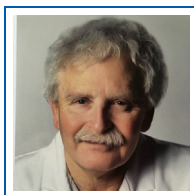


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Presidential Perspectives



651 Historical perspectives of The American Association for Thoracic Surgery: Bruce W. Lytle, MD

Stephen W. Davies, MD, MPH, Benjamin A. Hirsch, MD, and Christine L. Lau, MD, for the AATS Centennial Committee, Charlottesville, Va

As a major influence in cardiac surgery, Bruce W. Lytle has advanced understanding of the use of the left internal thoracic artery in coronary bypass surgery, reoperations on redo coronary bypass and valve procedures, retrograde cerebral perfusion for patients with atherosclerosis, axillary arterial cannulation, hypertrophic cardiomyopathy, and operations involving endocarditis.

Editorial: Congenital

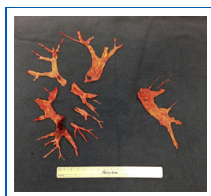


655 New model for an old problem: Myocardial edema and dysfunction in neonates

Sunjay Kaushal, MD, PhD, and Brody Wehman, MD, Baltimore, Md

The potential clinical implications of the model described in this issue of the *Journal* as it applies to neonatal congenital cardiac surgery are discussed.

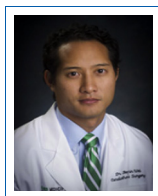
Editorials: Thoracic



656 Operability assessment in chronic thromboembolic pulmonary hypertension (CTEPH): Don't miss the chance of a second opinion!

Marc de Perrot, MD, MSc, FRCSC, Toronto, Ontario, Canada

Pulmonary endarterectomy is the mainstay of therapy for CTEPH and accessibility to a second surgical opinion from experienced centers is a crucial component in the evaluation of patients with CTEPH.



658 Lung torsion: Some answers but more questions

Benjamin Wei, MD, Birmingham, Ala

This useful review of lung torsion is the largest study to date. Surgeons need to be vigilant about lung torsion after anatomic lung resection. Risk factors for and prevention of lung torsion warrant further study.

(continued on page 6A)

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Editorial: Acquired: Aortic Valve

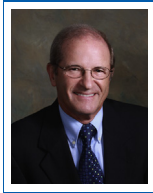


659 Residual aortic regurgitation after transcatheter aortic valve replacement under the echocardiographic microscope

Michael J. Reardon, MD, and Jeffrey J. Popma, MD, Houston, Tex, and Boston, Mass

Understanding degrees of aortic insufficiency in greater detail will be important in lower-risk patients.

Editorial: Ethics



661 Sanctions for research misconduct in cardiothoracic surgery journals

Robert M. Sade, MD, for the Cardiothoracic Ethics Forum, Charleston, SC

Research misconduct has grown in biomedical and scientific research during the past few decades. Until culture change is enacted, the application of sanctions serves as a deterrent to future misconduct.

Editorial: Young Surgeon's Note



664 Special considerations of military cardiothoracic surgeons

LTC Bryan S. Helsel, MD, USA, Maj Elizabeth A. David, MD, USAF, and CDR Jared L. Antevil, MD, USN, San Antonio, Tex; Fairfield and Sacramento, Calif; and Bethesda, Md

Perspectives on the current status of military cardiothoracic surgery in both combat and peacetime/elective practice.

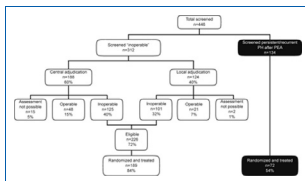


667 Editorial Commentary: Military surgeons just want to have fun

Fred Weber, MD, JD, FACS, Ocean City, NJ

Military thoracic surgeons need sufficient clinical material and volume to maintain competency in elective thoracic surgery.

Expert Opinion: Thoracic: Pulmonary Embolus



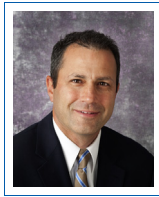
669 Operability assessment in CTEPH: Lessons from the CHEST-1 study

David P. Jenkins, BSc, MBBS, FRCS (CTh), MS, Andrzej Biederman, MD, Andrea M. D'Armini, MD, Philippe G. Dartevelle, MD, Hui-Li Gan, MD, Walter Klepetko, MD, Jaroslav Lindner, MD, Eckhard Mayer, MD, and Michael M. Madani, MD, Cambridge, United Kingdom; Warsaw, Poland; Pavia, Italy; Le Plessis-Robinson, France; Beijing, China; Vienna, Austria; Prague, Czech Republic; Bad Nauheim, Germany; and San Diego, Calif

The CHEST-1 operability assessment sets new standards for CTEPH trials, ensuring that patients who are eligible for pulmonary endarterectomy are correctly identified.

