An “actual” problem: Another issue of apples and oranges

Endre Bodnar, MD, and Eugene H. Blackstone, MD, Cleveland, Ohio

Quality indicators, performance measures, and accountability: The right thing, at the right time, for the right reason

Jeffrey B. Rich, MD, FACS, Norfolk, Va

Editorial comment on mural shortening suture annuloplasty for mitral valve repair

Robert W. M. Frater, MD, Bronx, NY

Hyperglycemia during cardiac surgery

Harold L. Lazar, MD, Boston, Mass

Attitude toward and application of off-pump coronary artery bypass after continuing education retraining

Richard J. Novick, MD, and Michael W. Chu, MD, London, Ontario, Canada

Thoracic aortic stent grafting: Is it ready for prime time?

Thomas G. Gleason, MD, Chicago, Il

Robotics in thoracic surgery: Applications and outcomes

Thomas A. D’Amico, MD, Durham, NC

Aprotinin inhibits proinflammatory activation of endothelial cells by thrombin through the protease-activated receptor 1

Jonathan R. S. Day, MRCS, Kenneth M. Taylor, MD, FRCS, FRCSE, FESC, FSA, Elaine A. Lidington, PhD, Justin C. Mason, FRCP, PhD, Dorian O. Haskard, DM, PhD, Anna M. Randi, MD, PhD, and R. Clive Landis, PhD, London, United Kingdom, and Bridgetown, Barbados

Thrombin generation remains a problem during operations requiring cardiopulmonary bypass. This study demonstrates that activation of the thrombin receptor protease-activated receptor 1 on endothelial cells and the resulting proinflammatory response is blocked by aprotinin. These findings provide a new likely mechanism for the well-established anti-inflammatory properties of aprotinin.
28 Clinical outcomes of nonelective coronary revascularization with and without cardiopulmonary bypass
Sotiris C. Stamou, MD, PhD, Peter C. Hill, MD, Elizabeth Haile, MS, Syma Prince, RN, Michael J. Mack, MD, and Paul J. Corso, MD, Cleveland, Ohio, Washington, DC, and Dallas, Tex

Non-elective coronary artery bypass without cardiopulmonary bypass is associated with comparable operative mortality and stroke and abbreviated length of stay compared to conventional on-pump approach. Off-pump CABG may also decrease the need for intraaortic balloon pump placement and lower the rate of postoperative renal failure and hemorrhage-related reexploration compared to conventional on-pump CABG.

34 Improved myocardial protection during coronary artery surgery with glucose-insulin-potassium: A randomized controlled trial
David W. Quinn, BSc, FRCS, Domenico Pagano, MD, FRCS, FESC, Robert S. Bonser, FRCP, FRCS, FESC, Stephen J. Rooney, MB, FRCS, Timothy R. Graham, MB, FRCS, Ian C. Wilson, MD, FRCS, Bruce E. Keogh, MD, FRCS, John N. Townend, MD, FRCP, Michael E. Lewis, MD, FRCS, Peter Nightingale, PhD, and the Study Investigators, Birmingham, United Kingdom

Systemic glucose-insulin-potassium administered during coronary artery bypass grafting improves myocardial protection and cardiac index and reduces inotrope requirements and the incidence of low cardiac output episodes.

43 Predictors of operative mortality and cardiopulmonary morbidity in the National Emphysema Treatment Trial
Keith S. Naunheim, MD, Douglas E. Wood, MD, Mark J. Krasna, MD, Malcolm M. DeCamp, Jr, MD, Mark E. Ginsburg, MD, Robert J. McKenna, Jr, MD, Gerard J. Criner, MD, Eric A. Hoffman, PhD, Alice L. Sternberg, ScM, and Claude Deschamps, MD, for the National Emphysema Treatment Trial Research Group, St Louis, Mo, Seattle, Wash, Baltimore, Md, Cleveland, Ohio, New Hyde Park, NY, Los Angeles, Calif, Philadelphia, Pa, Iowa City, Iowa, and Rochester, Minn

The purpose of this article is to identify preoperative predictors of mortality and cardiopulmonary morbidity in patients undergoing lung volume reduction surgery as part of the National Emphysema Treatment Trial. Only non–upper-lobe-predominant emphysema was predictive of operative mortality.

