

Appendix 2. Definitions of Variables

Demographic Factors	
Body mass index (kg/m ²)	Weight/(Height) ² .
Preoperative Variables	
American Society of Anesthesiologists class	Risk score ranges from 1 (healthy and low risk) to 5 (high risk). (1)
Reduced ejection fraction	Left ventricular ejection fraction < 30%; left ventricular ejection fraction was the last measured value reported before surgery by left ventriculography, echocardiography, or nuclear medicine (lowest value was selected). (2)
Child-Pugh score	Scores are used to assess the severity of liver disease and are calculated based on total bilirubin, serum albumin, INR, ascites, and hepatic encephalopathy. Scores between 5–6 are associated with high survival rates (Stage A, 1-year survival rate is 100%), scores between 7–9 are associated with intermediate survival rates (Stage B, 1-year survival rate is 81%) while scores above 10 are associated with low survival rates (Stage C, 1-year survival rate is 45%).(3)
Model for End-Stage Liver Disease (MELD) score	Scores are used to assess the severity of liver disease and are calculated based on serum bilirubin, serum creatinine, and prothrombin time as calculated by the International Normalized Ratio (INR). Scores range from < 9 (1.9% mortality at 3 months) to > 40 (71.3% mortality at 3 months). (4)
Perioperative Variables	
Cerebral desaturation	20% decrease of the baseline rSO ₂ value for 15 seconds. (5)
Cerebral desaturation load (%min)	Area under the threshold spent beneath the absolute threshold limit of 80% of the baseline rSO ₂ value multiplied by time. (6)
Postoperative Variables	
Neurological	
Delirium	Disturbance of consciousness and cognition that develops over a short period of time (hours to days) and requires the use of antipsychotics. (7)
Cerebrovascular accident	Clinically manifested by persistent focal neurological deficits radiologically confirmed by CT scan lasting > 24 hours. (2)
Seizures	Paroxysmal alteration of behaviour and/or ECG changes resulting from excessive neuronal activity. (8)
Cardiac complications	
Atrial fibrillation	Supraventricular tachyarrhythmia characterized by uncoordinated atrial activation as shown on an electrocardiogram and requires electrical or pharmacological cardioversion. (9)
Hypotension	Vasoactive requirement post-operatively.
Myocardial infarction with persistent Q wave	Presence of increase in CK-MB > 100U, new Q waves in 2 contiguous electrocardiographic leads, or confirmed graft occlusion within 30 days after surgery. (2)
Cardiac arrest/cardiogenic shock	Need for vasopressors and inotropic agents, intra-aortic balloon-pump, or ventricular-assist device for > 48 hours.
Respiratory complications	
Pulmonary embolism	Embolus identified as obstructing a vessel as diagnosed by pulmonary angiography. (10)
Empyema	Documented pleural effusion with positive cultures.
Respiratory failure	Intubation ≥ 48 hours post-surgery, reintubation for a pulmonary cause, acute lung injury (PaO ₂ /FiO ₂ < 300), or acute respiratory distress syndrome (PaO ₂ /FiO ₂ < 200). (2)
Pneumonia	Pulmonary infiltrates and documented broncho-tracheal culture.
Pneumothorax	Pleural air requiring chest tube or percutaneous drainage.
Surgical complications	
Liver failure	Increased MELD score > 9.
Biliary fistula	Presence of bile in drainage fluid, drainage ≥ 50 mL/day on the third day after the operation, and drainage for 3 days consistently. (11)
Ileus	Impairment in gastrointestinal mobility for over 6 days after the surgery. (12)
Revision surgery	Follow-up surgery is required.

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Appendix 2. Continued

Infectious complications	
Wound infection	Infection from surgical procedure requiring antibiotic therapy.
Clostridium Difficile	Documented infection using toxin assay.
Intra-abdominal abscess	Localized collection of pus or gastrointestinal content inside abdominal cavity requiring antibiotics or percutaneous drainage. (13)
Infected ascites	Documented peritoneal fluid with positive culture.
Peritonitis	Presence of free pus or gastrointestinal content in the peritoneal cavity requiring antibiotics or surgical treatment. (13)
Urinary tract infection	Documented urine with positive culture.
Sepsis and septic shock	Non-specific systemic inflammatory symptoms with evidence of microbial basis. (14) Severe sepsis is defined as sepsis with organ dysfunction and septic shock is defined as sepsis with hypotension despite adequate volume resuscitation. (14)
Fungemia	Positive fungal blood culture.
Hematological complications	
Bleeding	Blood loss requiring red blood cells, fresh frozen plasma, cryoprecipitate, and platelets. Massive blood loss is defined as the loss of one blood volume = 70 ml/kg or 5 liters in an adult patient within 24 hours or the loss of 0.5 blood volumes within 3 hours. (15)
Thrombophlebitis	Inflammation of a cannulated vein requiring heparin, antibiotics, or anti-inflammatory medications. (16)
Renal failure	Dialysis requirement or doubling of baseline serum creatinine level, or serum creatinine level > 150 µmol/L (1.7 mg/dl). (2)
Other complications	
Excessive weight gain	≥ 20 kg compared to pre-operative weight.
Upper gastrointestinal bleeding	Blood loss from upper gastrointestinal tract documented by gastroscopy.
Miscellaneous Variables	
Length of time in the ICU	Length of time from date of surgery to the date when patient left the ICU.
Length of hospital stay	Length of time from date of surgery to the date when patient left the hospital.
Clavien-Dindo classification of postoperative complications	All complications were given a grade, which ranged from Grade I (a deviation from the normal postoperative course without the need of pharmacological treatment or surgical interventions), Grade II (requiring pharmacological treatment), Grade III (requiring surgical, endoscopic, or radiological intervention), Grade IV (life-threatening complication), and Grade V (death of patient). (17)

CK: creatinine kinase, CT: computed tomography, FiO₂: inspired fraction of oxygen, ICU: intensive care unit, PaO₂: arterial oxygen partial pressure, rSO₂: regional brain or somatic saturation.

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