(continued on page 7A)

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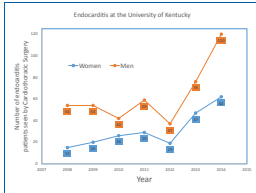


675 Editorial Commentary: There is no substitute for experience: Lessons learned from CHEST-1 (Chronic Thromboembolic Pulmonary Hypertension Soluble Guanylate Cyclase Stimulator Trial-1) for future clinical trial design

Jonathan D'Cunha, MD, PhD, Pittsburgh, Pa

The study design of CHEST-1 sets a new standard for clinical trials, especially as they relate to complex and relatively infrequent, highly specialized disease processes.

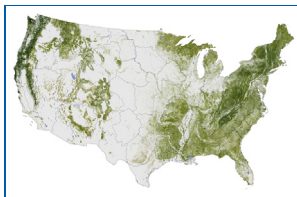
Expert Opinion: Endocarditis



677 Missing the forest for the trees: The world around us and surgical treatment of endocarditis

Victor A. Ferraris, MD, PhD, and Michael E. Sekela, MD, Lexington, Ky

Drug-related endocarditis and associated mortality are increasing in white, midlife Americans. The causes suggest societal problems that need to be addressed.

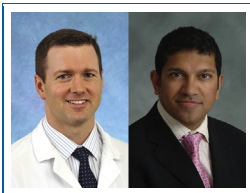


681 Editorial Commentary: Seeing the entire forest in endocarditis

Vinay Badhwar, MD, Lawrence M. Wei, MD, and J. Scott Rankin, MD, Morgantown, WVa

Viewing the US forest organic biomass from NASA's earth observatory. Sometimes we need to step back to see the entire problem.

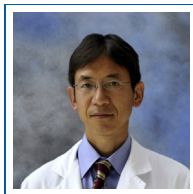
Expert Opinion: Mechanical Circulatory Support



683 HeartMate 3: Facing the challenge of past success

William E. Stansfield, MD, and Vivek Rao, MD, PhD, Toronto, Ontario, Canada

The HeartMate 3 LVAD features pulsatility, magnetic levitation, and textured surfaces. Will this be enough to meaningfully reduce the complication profile associated with mechanical support?



686 Editorial Commentary: Did you like *Terminator 3* better than *Terminator 2*? "Rise of machines" with HeartMate 3?

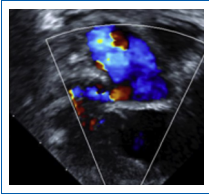
Hiroo Takayama, MD, PhD, New York, NY

The HeartMate-II is a good machine although not perfect. The HeartMate 3 CE Mark trial showed occurrence of the left ventricular assist device-related complications. For the HeartMate 3 to raise the role of the machines, it has to overwhelm the HeartMate-II performance in the MOMENTUM3.

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Congenital (CONG): Ventricular Septal Defect

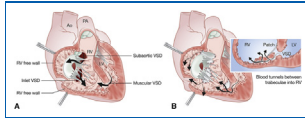


688 Accuracy of transesophageal echocardiography in the identification of postoperative intramural ventricular septal defects



Jyoti K. Patel, MD, Andrew C. Glatz, MD, MSCE, Reena M. Ghosh, MD, Shannon M. Jones, MD, Chitra Ravishankar, MD, Christopher Mascio, MD, and Meryl S. Cohen, MD, Philadelphia, Pa

Intraoperative TEE has modest sensitivity but high specificity for identifying intramural VSDs after repair of conotruncal anomalies.

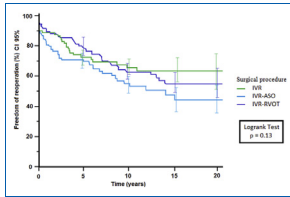


696 Editorial Commentary: Intramural ventricular septal defect after repair of conotruncal anomalies: Is there light at the end of the tunnel?

Edward Buratto, MBBS, Philip S. Naimo, MD, and Igor E. Konstantinov, MD, PhD, FRACS, Melbourne, Australia

Precise echocardiographic evaluation is essential for successful closure of intramural ventricular septal defect.

Congenital (CONG): Double-Outlet Right Ventricle



698 Impact of anatomic characteristics and initial biventricular surgical strategy on outcomes in various forms of double-outlet right ventricle



Olivier Villemain, MD, Emre Belli, MD, Magalie Ladouceur, MD, Lucile Houyel, MD, Zakaria Jalal, MD, Virginie Lambert, MD, PhD, Mohamed Ly, MD, Pascal Vouhé, MD, PhD, and Damien Bonnet, MD, PhD, Paris, Le Plessis Robinson, and le Kremlin Bicetre, France

The initial surgical strategy did not influence late outcomes of DORV with biventricular repair.

