroPre,” Model I). The left panel displays the distribution of AUC differences across 100 random train-test splits, with an average improvement of 0.03 (95% CI: 0.03–0.04). The right panel shows paired AUC values for each data split, with lines connecting matched comparisons. The observed improvement is statistically significant ($p = 1.3 \times 10^{-9}$, Wilcoxon signed-rank test), demonstrating a consistent enhancement in discriminative performance when preoperative features are added to the baseline model.

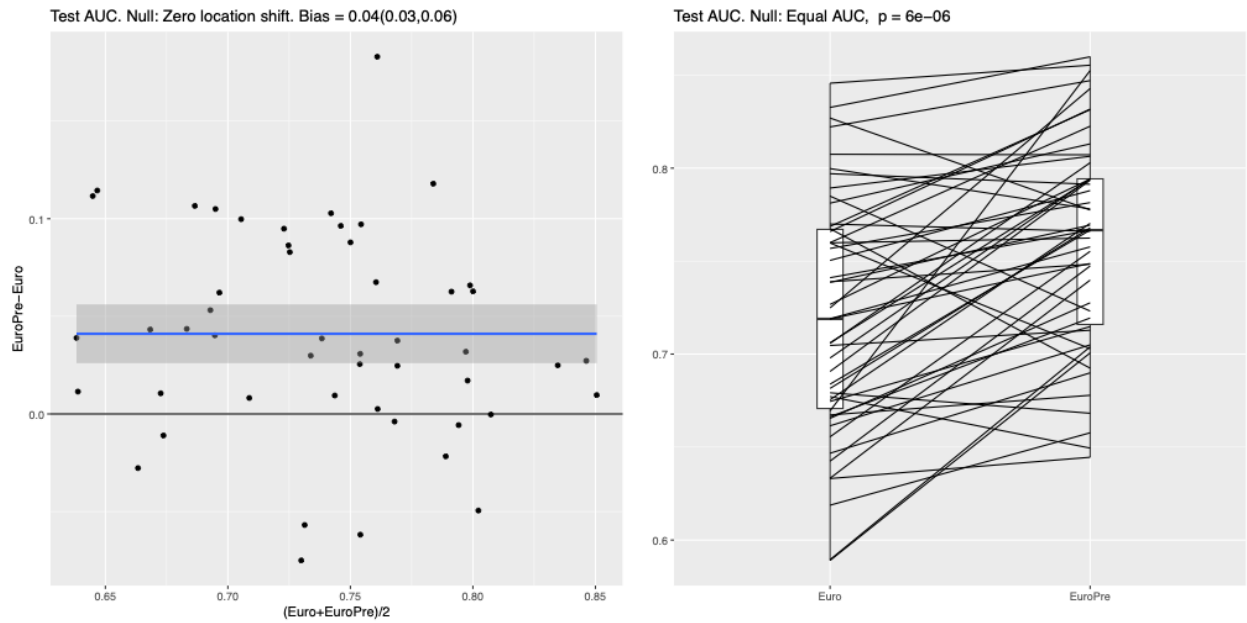


Figure S2. Neural Network: Comparison of AUC Between Model I (EuroScore II + additional Pre-operative variables) and Baseline Model (EuroScore II). This figure compares AUC for a neural network classifier trained on the baseline EuroSCORE II variables (“Euro”) versus an extended set including additional preoperative variables (“EuroPre,” Model I). The left panel displays the paired AUC differences across 100 random train-test splits, with a mean improvement of 0.04 (95% CI: 0.03–0.06, blue line). The right panel presents matched AUC values with each line connecting results from the same data split. The improvement in AUC is statistically significant ($p = 6 \times 10^{-6}$, Wilcoxon signed-rank test), indicating that the inclusion of supplementary preoperative data enhances the model’s discriminative ability.