54 Robotic assistance for video-assisted thoracic surgical lobectomy: Technique and initial results
Bernard J. Park, MD, Raja M. Flores, MD, and Valerie W. Rusch, MD, New York, NY

Telerobotic assistance for VATS surgical lobectomy has been developed with 3 standard thoracoscopic ports. The use of robotic instruments is feasible and safe.

60 Prolongation of patency of airway bypass stents with use of drug-eluting stents
Cliff K. Choong, FRACS, Loc Phan, BSC, Patrick Massetti, BSC, Fabio J. Haddad, MD, Carlo Martinez, MD, Edmund Roschak, BSC, and Joel D. Cooper, MD, St Louis, Mo, and Mountain View, Calif

In a canine model, the use of a specifically designed paclitaxel-eluting airway bypass stent was found to be feasible and safe. It resulted in a significant prolongation of stent patency.
65 Endoscopic ultrasonography-identified celiac adenopathy remains a poor prognostic factor despite preoperative chemoradiotherapy in esophageal adenocarcinoma
S. Chris Malaisrie, MD, Wayne L. Hofstetter, MD, Arlene M. Correa, PhD, Jaffer A. Ajani, MD, Ritsuko R. Komaki, MD, Zhongxing Liao, MD, Alexandria Phan, David C. Rice, MD, Ara A. Vaporciyan, MD, Garrett L. Walsh, MD, Sandeep Lahoti, MD, Jeffrey H. Lee, MD, Robert Bresalier, MD, Jack A. Roth, MD, and Stephen G. Swisher, MD, Houston, Tex

Celiac adenopathy has been associated with poor survival in patients with esophageal cancer treated with surgical intervention alone. This study demonstrates that endoscopic ultrasonography–identified celiac adenopathy in patients with adenocarcinoma of the distal esophagus remains a poor prognostic factor despite preoperative chemoradiotherapy. Future multimodality trials should stratify these patients. The evaluation of novel strategies, including induction chemotherapy before concurrent chemoradiotherapy, might be warranted in this high-risk group of patients.

73 Risk factors for primary graft dysfunction after lung transplantation
Bryan A. Whitson, MD, Dilip S. Nath, MD, Adam C. Johnson, MD, Adam R. Walker, BS, Matthew E. Prekker, MD, David M. Radosevich, PhD, Cynthia S. Herrington, MD, and Peter S. Dahlberg, MD, PhD, Minneapolis, Minn

Increasing preoperative pulmonary artery pressures and donor age are associated with the development of severe primary graft dysfunction after lung transplantation.

81 Long-term results after carinal resection for carcinoma: Does the benefit warrant the risk?
Marc de Perrot, MD, Elie Fadel, MD, Olaf Mercier, MD, Sacha Mussot, MD, Alain Chapelier, MD, and Philippe Darieville, MD, Le Plessis-Robinson, France

Carinal resection for carcinoma is feasible, with acceptable mortality and good long-term survival in selected patients.

90 Influence of patient characteristics and arterial grafts on freedom from coronary reoperation
Joseph F. Sabik III, MD, Eugene H. Blackstone, MD, A. Marc Gillinov, MD, Michael K. Banbury, MD, Nicholas G. Smedira, MD, and Bruce W. Lytle, MD, Cleveland, Ohio

Patient characteristics and operative techniques were evaluated to determine factors that predict the need for or bias toward coronary reoperation. Arteriosclerosis risk factors increased the likelihood of reoperation, and patient comorbidity and arterial grafting decreased it. Aggressive risk-factor reduction and arterial revascularization should result in fewer coronary reoperations.