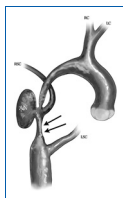


707 Editorial Commentary: Is there a limit to how far we should push the envelope in pediatric cardiac surgery?

Bahaaldin Alsoufi, MD, Atlanta, Ga

The highest mortality risk following biventricular repair of double-outlet right ventricle is seen in patients with a noncommitted ventricular septal defect and small children requiring arterial switch. Alternative management approaches might be indicated.

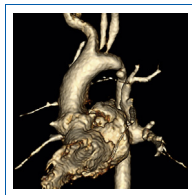
Congenital (CONG): Aorta



709 Aortic arch repair in children with PHACE syndrome

Seamus P. Caragher, BS, John P. Scott, MD, Dawn H. Siegel, MD, Michael E. Mitchell, MD, Peter C. Frommelt, MD, and Beth A. Drolet, MD, Milwaukee, Wis

PHACE syndrome is associated with unusual aortic arch obstructions, requiring complex surgical solutions for repair.



718 Editorial Commentary: Aortic arch anomalies in PHACE syndrome: An individualized approach to an unusual problem

Carlos M. Mery, MD, MPH, Houston, Tex

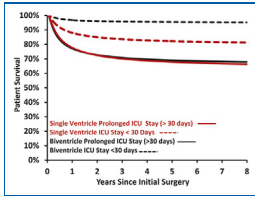
Aortic arch and brachiocephalic vessel anomalies in PHACE syndrome are widely heterogeneous. An individualized approach is needed for surgical repair of aortic coarctation in these patients.

(continued on page 9A)

Congenital (CONG): Perioperative

720 Outcomes of neonates requiring prolonged stay in the intensive care unit after surgical repair of congenital heart disease

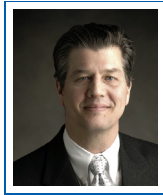
Makoto Mori, MD, Courtney McCracken, PhD, Kevin Maher, MD, Brian Kogon, MD, William Mahle, MD, Kirk Kanter, MD, and Bahaaldin Alsoufi, MD, Atlanta, GA



Prolonged postoperative stay in the intensive care unit increases postdischarge mortality, especially in neonates with 2 ventricle anomalies.

727 Editorial Commentary: Neonatal outcomes and length of stay: A firm grasp of the obvious?

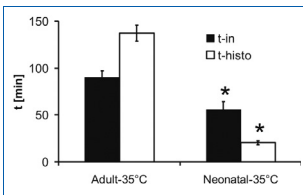
David M. Overman, MD, Minneapolis, Minn



Patients with prolonged ICU stay after congenital cardiac surgery have suboptimal late outcomes. Residual cardiac disease and selection of surgical strategy both appear to be important to this phenomenon.

729 Age-related differences of intraschemic gap junction uncoupling in hearts during ischemia

Sabrina Lueck, MD, Achilles Delis, MD, Thomas Minor, MD, Claus Juergen Preusse, MD, and Michael Schaefer, PhD, Muenster, Bonn, Essen, and Heidelberg, Germany

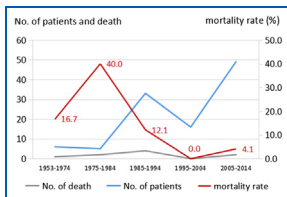


In neonatal hearts, significantly faster edema formation and earlier gap junction uncoupling during ischemia was measured, indicating greater sensitivity compared with adult hearts.

Thoracic (THOR): Lung

737 Predictors of survival in lung torsion: A systematic review and pooled analysis

Jie Dai, PhD, Dong Xie, MD, Haifeng Wang, MD, Wenxin He, MD, Yiming Zhou, MD, Luis Angel Hernández-Arenas, MD, and Gening Jiang, MD, Shanghai, People's Republic of China



Both direct resection and reposition can be performed in the treatment of lung torsion and the choice depends on tissue viability.

746 Editorial Commentary: The lung torsion dilemma: Detorsion without resection or resection without detorsion?

Pascal A. Thomas, MD, FETCS, Marseille, France

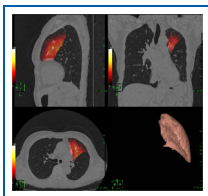


During surgery, a twisted lung or lobe should be kept contorted intentionally until transpericardial clamping of the pulmonary veins has been applied.

Thoracic (THOR): Lung Cancer

747 Systemic and regional pulmonary function after segmentectomy

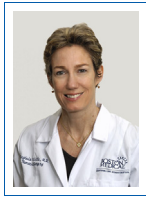
Hiroaki Nomori, MD, Yue Cong, MD, and Hiroshi Sugimura, MD, Chiba, Japan



Segmentectomy decreased pulmonary function with increasing number of resected segments. LUD segmentectomy decreased the function equally as lobectomy.

