Articles of Interest

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ANESTHESIA/PHARMACOLOGY

Epsilon-aminocaproic acid in coronary artery bypass graft surgery: Preincision or postheparin?

Epsilon-aminocaproic acid (EACA) is a common antifibrinolytic agent administered prior to cardiopulmonary bypass. This study determined that EACA was equally efficacious if administered either preincision or after heparinization. Due to the potential thrombotic complications, the authors suggest full anticoagulation before administration of EACA.

The hypotensive effects of propofol at different sampling sites in cardiopulmonary bypass model.

Cardiopulmonary bypass has minimal effects on the pharmacokinetics of fentanyl in adults.

Successful use of bivalirudin for cardiopulmonary bypass in a patient with heparin-induced thrombocytopenia.

Modulation of circulating endothelin-1 and big endothelin by nitric oxide inhalation following left ventricular assist device implantation.

BLOOD CONSERVATION

The management of perioperative bleeding.

This review details the pathology of perioperative coagulation disorders and pharmacologic treatment. Point-of-care diagnostic tools such as thromboelastography and platelet function analysis provide timely information for accurate clinical treatment. Cardiopulmonary bypass and liver transplantation are specifically addressed.

BIOCOMPATIBILITY

Heparin-coated circuits and reduced systemic anticoagulation applied to 2500 consecutive first-time coronary artery bypass grafting procedures.

Retrospective analysis of 2500 consecutive coronary artery bypass graft (CABG) procedures using heparin-coated perfusion circuits and low systemic anticoagulation demonstrated superior patient outcomes. The authors suggest this perfusion protocol may present significant advantages and a better alternative to off-pump CABG procedures.

On the influence of flow conditions and wettability on blood material interactions.

CEREBRAL PROTECTION

The effects of isoflurane-induced electroencephalographic burst suppression on cerebral blood flow velocity and cerebral oxygen extraction during cardiopulmonary bypass.
**Transcranial Doppler: an early predictor of ischemic stroke after cardiac arrest.**

**Gender influence on cognitive function after cardiac operation.**

**pH-stat versus alpha-stat perfusion strategy during experimental hypothermic circulatory arrest: a microdialysis study.**

The resurgence of a pH-stat strategy during deep hypothermia and circulatory arrest (DHCA) adds controversy to the protective interventions to restore and protect the fragile brain metabolism during reperfusion and rewarming with cardiopulmonary bypass. pH-stat is associated with less metabolic derangements, neurocognitive recovery and survival in a pig model.

**Comparison of cerebral embolization during off-pump and on-pump coronary artery bypass surgery.**

**Cerebral embolization during cardiac surgery: impact of aortic atheroma burden.**

**Impact of hypothermic selective cerebral perfusion compared with hypothermic cardiopulmonary bypass on cerebral hemodynamics and metabolism.**

**Determinants of stroke after coronary artery bypass grafting.**

**Postoperative hypoxia is a contributory factor to cognitive impairment after cardiac surgery.**

**HEMATOLOGY**

The following two reviews, authored by distinguished clinicians and experts in their fields, address common problems in hemostasis and the pharmacologic interventions to fibrinolysis with regards to deep hypothermia and circulatory arrest. Proper anticoagulation combined with point-of-care testing provide the best hemostasis monitoring to avoid postoperative bleeding.

**Monitoring anticoagulation and hemostasis in cardiac surgery.**

**Current status of antifibrinolytics in cardiopulmonary bypass and elective deep hypothermic circulatory arrest.**

**INTRA-AORTIC BALLOON PUMP**


**MYOCARDIAL PROTECTION**

Myocardial protection with intermittent cold blood during aortic valve operation: antegrade versus retrograde delivery.

**Optimal dose and mode of delivery of Na+/H+ exchange-1 inhibitor are critical for reducing postsurgical ischemia-reperfusion injury.**

**Leukocyte-depleted secondary blood cardioplegia attenuates reperfusion injury after myocardial ischemia.**

**Sodium-hydrogen exchanger inhibition, pharmacologic ischemic preconditioning, or both for extended cardiac allograft preservation.**

**PATHOPHYSIOLOGY**

The systemic inflammatory response to cardiopulmonary bypass.

A comprehensive review of the physiologic responses to cardiopulmonary bypass also details clinical strategies to attenuate the morbidity associated with the systemic inflammatory response.
Mannitol and dopamine in patients undergoing cardiopulmonary bypass: a randomized clinical trial.

Kidney-specific proteins in elderly patients undergoing cardiac surgery with cardiopulmonary bypass.

ONO-6818, a novel, potent neutrophil elastase inhibitor, reduces inflammatory mediators during simulated extracorporeal circulation.

Oxygen metabolism during and after cardiac surgery: role of CPB.

Chemokines and the inflammatory response following cardiopulmonary bypass—a new target for therapeutic intervention?—A review.

PERFUSION TECHNIQUE
Pulmonary endarterectomy: experience and lessons learned in 1,500 cases.

Temporary cardiopulmonary bypass and isolated lung ventilation for tracheal stenosis and reconstruction.

Right heart assist for beating heart coronary artery bypass grafting.

Right heart assist reduces postoperative bleeding, myocardial damage, ventilator time and maintains hemodynamic stability during off-pump coronary bypass surgery.

‘All in one’ cardiopulmonary bypass circuit for aortic surgery.

VENTRICULAR ASSIST
Anesthetic management for implantation of the Jarvik 2000 left ventricular assist system.

Ventricular cardiac-assist devices in infants and children: anesthetic considerations.