JECT. 2001;33:252–254
The Journal of The American Society of Extra-Corporeal Technology

Articles of Interest

Section Editor: Rick G. Smith, BS, CCP

ANESTHESIA / PHARMACOLOGY

Plasma tranexamic acid concentrations during cardiopulmonary bypass.
Fiechtner BK, Nuttall GA, Johnson ME. Anesth Analg. 2001;92:1131–6.

Is perioperative plasma aprotinin concentration more predictable and constant after a weight-related dose regimen?
Royston D, Cardigan R, Gippner-Steppert C, Jochum M. Anesth Analg. 2001;92:830–6.

Comparison of epsilon aminocaproic acid and low-dose aprotinin in cardiopulmonary bypass: Efficiency, safety and cost.
Ray MJ, O'Brien MF. Ann Thorac Surg. 2001;71:838–43.

Effect of aprotinin (Trasylol) on the inflammatory and thrombotic complications of conventional cardiopulmonary bypass surgery.
Landis RC, Asimakopoulos G, Taylor KM. Heart Surgery Forum. 2001;4(Suppl1):S35–9.

Desflurane pharmacokinetics during cardiopulmonary bypass.
Mets B. Reich NT, Mellas N, Beck J. Park S. J Cardiothorac Vasc Anesth. 2001;15:179–82.

Pump prime aprotinin fails to limit proinflammatory cytokine release after coronary artery bypass surgery.
Wei MX, Kuukasjarvi P, Laurikka J, Pehkonen E, Kaukinen S, Laine S, Tarkka M. Scand Cardiovasc J. 2001;35: 50–4.

BIOCOMPATIBILITY

Neurological and general outcome in low-risk coronary artery bypass patients using heparin coated circuits.
Svenmarker S, Sandstrom E, Karlsson T. Eur J Cardio-Thorac Surg. 2001;19:47–53.

> Eighty patients were entered in a randomized, double-blinded, prospective trial to study the benefits of a new surface modification (SMARxT, Cobe Cardiovascular) on neurologic protection. Cardiotomy suction was avoided. Cerebral ischemia markers were similar in both groups but cognitive testing demonstrated a slight improvement in the coated circuit group. The authors warn that showing subtle, yet significant, improvements in clinical outcomes is difficult.

BLOOD CONSERVATION

Non-pharmacological strategies for blood conservation in cardiac surgery.
Ruel MA, Rubens FD. Can J Anaesth. 2001;48(4 Suppl S):S13–23.

Pharmacological strategies for blood conservation in cardiac surgery: erythropoietin and antifibrinolytics.
Hardy JF. Can J Anaesth. 2001;48(Suppl S):S24–31.

> Autotransfusion decreases blood usage following cardiac surgery - a prospective randomized trial.
> Dalrymple-Hay MJR, Dawkins S, Pack L. Cardiovasc Surg. 2001;9:184–7.

CEREBRAL PROTECTION

Diffusion- and perfusion-weighted brain magnetic resonance imaging in patients with neurologic complications after cardiac surgery.
Wityk RJ, Goldsborough MA, Hillis A. Arch Neurol. 2001;58:571–6.

Changes in jugular bulb oxygenation in patients undergoing warm coronary artery bypass surgery (34–37 °C).
Shaaban-Ali M, Harmer M, Vaughan RS. Eur J Anaesth. 2001;18:93–9.

Advances in neuromonitoring for cardiothoracic and vascular surgery.
Edmonds HL. J Cardiothorac Vasc Anesth. 2001;15:241–50.

Neuropsychologic impairment after coronary bypass surgery: Effect of gaseous microemboli during perfusionist interventions.
Borger MA, Peniston CM, Weisel RD. J Thorac Cardiovasc Surg. 2001;121:743–9.

> Increased activity levels of perfusionists during cardiopulmonary bypass increases gaseous microemboli and impairs neuropsychologic function in patients. Blood sampling and drug or fluid administration should be minimized if possible.

Surface modification of extracorporeal circuits: Is there really an impact on cerebral performance after cardiopulmonary bypass?
Isgro F, Kiessling AH, Mittelstaedt H, Saggau W. Thoracic Cardiovasc Surg. 2001;49:65–9.

EXTRACORPOREAL LIFE SUPPORT

ECMO support for single lung transplantation.
Ko WJ, Chen YS, Chou NK, Lee YC. Transplant Proc. 2001;33:1939–41.

HEMATOLOGY

The influence of intravascular volume therapy with a new hydroxyethyl starch preparation (6% HES 130/0.4) on coagulation in patients undergoing major abdominal surgery.
Haisch G, Boldt T, Krebs C. Anesth Analg. 2001;92:565–71.

Reduced haemostatic factor transfusion using heparinase-modified thrombelastography during cardiopulmonary bypass.
Royston D, von Kier S. Brit J Anaesth. 2001;86:575–8.

> Heparinase-modified thromboelastography (TEG) is useful to direct infusions of hemostatic blood components in cardiac surgery patients. Use of the heparinase-modified TEG and treatment algorithm substantially reduced the administration of fresh-frozen plasma and platelet concentrate.

MYOCARDIAL PROTECTION

Stimulation of neutrophil activation during coronary artery bypass grafting: Comparison of crystalloid and blood cardioplegia.
Kalawski R, Balinski M, Bugajski P. Ann Thorac Surg. 2001;71:827–31.

Inactivation of the MEK/ERK pathway in the myocardium during cardiopulmonary bypass.
Araujo EG, Bianchi C, Sato K. J Thorac Cardiovasc Surg. 2001;121:773–81.