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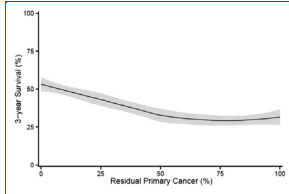
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754 Editorial Commentary: When the sum of the parts is greater than the whole
Virginia R. Little, MD, Boston, Mass

Pulmonary function after an upper division trisegmentectomy is equivalent to that after an upper lobectomy. When assessing functional outcomes after segmentectomies, exclude the upper division resection.

Thoracic (THOR): Esophageal Cancer



756 Importance of residual primary cancer after induction therapy for esophageal adenocarcinoma

Siva Raja, MD, PhD, Thomas W. Rice, MD, John Ehrlinger, PhD, John R. Goldblum, MD, Lisa A. Rybicki, MS, Sudish C. Murthy, MD, PhD, David Adelstein, MD, Gregory Videtic, MD, Michael P. McNamara, MD, and Eugene H. Blackstone, MD, Cleveland, Ohio

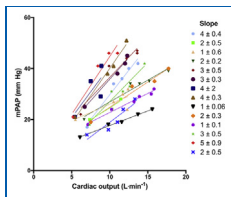
Increasing amount of residual primary cancer after induction therapy is associated with worsening survival in esophageal adenocarcinoma.



761 Editorial Commentary: For esophageal cancer, biology is still king
Thomas Ng, MD, FRCSC, FACS, Providence, RI

In advanced esophageal cancer, response to induction therapy correlates with survival; however, the biology that determines the degree of this response continues to require study.

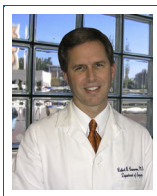
Thoracic (THOR): Pulmonary Embolus



763 Hemodynamic and ventilatory responses during exercise in chronic thromboembolic disease

Coen van Kan, MD, Mart N. van der Plas, PhD, Herre J. Reesink, MD, PhD, Reindert P. van Steenwijk, MD, PhD, Jaap J. Kloek, MD, Robert Tepaske, MD, PhD, Peter I. Bonta, MD, PhD, and Paul Bresser, MD, PhD, Amsterdam and Nieuwegein, The Netherlands

Patients with chronic thromboembolic disease show abnormal pulmonary vascular responses to exercise and decreased ventilatory efficiency. Responses after pulmonary endarterectomy point to restoration of stroke volume response and ventilatory efficiency.

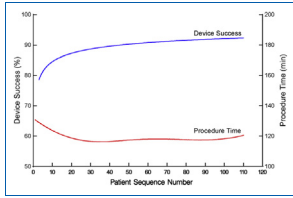


771 Editorial Commentary: Understanding pathophysiologic changes occurring in chronic thromboembolic disease
Robert B. Cameron, MD, Los Angeles, Calif

Measurement and understanding of right ventricular stroke volume response and ventilatory efficiency may be the key in chronic thromboembolic disease.

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Acquired (ACQ): Aortic Valve



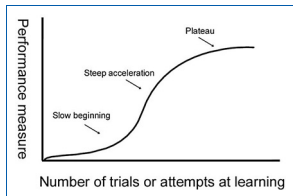
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Learning curves for transapical transcatheter aortic valve replacement in the PARTNER-I trial: Technical performance, success, and safety

Rakesh M. Suri, MD, DPhil, Sa'ar Minha, MD, Oluseun Alli, MD, Ron Waksman, MD, Charanjit S. Rihal, MD, Lowell P. Satler, MD, Kevin L. Greason, MD, Rebecca Torguson, MPH, Augusto D. Pichard, MD, Michael Mack, MD, Lars G. Svensson, MD, PhD, Jeevanantham Rajeswaran, PhD, Ashley M. Lowry, MS, John Ehrlinger, PhD, Stephanie L. Mick, MD, E. Murat Tuzcu, MD, Vinod H. Thourani, MD, Raj Makkar, MD, David Holmes, MD, Martin B. Leon, MD, and Eugene H. Blackstone, MD, Cleveland, Ohio; Zerifin, Israel; Birmingham, Ala; Washington, DC; Rochester, Minn; Plano, Tex; Atlanta, Ga; Los Angeles, Calif; and New York, NY

The learning curve for TA-TAVR did not compromise patient safety.

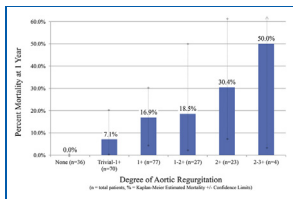


781

Editorial Commentary: Navigating the s-curve of transapical therapy

Mohamad A. Alkhouli, MD, Bryan D. Raybuck, MD, and Vinay Badhwar, MD, Morgantown, WV

One must consider technology and technique evolution when interpreting early transapical learning curve estimates. These timely lessons provide insights for transcatheter mitral valve replacement.