99 Seven years’ experience with suture annuloplasty for mitral valve repair
Tayfun Aybek, MD, Petar Risteski, MD, Aleksandra Miskovic, MD, Andreas Simon, MD, Selami Dogan, MD, Ulf Abdel-Rahman, MD, and Anton Moritz, MD, PhD, Frankfurt/Main, Germany

We aimed to assess the durability, hemodynamic performance, and clinical outcome of a suture annuloplasty procedure for mitral valve repair. Follow-up showed satisfactory hemodynamic performance and clinical outcome. Progressive annular dilatation during follow-up raised concerns about the durability of the procedure.
107 Should the “elephant trunk” be skeletonized? Total arch replacement combined with stented elephant trunk implantation for Stanford type A aortic dissection
Zhi-Gang Liu, MD, Li-Zhong Sun, MD, Qian Chang, MD, Jun-Ming Zhu, MD, Chao Dong, MD, Chun-Tao Yu, MD, Yong-Min Liu, MD, and Hai-Tao Zhang, MD, Beijing, China

Sixty consecutive patients with acute (n = 36) or chronic (n = 24) type A aortic dissection underwent total aortic arch replacement combined with stented graft implantation into the descending aorta: the skeletonized “elephant trunk” procedure. Fifty-eight patients survived and were discharged. There were 2 in-hospital deaths (mortality, 3.3%). Herein we report the outcomes of our experience and the problems we encountered.

114 Single crossclamp improves 6-month cognitive outcome in high-risk coronary bypass patients: The effect of reduced aortic manipulation
John W. Hammon, MD, David A. Stump, PhD, John F. Butterworth, MD, Dixon M. Moody, MD, Kashemi Rorie, PhD, Dwight D. Deal, BS, Edward H. Kincaid, MD, Timothy E. Oaks, MD, and Neal D. Kon, MD, Winston-Salem, NC

A trial comparing single aortic clamping, multiple aortic clamping, and OPCAB techniques in CABG showed significantly better cognitive outcomes in the single aortic clamp and OPCAB groups. The results discount cardiopulmonary bypass as the primary cause of brain injury after CABG and support the use of reduced aortic manipulation strategies.

122 Endothelial injury and acquired aspirin resistance as promoters of regional thrombin formation and early vein graft failure after coronary artery bypass grafting
Robert S. Poston, MD, Junyan Gu, MD, PhD, James M. Brown, MD, James S. Gammie, MD, Charles White, MD, Lei Nie, PhD, Richard N. Pierson, III, MD, and Bartley P. Griffith, MD, Baltimore, Md

Development of aspirin resistance after OPCAB was frequent and associated with an increased risk of early vein graft thrombosis. This effect was particularly pronounced in the setting of vein grafts with significant endothelial disruption.

131 Stent-graft repair for thoracic aortic disease: Results of an independent nationwide study in France from 1999 to 2001
Jean-Baptiste Ricco, MD, PhD, Jérome Cau, MD, Christophe Marchand, MD, Michel Marty, MD, Marie-Hélène Rodde-Dunet, MD, Pierre Fender, MD, Hubert Allemand, MD, and Andrew Corsini, BA, Poitiers and Paris, France

The purpose of this study was to assess the overall short-term outcome of stent-graft repair for TAD in France over a 2-year period. A total of 166 stent-graft repairs for aortic disease were performed, mainly by surgeons (88%). There were 49 complications, including 17 (10%) postoperative deaths and 27 (16.3%) endoleaks. This nationwide study demonstrates that stent-graft repair for TAD can be performed with acceptable postoperative morbidity.
138 An Egr-1 master switch for arteriogenesis: Studies in Egr-1 homozygous negative and wild-type animals
Cristian Sorin Sarateanu, MD, Mauricio A. Retuerto, BS, James T. Beckmann, BS,
Leslie McGregor, BS, JoAnn Carbray, BS, Gerald Patejunas, PhD, Lina Nayak,
Jeffrey Milbrandt, MD, and Todd K. Rosengart, MD, Evanston and Chicago, Ill, and St Louis, Mo

C57 BL (knockout) mice deficient in the early growth response 1 (Egr-1) gene having undergone excision of the femoral artery demonstrated a relative deficiency in arteriogenesis compared with wild-type littermates. Rats treated with adenoviral vector encoding for egr-1 after vascular excision demonstrated nearly complete recovery of hind-limb perfusion compared with control-injected animals. These findings suggest that Egr-1 plays a pivotal role in vascular homeostasis and reperfusion responses after vascular occlusions.