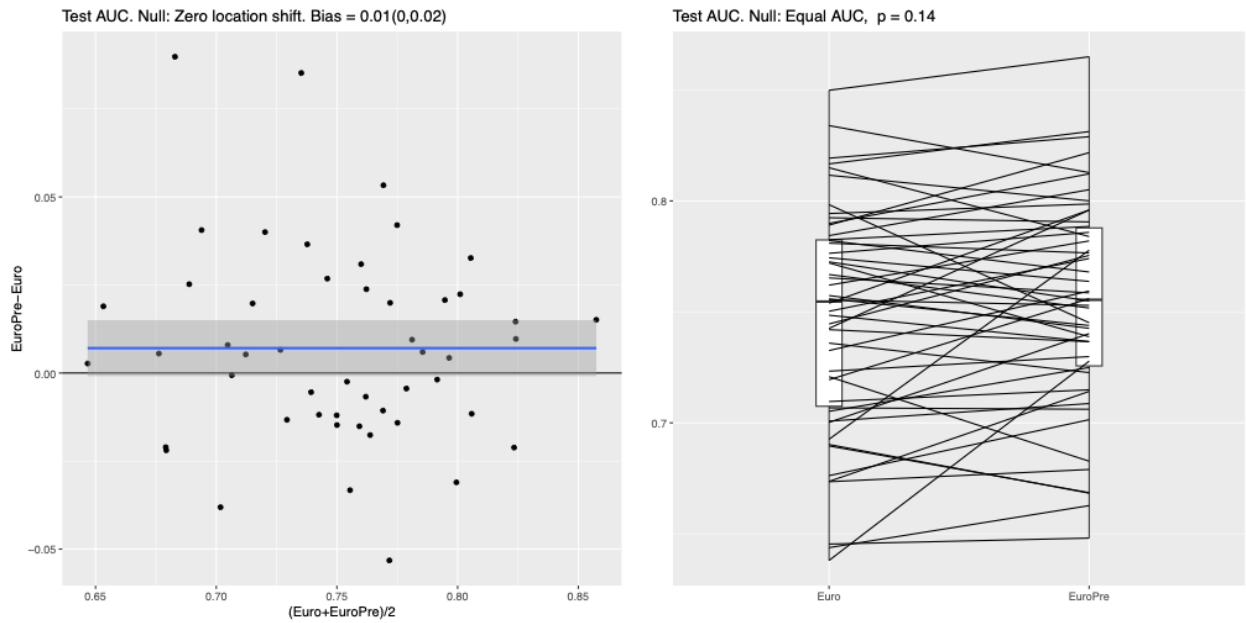


Figure S3. Logistic Regression: Comparison of AUC Between Model I (EuroScore variables + additional preoperative variables) and Baseline Model (EuroScore variables alone). This figure illustrates the comparison of AUC values between logistic regression models trained on EuroSCORE II variables alone (“Euro”) and those incorporating additional preoperative features (“EuroPre,” Model I). The left panel displays the paired AUC differences across 100 train-test splits, showing a mean improvement of 0.01 with a 95% confidence interval of (0.00–0.02). The right panel presents the AUC values for each model as boxplots with lines connecting paired results. No statistically significant improvement in AUC was observed with the extended feature set ($p = 0.14$, Wilcoxon signed-rank test), indicating that logistic regression fails to leverage the additional preoperative variables effectively compared to nonlinear classifiers.