783

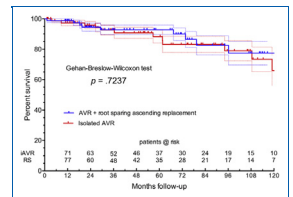


Prognostic significance of mild aortic regurgitation in predicting mortality after transcatheter aortic valve replacement

Brandon M. Jones, MD, E. Murat Tuzcu, MD, Amar Krishnaswamy, MD, Zoran Popovic, MD, Stephanie Mick, MD, Eric E. Roselli, MD, Sajjad Gul, MD, Jasneet Devgun, BS, Sohi Mistry, Wael A. Jaber, MD, Lars G. Svensson, MD, and Samir R. Kapadia, MD, Cleveland, Ohio

A more granular characterization of mild AR after TAVR is effective in predicting long-term mortality and will hold increasing importance as the technology transitions to low-risk populations.

Acquired (ACQ): Aortic Root

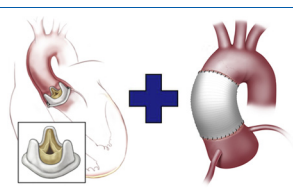


791

Aortic valve disease with ascending aortic aneurysm: Impact of concomitant root-sparing (supracoronary) aortic replacement in nonsyndromic patients

Sven Peterss, MD, Paris Charilaou, MD, Julia Dumfarth, MD, Yupeng Li, BS, Rohan Bhandari, MD, Maryann Tranquilli, RN, John A. Rizzo, PhD, Bulat A. Ziganshin, MD, and John A. Elefteriades, MD, New Haven, Conn; Munich, Germany; Stony Brook, NY; and Kazan, Russia

Proximal aortic replacement with the RS technique is a safe approach and can be performed with excellent operative results.



799

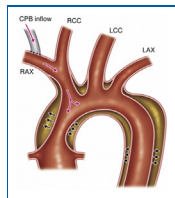
Editorial Commentary: Concomitant replacement of the ascending aorta is free—for some

Nicholas D. Andersen, MD, and G. Chad Hughes, MD, Durham, NC

Concomitant ascending aorta replacement can be performed with trivial incremental risk for patients at low risk undergoing elective procedures when these operations are performed by a high-volume aortic subspecialist.

(continued on page 12A)

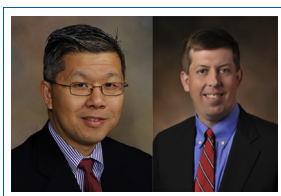
Acquired (ACQ): Aorta



801 Is right axillary artery cannulation safe in type A aortic dissection with involvement of the innominate artery?

Bartosz Rylski, MD, Martin Czerny, MD, Friedhelm Beyersdorf, MD, PhD, Fabian Alexander Kari, MD, Matthias Siepe, MD, Hideo Adachi, MD, PhD, Atsushi Yamaguchi, MD, PhD, Ryo Itagaki, MD, and Naoyuki Kimura, MD, PhD, Freiburg, Germany, and Saitama, Japan

The RAX artery is safe to cannulate for arterial inflow in patients with type A dissection with dissected innominate artery.



808 **Editorial Commentary:** Maxing out the axillary artery for arterial cannulation in acute type A dissection *W. Brent Keeling, MD, and Edward P. Chen, MD, Atlanta, Ga*

Little data exist regarding the safety and efficacy of cannulating the right axillary artery in the setting of a dissected innominate artery for type A dissection repair. The authors present a series detailing the safety of this practice.



810 **Management of floating thrombus in the aortic arch**



Salome Weiss, MD, Roman Bühlmann, MD, Regula S. von Allmen, MD, Vladimir Makaloski, MD, Thierry P. Carrel, MD, Jürg Schmidli, MD, and Thomas R. Wyss, MD, Bern and St Gallen, Switzerland

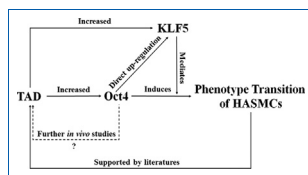
Floating aortic arch thrombus is a dangerous source of emboli. Surgical removal of the thrombus is easy to perform and followed by good clinical results.



818 **Editorial Commentary:** Are errors of commission better than errors of omission?

Leonard N. Girardi, MD, New York, NY

Treatment for floating mural thrombus needs to be individualized. Patients with symptoms may benefit from an aggressive surgical approach.



820 **Involvement of Oct4 in the pathogenesis of thoracic aortic dissection via inducing the dedifferentiated phenotype of human aortic smooth muscle cells by directly upregulating KLF5**



Yan Yan, MD, Meng-Wei Tan, MD, Xiang Xue, MD, Xue-Yan Ding, MD, Guo-Kun Wang, MD, and Zhi-Yun Xu, MD, Shanghai and Hangzhou, China

Increased Oct4 in aortic media and primary HASMCs of TAD patients induces HASMCs phenotype transition by directly upregulating KLF5.