146 Technical challenges in totally endoscopic robotic coronary artery bypass grafting
J. Bonatti, MD, FETCS, T. Schachner, MD, N. Bonaros, MD, A. Öhlinger, MD, M. Danzmayr,
P. Jonetzko, MD, G. Friedrich, MD, C. Kolbitsch, MD, DEAA, P. Mair, MD, and
G. Lauffer, MD, Innsbruck, Austria

Consequences of technical difficulties in robotic totally endoscopic coronary artery bypass grafting were investigated in 40 patients. Technical challenges were encountered in 50% and translated into markedly increased operative time, moderately prolonged postoperative ventilation time, and slightly increased hospital stay. Hospital survival and revascularization results were not compromised.

154 Performance analysis of interactive multimodal CME retraining on attitude toward and application of OPCAB
Alexander Albert, MD, Eric A. Peck, MD, Patrick Wouters, MD, PhD,
Jan Van Hemelrijck, MD, PhD, Christophe Bert, MD, PhD, and Paul Sergeant, MD, PhD,
Leuven, Belgium, and Baltimore, Md

A multimodal, interactive and individualized CME has a considerable impact on attitude and application of a new and complex surgical procedure, conditional of the application of current knowledge of instructional design. This effect lasts, even in the later clinical confrontation.

163 Single-ventricle palliation for high-risk neonates: The emergence of an alternative hybrid stage I strategy
Emile A. Bacha, MD, Suanne Daves, MD, Joel Hardin, MD, Ra’id Abdulla, MD,
Jennifer Anderson, MD, Madelyn Kahana, MD, Peter Koenig, MD, Bassem N. Mora, MD,
Mehmet Gulecyuz, MD, Joanne P. Starr, MD, Ernerio Alboliras, MD, Satinder Sandhu, MD,
and Ziyad M. Hijazi, MD, Chicago, Ill

Stage I palliation in high-risk neonates carries a high mortality. This pilot study documents results after hybrid stage I palliation consisting of branch PA banding and ductal stenting via sternotomy. Hospital survival was 78%, and actual survival to stage II was 61%.

(continued on page 20A)
172 Intermediate outcomes after the Fontan procedure in the current era
Michael E. Mitchell, MD, Richard F. Ittenbach, PhD, J. William Gaynor, MD, Gil Wernovsky, MD, Susan Nicolson, MD, and Thomas L. Spray, MD, Louisville, Ky, and Philadelphia, Pa

In a cross-sectional follow-up study of 310 survivors of the Fontan operation between 1992 and 1999, acceptable survival outcomes were observed during intermediate follow-up. Anatomic diagnosis and stage I reconstruction do not predict poor intermediate-term survival outcomes or parental assessment of health performance, school performance, or cardiac functional status.

181 The relationship of postoperative electrographic seizures to neurodevelopmental outcome at 1 year of age after neonatal and infant cardiac surgery
J. William Gaynor, MD, Gail P. Jarvik, MD, PhD, Judy Bernbaum, MD, Marsha Gerdes, PhD, Gil Wernovsky, MD, Nancy B. Barnham, RN, MSN, Jo Ann D’Agostino, CRNP, Elaine Zackai, MD, Donna M. McDonald-McGinn, MS, CGC, Susan C. Nicolson, MD, Thomas L. Spray, MD, and Robert R. Clancy, MD, Philadelphia, Pa, and Seattle, Wash

The occurrence of a postoperative seizure is a marker of central nervous system injury. However, in this study, the occurrence of a seizure after infant cardiac surgery was not predictive of a worse neurodevelopmental outcome at 1 year of age.

