render distal coronary territories ischemic in the absence of formal myocardial protection.

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154 Preoperative Risk Prediction Model for 30-day Mortality Following Cardiac Surgery in Australia

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Background: Estimating preoperative risk prior to cardiothoracic surgery is of recognized value for both surgeons and patients. Currently, there is no model for predicting risk of mortality for the Australian cardiac surgery population and this paper presents a new risk prediction model suitable for use in the Australian context.

Methods: All patients undergoing cardiac surgery between July 2001 and June 2007 were obtained from the Australian Society of Cardiac and Thoracic Surgeons (ASCTS) database and were included for analysis. Bootstrap sampling and automated variable selection procedures were used to identify risk factors for 30-day mortality. The receiver operating curve (ROC) and Hosmer–Lemeshow χ²-test for goodness-of-fit were then used to assess the predictive ability of the model.

Results: Over the 6-year period, 18,159 patients had cardiac surgery. The 30-day mortality rate was 3.26% (n = 18,159). The following 12 variables were selected in the predictive model as independent predictors: urgency of procedures, procedure types, age, gender, previous cardiac surgery, New York Heart Association (NYHA) class, ejection fraction estimate, hypercholesterolaemia, creatinine level >0.20 mmol/L, peripheral vascular disease and body mass index (BMI). For the validation data, the p-value for the Hosmer–Lemeshow χ²-test was 0.2753 and the area under the ROC is 82.40%—this indicates that the model has a high predictive accuracy for the Australian patients.

Conclusion: A simple preoperative risk prediction model for 30-day mortality has been developed for the Australian cardiac surgery population.

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155 Successful Cardiac Reanimation for Donation after Cardiac Death

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Introduction: Donation after cardiac death (DCD) organs (abdominal organs and lungs) are donated for transplantation after cardiopulmonary arrest. If DCD hearts could be used for transplantation, the donor pool would be greatly expanded. We aimed to determine if perfusion preservation of DCD hearts is superior to standard cold storage and if DCD hearts can retain adequate function for transplantation.

Methods: Greyhound dogs (n = 15) were anesthetized and donor death was simulated by cessation of mechanical ventilation with resultant circulatory failure. No preservation strategies were employed until 30 min after ventilation had ceased. A control group of three normal (non-DCD) hearts underwent cold storage alone. After preservation, 40 min of room temperature ischemia simulated transplantation. Following this, functional and metabolic assessments were performed.

Results: Recovery post simulated transplant showed perfusion preservation was superior to cold storage, but did not surpass normal (non-DCD) heart preservation.

Conclusions: 1. Perfusion preservation of DCD hearts is superior to standard cold storage. 2. Recovery of optimally preserved DCD hearts falls short of that of normal hearts. 3. Further studies of in vitro human DCD heart recovery are indicated with a view to clinical application.

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