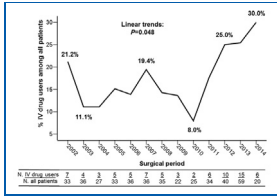


830 **Editorial Commentary:** A "muscle" fight against aortic dissection: Knowledge is the key to success *Davide Pacini, MD, PhD, Giacomo Murana, MD, and Antonio Pantaleo, MD, Bologna, Italy*

The knowledge of the pathogenic mechanics of aortic dissection is fundamental in its prevention and provides the basis for future treatment strategies.

(continued on page 13A)

Acquired (ACQ): Endocarditis



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Surgical outcomes of infective endocarditis among intravenous drug users

Joon Bum Kim, MD, PhD, Julius I. Ejiofor, MD, Maroun Yamine, MD, Masahiko Ando, MD, Janice M. Camuso, RN, Ilan Youngster, MD, Sandra B. Nelson, MD, Arthur Y. Kim, MD, Serguei I. Melnitchouk, MD, James D. Rawn, MD, Thomas E. MacGillivray, MD, Lawrence H. Cohn, MD, John G. Byrne, MD, and Thoralf M. Sundt III, MD, Boston, Mass, and Seoul, South Korea

Among 436 adult patients with active endocarditis undergoing surgery, 78 (17.9%) were current intravenous drug users. Although intravenous drug users had lower operative risk, reinfection (hazard ratio, 6.20; 95% confidence interval, 2.56-15.00) and valve-related complications (hazard ratio, 3.82; 95% confidence interval, 1.95-7.49) were significantly higher compared with nondrug users.

Population Bias	Effect of patient selection on the level of health, education and economy
Confounding Bias	Protein levels Anemia Inflammation
Referral Bias	Specialized centers Referral criteria Referral-related factors
Treatment Selection Bias	Diagnosis timing Referral-related factors
Classification Bias	Performance of different procedures Referral-related factors
Survivor Treatment Bias	Referral-related factors Referral-related factors
Lost To-Follow-Up Bias	Dropouts in randomized trials Referral-related factors
Hidden Bias	Dropouts in non-randomized trials Referral-related factors

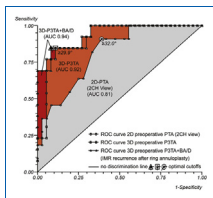
842

Editorial Commentary: The vagaries of patient selection in cardiovascular surgery

Anelechi C. Anyanwu, MD, FRCS, New York, NY

Patient selection is a great confounder in surgical outcomes research. This editorial argues that patient selection rather than technical excellence is the dominant driver of differential outcomes.

Acquired (ACQ): Mitral Valve



847



The value of preoperative 3-dimensional over 2-dimensional valve analysis in predicting recurrent ischemic mitral regurgitation after mitral annuloplasty

Inez J. Wijdh-den Hamer, MD, Wobbe Bouma, MD, PhD, Eric K. Lai, BS, Melissa M. Levack, MD, Eric K. Shang, MD, Alison M. Pouch, PhD, Thomas J. Eperjesi, BS, Theodore J. Plappert, CVT, Paul A. Yushkevich, PhD, Judy Hung, MD, Massimo A. Mariani, MD, PhD, Kamal R. Khabbaz, MD, Thomas G. Gleason, MD, Feroze Mahmood, MBBS, Michael A. Acker, MD, Y. Joseph Woo, MD, Albert T. Cheung, MD, Matthew J. Gillespie, MD, Benjamin M. Jackson, MD, Joseph H. Gorman III, MD, and Robert C. Gorman, MD, Philadelphia and Pittsburgh, Pa; Groningen, The Netherlands; Boston, Mass; and Stanford, Calif

Preoperative 3DE P3TA is a stronger independent predictor of IMR recurrence 6 months after annuloplasty than preoperative 2DE PTA.



860

Editorial Commentary: Predicting recurrent ischemic mitral regurgitation: Through the 3-dimensional looking glass

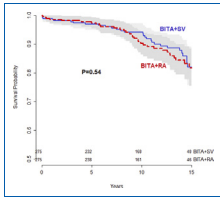
David D. Yuh, MD, FACS, FACC, New Haven, Conn

Three-dimensional echocardiography coupled with advanced image modeling forms the basis for more accurate and reproducible methodologies in predicting recurrent ischemic mitral insufficiency.

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Acquired (ACQ): Coronary



862 **Are three arteries better than two? Impact of using the radial artery in addition to bilateral internal thoracic artery grafting on long-term survival**

Umberto Benedetto, MD, PhD, Massimo Caputo, MD, Mustafa Zakkar, PhD, Alan Bryan, MD, and Gianni D. Angelini, MD, Bristol, United Kingdom

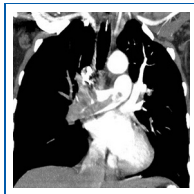
Long-term survival in the context of bilateral internal thoracic artery grafting is not extended by using the radial artery in preference to saphenous vein in selected low-risk patients.