190 Brain magnetic resonance imaging abnormalities after the Norwood procedure using regional cerebral perfusion
Catherine L. Dent, MD, James P. Spaeth, MD, Blaise V. Jones, MD, Steven M. Schwartz, MD, Tracy A. Glauser, MD, Barbara Hallinan, MD, Jeffrey M. Pearl, MD, Philip R. Khoury, MS, and C. Dean Kurth, MD, Cincinnati, Ohio

Regional cerebral perfusion has been adopted during the Norwood procedure to avoid circulatory arrest–associated brain ischemia. To assess its impact on neurologic injury, brain imaging was performed on infants before and after the Norwood operation. Despite adoption of this technique, brain ischemia remains common, occurring in the majority of infants after surgery.

198 Bronchial airway anastomotic complications after pediatric lung transplantation: Incidence, cause, management, and outcome
Cliff K. Choong, FRACS, Stuart C. Sweet, MD, Jennifer Bell Zool, BSN, Tracey J. Guthrie, BSN, Eric N. Mendeloff, MD, Fabio J. Haddad, MD, Pam Schuler, MD, Maite De La Morena, MD, and Charles B. Huddleston, MD, St Louis, Mo

Airway complications are a significant cause of morbidity after pediatric lung transplantations. The majority are successfully treated, and patient outcomes are not adversely affected.

204 Role of open lung biopsy in lung transplant recipients in a single children’s hospital: A 13-year experience
Cliff K. Choong, FRACS, Fabio J. Haddad, MD, Charles B. Huddleston, MD, Jennifer Bell, RN, Tracey J. Guthrie, BSN, Eric N. Mendeloff, MD, Pam Schuler, MD, Maite De La Morena, MD, and Stuart C. Sweet, MD, St Louis, Mo

Open lung biopsy can be performed safely, and established or confirmed a diagnosis in 97% of the cases in this study. A change in therapy occurred in 69% of the cases as a result of the diagnosis made from open lung diagnosis. Open lung biopsy appears to be a useful tool.
Chronic aspiration of gastric fluid accelerates pulmonary allograft dysfunction in a rat model of lung transplantation
Matthew G. Hartwig, MD, James Z. Appel, MD, Bin Li, MD, PhD, Chong-Chao Hsieh, MD, Yong Han Yoon, MD, Shu S. Lin, MD, PhD, William Irish, PhD, William Parker, PhD, and R. Duane Davis, MD, Durham and Research Triangle Park, NC

Chronic aspiration accelerates pulmonary allograft failure and may promote mononuclear cell graft infiltration and a profibrotic cytokine milieu.

Modified reperfusion in clinical lung transplantation: The results of 100 consecutive cases
Gabriel T. Schnickel, MD, David J. Ross, MD, Ramin Beygui, MD, Ali Shefizadeh, BS, Hillel Laks, MD, Rajan Saggar, MD, Joseph P. Lynch III, MD, and Abbas Ardehali, MD, Los Angeles, Calif

Altering the content and conditions of the initial reperfusate in human lung transplantation is associated with a low incidence of severe pulmonary graft dysfunction and favorable short-term outcomes.

Leiomyosarcoma of the left atrium mimicking a left atrial myxoma
Alessandro Mazzola, MD, Jean-Philippe Spano, MD, PhD, Maria Luisa Valente, MD, Renato Gregorini, MD, Carmine Villani, MD, Mauro Di Eusanio, MD, Marco Ciocca, MD, Ugo Minuti, MD, Raffaele Giancola, MD, Cristina Basso, MD, PhD, and Gaetano Thiene, MD, FRCP, Teramo and Padua, Italy, and Paris, France

Ventricular lateral wall rupture after myocardial infarction detected by means of multislice computed tomography
Stefan Klotz, MD, Eva M. Fallenberg, MD, Andreas Hoffmeier, MD, Tonny D. T. Tjan, MD, and Hans H. Scheld, MD, Muenster, Germany

Incorporating a pediatric concept into tricuspid valve endocarditis: One and a half ventricle repair
Shu-Chien Huang, MD, Nai-Hsin Chi, MD, I-Hui Wu, MD, Hsi-Yu Yu, MD, En-Ting Wu, MD, Shoel-Shen Wang, MD, Fang-Yue Lin, MD, and Yih-Sharng Chen, MD, Taipei, Taiwan, Republic of China