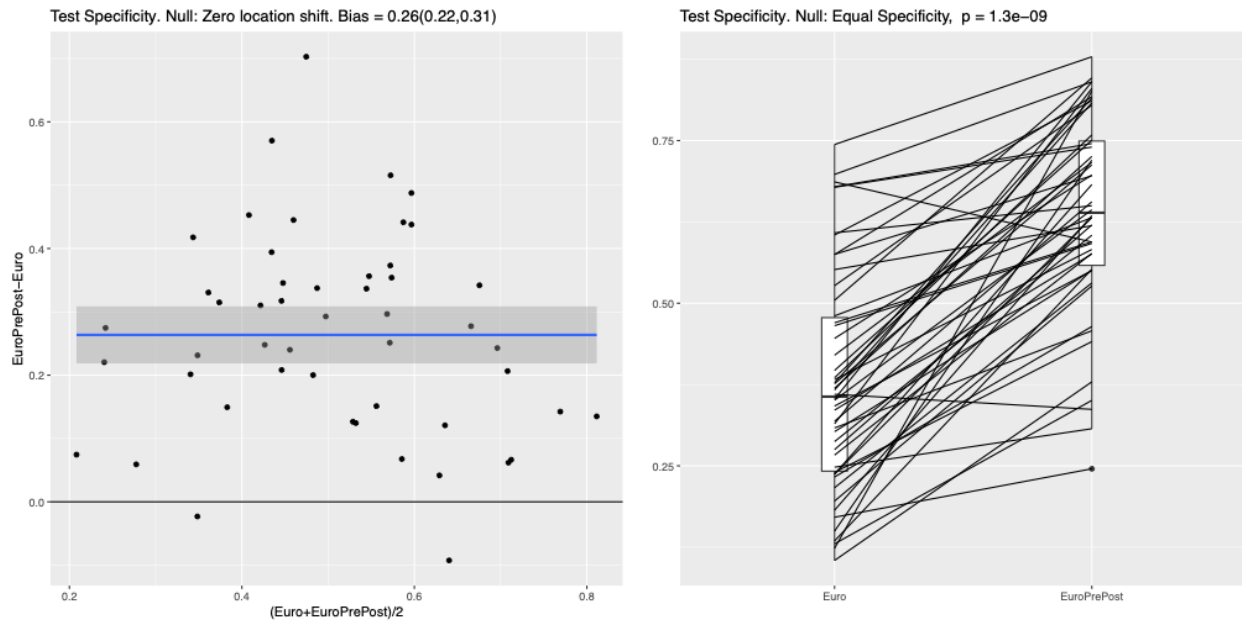


Figure S4. Neural Network: Comparison of test specificity at 85% sensitivity between Model II (EuroScore variables + additional pre- and postoperative variables) and Baseline Model (EuroScore variables alone). This figure compares test specificity at 85% sensitivity for a neural network classifier using the baseline EuroSCORE II variables (“Euro”) versus an extended feature set including both preoperative and postoperative variables (“EuroPrePost,” Model II). The left panel shows specificity differences across 100 random train-test splits, with a mean improvement of 0.26 (95% CI: 0.22–0.31, blue line). The right panel presents paired boxplots of specificity values, with connecting lines indicating results from the same split. The difference is statistically significant ($p = 1.3 \times 10^{-9}$, Wilcoxon signed-rank test), highlighting the strong impact of postoperative data on predictive performance and survivor classification accuracy.

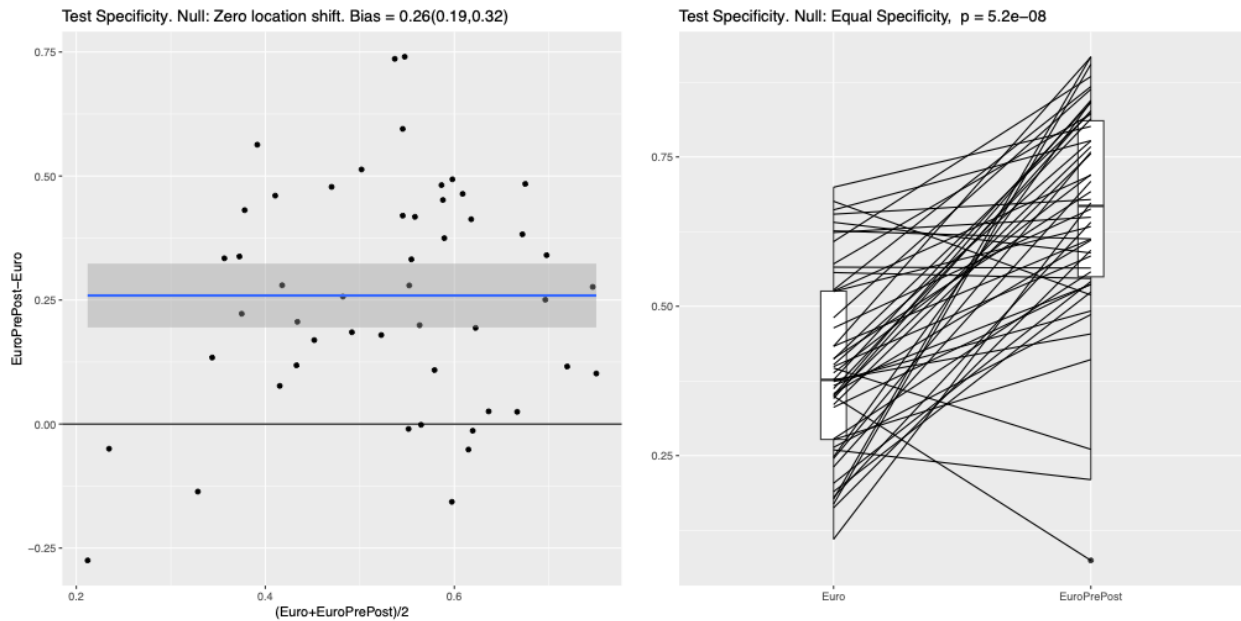


Figure S5. Logistic Regression: Comparison of test specificity at 85% sensitivity between Model II (EuroScore variables + additional pre- and postoperative variables) and Baseline Model (EuroScore variables alone). This figure presents the comparison of test specificity at 85% sensitivity for logistic regression models trained on the baseline EuroSCORE II variables (“Euro”) and an extended feature set including both preoperative and postoperative variables (“EuroPrePost,” Model II). The left panel shows the distribution of specificity differences across 100 random train-test splits, with a mean improvement of 0.26 (95% CI: 0.19–0.32, blue line). The right panel displays paired specificity values as boxplots, where each line connects results from the same split. The improvement is statistically significant ($p = 5.2 \times 10^{-8}$, Wilcoxon signed-rank test), indicating that even a linear model like logistic regression can benefit substantially from the inclusion of postoperative data in short-term mortality prediction.