Plasma magnesium in patients submitted to cardiac surgery and its influence on perioperative morbidity.
Parra L, Fita G, Gomar C. J Cardiovasc Surg. 2001;42:37–42.

Does warm antegrade intermittent blood cardioplegia really protect the heart during coronary surgery?
Bical OM, Fromes V, Paumier D. Cardiovasc Surg. 2001; 9:188–93.

The effect of insulin cardioplegia on atrial fibrillation after high-risk coronary bypass surgery: A double-blinded, randomized, controlled trial.
Hynninen M, Borger MA, Rao V, Weisel RD, Christakis GT, Carroll JA, Cheng DCH. Anesth Analg. 2001;92: 810–6.

PATHOPHYSIOLOGY

Cardiopulmonary bypass elicits a pro- and anti-inflammatory cytokine response and impaired neutrophil chemotaxis in neonatal pigs.
Brix-Christensen V, Petersen TK, Ravn HB, Hjortdal VE, Andersen NT, Tonnesen E. Acta Anaesth Scand. 2001;45: 407–13.

Influence of modified ultrafiltration on coagulation, fibrinolysis and blood loss in adult cardiac surgery.
Leyh RG, Bartels C, Joubert-Hubner E, Bechtel JFM, Sievers HH. Eur J Cardio-Thorac Surg. 2001;19:145–51.

> Compared to conventional ultrafiltration, modified ultrafiltration decreased postoperative blood loss and transfusion requirements in adult cardiac surgical patients.

The effect of short-term prophylactic methylprednisolone on the incidence and severity of postpericardiotomy syndrome in children undergoing cardiac surgery with cardiopulmonary bypass.
Mott AR, Fraser CD, Kusnoor AV. J Am Coll Cardiol. 2001;37:1700–06.

> The routine use of methylprednisolone does not influence the occurrence of postpericardiotomy syndrome (PPS) in pediatric cardiac surgery. The treated group had a marginally significant increase in complicated PPS.

Methylprednisolone does not benefit patients undergoing coronary artery bypass grafting and early tracheal extubation.
Chaney MA, Durazo-Arvizu RA, Nikolov MP, Blakeman BP, Bakhos M. J Thorac Cardiovasc Surg. 2001;121:561–9.

> High dose or low dose methylprednisolone (MPS) offers no clinical advantages in ameliorating the detrimental effects on pulmonary function following cardiopulmonary bypass. MPS did not improve pulmonary compliance, A-a O_2 gradients, perioperative fluid balance or weight gain. MPS significantly increased blood glucose and extubation time.

Alternate explanation for the increasing oxygen consumption and lactatemia after surgery with hypothermic cardiopulmonary bypass.
Miyamoto TA, Miyamoto KJ. J Thorac Cardiovasc Surg. 2001;121:816–7.

Oxidative stress during cardiopulmonary bypass.
Miyamoto TA, Miyamoto KJ. J Thorac Cardiovasc Surg. 2001;121:598.

Influence of temperature during cardiopulmonary bypass on leukocyte activation, cytokine balance, and postoperative organ damage.
Qing M, Vazquez-Jimenez JF, Klosterhalfen B. Shock. 2001;15:372–7.

PEDIATRIC PERFUSION

Individualized heparin and protamine management in infants and children undergoing cardiac operations.
Codispoti M, Ludlam CA, Simpson D. Ann Thorac Surg. 2001;71:922–7.

Cardiac surgery in the low-birth weight neonate - New approaches.
Wernovsky G, Rubenstein SD, Spray TL. Clinic Perinatol. 2001;28:249–64.

> Premature infants are at higher risk for morbidity and mortality than normal birth weight children. However, it's the author's view that surgery should not be postponed until an "ideal" weight is reached. Several factors contribute to the success of neonatal cardiac surgery: cannulation with unusually small cardiac structures, decreased nutritional and cardiac reserves, immaturity of major organ systems, coagulopathy and impaired chest wall mechanics after sternotomy.

PERFUSION TECHNIQUE

Lowest hematocrit on bypass and adverse outcomes associated with coronary artery bypass grafting.
DeFoe GR, Ross CS, Olmstead EM. Ann Thorac Surg. 2001;71:769–76.

Emergency cardiopulmonary bypass in a bilaterally nephrectomized patient with a history of heparin-induced thrombocytopenia: Successful reexposure to heparin.
Selleng S, Lubenow N, Wollert HG. Ann Thorac Surg. 2001;71:1041–2.

Blood product use during routine open heart surgery: The impact of the centrifugal pump.
Klein M, Mahoney CB, Probst C. Artif Organs. 2001;25: 300–5.

A multicenter initial clinical experience with right heart support and beating heart coronary surgery.
Lima LE, Jatene F, Buffolo E, Vanky F. Heart Surgery Forum. 2001;4:61–4.

> Cardiac manipulation during off-pump coronary artery bypass often causes hemodynamic instability. Right heart support (RHS) with the AMED system increases both cardiac output and mean arterial pressure. RHS restores hemodynamics, provides better exposure to posterior anastomotic sites and reduces inotropic support for off-pump procedures.

VENTRICULAR ASSIST

Healing the heart with ventricular assist device therapy: Mechanisms of cardiac recovery.
Young JB. Ann Thorac Surg. 2001;71(Suppl S):S210–S9.

> Ventricular assist devices influence the survival of patients with postcardiotomy cardiogenic shock, acute myocarditis and severe heart failure after myocardial infarction. Recovery of stunned myocytes and the restoration of normal ventricular geometry results from reversal of hemodynamic insufficiency and myocardial stress.

Immunologic effects of implantation of left ventricular assist devices.
Erren M, Schluter B, Fobker M. Transplant Proc. 2001; 33:1965–8.