Aortocoronary dissection complicating angioplasty of chronically occluded right coronary arteries: Is a conservative approach the right approach?
Ian Hunt, MRCS, Matthew E. Faircloth, MRCP, Pranava Sinha, MCh, Michael S. Marber, PhD, FRCs, Graham E. Venn, MS, FRCS, and Christopher P. Young, MS, FRCS, London, United Kingdom

A localized intimomedial defect resulted in aortic regurgitation
Naoto Morimoto, MD, Yutaka Okita, MD, Kenji Okada, MD, Teruo Yamashita, MD, Keitaro Nakagiri, MD, Ayako Maruo, MD, Yujiro Kawanishi, MD, Masamichi Matsumori, MD, and Mitsuru Asano, MD, Kobe, Japan
233 Novel left ventriculoplasty for nonischemic dilated cardiomyopathy with functional mitral regurgitation
Hiroshi Irie, MD, PhD, Tadashi Isomura, MD, PhD, Fumikazu Nomura, MD, PhD, Taiko Horii, MD, PhD, Joji Hoshino, MD, Haruka Makinae, MD, and Hisayoshi Suma, Kanagawa, Japan

235 Surgical treatment of an aneurysm involving ascending aorta, aortic arch, and a rupture of a descending aortic aneurysm 26 years following acute type A aortic dissection
Christian Kuhn, MD, Onke E. Teebken, MD, Jurgen Weidemann, MD, Matthias Karck, MD, Maximilian Pichlmair, MD, and Axel Haverich, MD, Hannover, Germany

237 Persistent severe vasospasm in off-pump coronary artery bypass surgery: The value of intraluminal stenting
Pankaj Saxena, MCh, DNB, Igor E. Konstantinov, MD, PhD, Miriam Koniuszko, MBBS, Tushar Singh, MBBS, and Mark A. J. Newman, FRACS, Perth, Australia

239 Management of new-onset mitral regurgitation with intraoperative angiography and intraoperative percutaneous coronary intervention
James P. Greelish, MD, Susan S. Eagle, MD, David X. Zhao, MD, Robert J. Deegan, MD, Marshall H. Crenshaw, MD, Jorge M. Balaguer, MD, Rashid M. Ahmad, MD, and John G. Byrne, MD, Nashville, Tenn

240 Aortobronchial fistula after aortic coarctation
Alfonso L. Quintana, MD, PhD, Esther Martinez Aguilar, MD, Alvaro Fernandez Heredero, MD, Vicente Rimbau, MD, Laura Paul, MD, and Francisco Acin, MD, PhD, Madrid, Spain

243 Monobloc aorto-mitral homograft or mechanical valve replacement: A new surgical option for extensive bivalvular endocarditis
J. F. Obadia, MD, PhD, R. Hénaine, MD, C. Bergerot, MD, I. Ginon, MD, P. Nataf, MD, N. Chavani, MD, J. Robin, MD, PhD, X. André-Fouet, MD, J. Ninet, MD, and O. Raisky, MD, PhD, Lyon and Saint Denis, France

245 Origin of left subclavian artery from ascending aorta: A variant of double aortic arch
K. Mahadevan Krishnamoorthy, DM, DNB, Hemant Madan, MD, and Jaganmohan A. Tharakan, DM, Trivandrum, India

247 Intermediate outcomes of fenestrated Fontan procedures
S. Garekar, MD, H. L. Walters, III, MD, R. E. Delius, MD, R. L. Thomas, PhD, and R. D. Ross, MD, Detroit, Mich

Letters to the Editor

250 Methylene blue revised
Paulo Roberto B. Evora, MD, PhD, and Alfredo José Rodrigues, MD, PhD, São Paulo, Brazil

251 Reply
Katherine Taylor, BMed(Hons), BA, FANZCA, Toronto, Ontario, Canada

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