870 **Editorial Commentary:** Multiple arterial conduits for bypass grafting: How many are enough?
Harold L. Lazar, MD, Boston, Mass

Long-term survival may not be significantly improved by using the radial artery as the third arterial conduit in patients already receiving BITA grafts.

Acquired (ACQ): Pulmonary Embolus

	Preoperative Value (n=21)	Mid-term Value (n=21)	P Value
≥ Moderate ventricular dysfunction	17 (81.0%)	1 (4.8%)	<0.0001
≥ Moderate tricuspid regurgitation	6 (28.6%)	0(0)	0.0085
Pulmonary Artery Systolic Pressure (mmHg)	21.2 ± 21.6 (n= 17)	37.2 ± 14.2 (n= 9)	0.01
Tricuspid Valve Regurgitant Velocity (m/s)	3.1 ± 0.8 (n= 16)	2.4 ± 0.7 (n= 11)	0.03



872 **Midterm benefits of surgical pulmonary embolectomy for acute pulmonary embolus on right ventricular function**

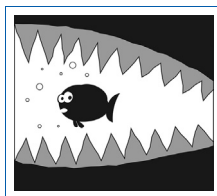
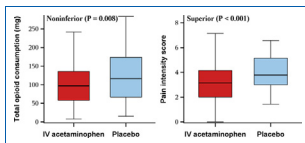
William Brent Keeling, MD, Bradley G. Leshnowar, MD, Yi Lasajanak, MSPH, Jose Binongo, PhD, Robert A. Guyton, MD, Michael E. Halkos, MD, Vinod H. Thourani, MD, and Omar M. Lattouf, MD, Atlanta, Ga

SPE is safe, and the benefit to right ventricular function is durable over time.

879 **Editorial Commentary:** Surgical pulmonary embolectomy: Should we extend its role?
Rune Haaverstad, MD, PhD, and Nicola Vitale, MD, PhD, FETCS, Bergen, Norway

An algorithm including medical treatment, extracorporeal membrane oxygenation, and surgical embolectomy may improve the results in patients with acute pulmonary emboli.

Perioperative Management (PM): Cardiac



881 **Intravenous acetaminophen analgesia after cardiac surgery: A randomized, blinded, controlled superiority trial**

Negmeldeen F. Mamoun, MD, PhD, Peirong Lin, MD, Nicole M. Zimmerman, MS, Edward J. Mascha, PhD, Stephanie L. Mick, MD, Steven R. Insler, DO, Daniel I. Sessler, MD, and Andra E. Duncan, MD, Cleveland, Ohio

Intravenous acetaminophen significantly reduced pain, but not opioid consumption, after cardiac surgery done via median sternotomy.

890 **Editorial Commentary:** Big fish, little fish
Dirk J. Varelmann, MD, and Michael N. D'Ambra, MD, Boston, Mass

Intravenous acetaminophen for cardiac surgery delivers a clinically insignificant improvement in surgical pain at a significant increase in drug expense.

(continued on page 15A)

Transplantation (TX): Lung

891 The use of extended criteria donors decreases one-year survival in high-risk lung recipients: A review of the United Network of Organ Sharing Database

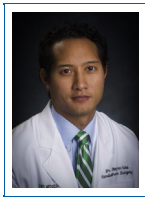
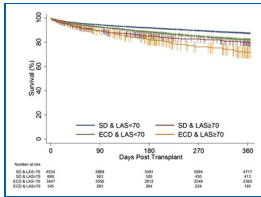


Matthew J. Mulligan, BA, Pablo G. Sanchez, MD, PhD, Charles F. Evans, MD, Yan Wang, BM, DrPH, Zachary N. Kon, MD, Keshava Rajagopal, MD, PhD, Aldo T. Iacono, MD, James S. Gammie, MD, Bartley P. Griffith, MD, and Si M. Pham, MD, Baltimore, Md

Matching donor quality to recipient severity is critical to achieve optimal outcomes in lung transplantation.

899 Editorial Commentary: Extended criteria donors: Closer to the truth
Benjamin Wei, MD, Birmingham, Ala

In this study of 11,000 lung transplants from 2005 to 2012, Mulligan and colleagues have provided greater clarity to the definition and significance of using lungs from an ECD.



901 Atrial arrhythmias after lung transplantation: Incidence and risk factors in 652 lung transplant recipients

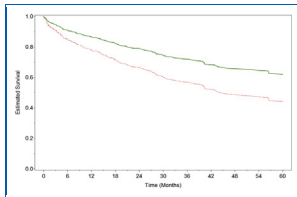
Alex M. D'Angelo, BA, Ernest G. Chan, MD, MPH, J. W. Awori Hayanga, MD, MPH, David D. Odell, MD, MMSc, Joseph Pilewski, MD, Maria Crespo, MD, Matthew Morrell, MD, Norihisa Shigemura, MD, James Luketich, MD, Christian Bermudez, MD, Andrew D. Althouse, PhD, and Jonathan D'Cunha, MD, PhD, Pittsburgh, Pa

Atrial arrhythmia after lung transplant is a common and morbid event that is associated with a significant negative impact on long-term survival.

