**Supplementary Table 2. Definitions of outcomes and variables.**

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| --- | --- |
|  | **Definitions** |
| **Secondary outcomes** |  |
| In-hospital death | All-cause death during the hospital stay or within postoperative day 30 [1] |
| Prolonged hospital length of stay | Length of hospital stay >14 days [1] |
| Major adverse cardiovascular events | Cardiac arrest, myocardial infarction, low cardiac output syndrome, use of mechanical assist devices, readmission due to heart failure, ventricular tachycardia, or ventricular fibrillation within postoperative day 30 |
| Pulmonary complications | Mechanical ventilation ≥48 hours, unplanned re-intubation, pneumonia, or acute lung injury within postoperative day 30  |
| Acute kidney injury | Acute kidney injury according to KDIGO (Kidney Disease Improving Global Outcomes) criteria stage ≥2 within postoperative day 30 [2] |
| Stroke | Ischemic stroke as defined by the Neurologic Academic Research Consortium (NeuroARC) class Ia within postoperative day 30 [3] |
| Gastrointestinal complications | Abdominal organ ischemia, acute hepatitis/pancreatitis/cholecystitis, intestinal perforation/bleeding, and bowel obstruction within postoperative day 30  |
| **Variables** |  |
| Age (years) | Age of patients at the time of surgery |
| Female sex | Number of female sex patients |
| Body mass index (kg/m2) | Body mass divided by the square of the body height |
| Diabetes mellitus | Diabetes mellitus requiring oral medication or insulin |
| Hypertension | Hypertension requiring anti-hypertensive medication |
| Dyslipidemia | Dyslipidemia requiring lipid-lowering medication or preoperative low-density lipoprotein 100 mg/dL or higher |
| Congestive heart failure | Symptomatic congestive heart failure |
| Coronary revascularization | History of coronary artery bypass or percutaneous coronary intervention |
| Liver disease | Liver cirrhosis of any cause, chronic viral hepatitis, toxic hepatitis, non-alcoholic fatty liver disease |
| Alcohol | Alcohol >2 drinks/day in 2 weeks before admission (according to American College of Surgeons National Surgical Quality Improvement Program) [4] |
| Acute coronary syndrome | Acute myocardial infarction within two weeks before surgery or resting chest pain at the time of surgery  |
| Atrial fibrillation | Persistent or paroxysmal atrial fibrillation/flutter  |
| EuroSCORE (logistic) | Predicted mortality according to the logistic regression model of EuroSCORE [5] |
| MELD Xi | Model for End-stage Liver Disease eXcluding INR score [6] |
| Ejection fraction (%) | Ejection fraction on preoperative echocardiography |
| Pulmonary hypertension | Mean pulmonary artery pressure ≥25 mmHg assessed by right heart catheterization, peak tricuspid regurgitation velocity ≥2.9 m/s or early diastolic pulmonary regurgitation velocity >2.2 m/s on preoperative echocardiography [7] |
| Hematocrit (%) | Preoperative hematocrit |
| Creatinine (mg/dL) | Preoperative serum creatinine |
| eGFR (mL/min/1.73 m2) | Estimated glomerular filtration rate according to Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) Equation [8] |
| Albumin (g/dL) | Preoperative serum albumin |
| Bilirubin (mg/dL) | Preoperative serum total bilirubin |
| Sodium (mmol/L) | Preoperative serum sodium |
| Uric acid (mg/dL) | Preoperative serum uric acid |
| C-reactive protein (mg/dL) | Preoperative serum C-reactive protein |
| ACEI or ARB | Patients with ACEI or ARB medications |
| Beta blocker | Patients with beta blocker medications |
| Calcium channel blocker | Patients with calcium channel blocker medications |
| Diuretics | Patients with diuretics medications |
| Statin | Patients with statin medications |
| Insulin | Patients with insulin medications |
| Inotropes/vasopressors | Preoperative inotropes or vasopressors use |
| Type of surgery | Types of cardiovascular surgery; coronary artery bypass graft, isolated cardiac valve surgery, other intracardiac surgery, thoracic aortic surgery, or combined procedure of the above operations |
| Urgent surgery | Patients not electively admitted for operation but who require intervention or surgery on the current admission for medical reasons [9] |
| Off-pump surgery | Surgery without cardiopulmonary bypass |
| Operation time (min) | Duration of operation |
| CPB time (min) | Duration of cardiopulmonary bypass |

EuroSCORE = The European System for Cardiac Operative Risk Evaluation; MELD Xi = Model for End-stage Liver Disease eXcluding INR; eGFR = estimated glomerular filtration rate; ACEI = angiotensin-converting enzyme inhibitor; ARB = angiotensin receptor blocker; CPB = Cardiopulmonary bypass.

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