910 Editorial Commentary: Atrial arrhythmias after lung transplant: A call to action starting with the electrocardiogram

Marye J. Gleva, MD, and Charles B. Huddleston, MD, St Louis, Mo

If we are to have an impact on outcomes when arrhythmias complicate lung transplantation (or any surgical procedure), we must make a precise diagnosis of the arrhythmia.

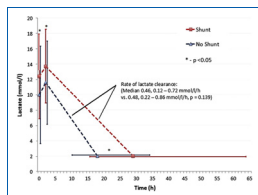


Mechanical Circulatory Support (MCS): Congenital

912 Extracorporeal membrane oxygenator support in infants with systemic-pulmonary shunts

Phil Botha, PhD, FRCS, Shriprasad R. Deshpande, MBBS, MS, Michael Wolf, MD, Micheal Heard, RRT, Bahaaldin Alsoufi, MD, Brian Kogon, MD, and Kirk Kanter, MD, Atlanta, Ga

A strategy of increased flow without restricting shunt flow may be adequate to achieve equivalent survival irrespective of the method of pulmonary blood flow (shunt vs Sano).



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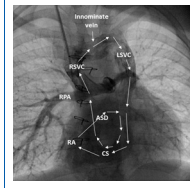
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**LESS
IS
MORE.**
[MORE OR LESS]

919 Editorial Commentary: More or less: Sometimes more is more if it's the lesser of evils
Jonathan M. Chen, MD, Seattle, Wash

For those infants with a patent systemic-pulmonary shunt and hemodynamic collapse, the conundrum remains as to how to effectively reproduce a balanced circulation while providing ECMO support.

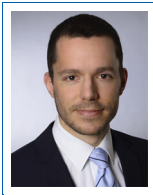
Cardiothoracic Imaging: Congenital



921 Circular shunt in bidirectional cavopulmonary anastomosis
K. M. Krishnamoorthy, DM, DNB, FACC, and S. S. Sivasankaran, DM, DNB, Trivandrum, India



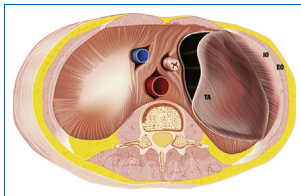
A venovenous collateral involving left superior vena cava developed after a cavopulmonary connection in the presence of antegrade pulmonary flow. Circular shunt and ineffective circulation resulted.



923 Editorial Commentary: A vicious circle
Christoph Haller, MD, Toronto, Ontario, Canada

Venous collaterals after bidirectional cavopulmonary shunt with a subpulmonary ventricle may cause a progressive, self-maintaining circular shunt.

Surgical Technique: Thoracic



925 Single transversus abdominis muscle flap: Another possibility for large congenital diaphragmatic hernia repair
Alexis P. Arnaud, MD, Amandine Martin, MD, Edouard Habonimana, MD, and Benjamin Frémond, MD, PhD, Rennes, France

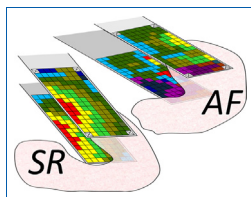
We describe a new technique for muscle flap repair in patients with large congenital diaphragmatic hernia using only the transversus abdominis.



927 Editorial Commentary: Would you buy this car without a warranty?
Charles B. Huddleston, MD, and Jose Greenspon, MD, St Louis, Mo

To gain wide acceptance, any new surgical technique must demonstrate safety, efficacy, reproducibility, reliability, and durability.

Surgical Technique: Acquired

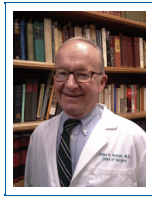


929 Simultaneous endocardial and epicardial high-resolution mapping of the human right atrial wall
Paul Knops, BSc, Charles Kik, MD, Ad J. J. C. Bogers, MD, PhD, and Natasja M. S. de Groot, MD, PhD, Rotterdam, The Netherlands



Coherence between endocardial and epicardial activation can be visualized by mapping. This example shows simultaneous activation in sinus rhythm and asynchronous activation during AF.

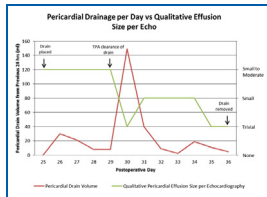
(continued on page 17A)



932 Editorial Commentary: Macro or micro: The beat goes on
Alden H. Harken, MD, FACS, Oakland, Calif

As with most advances, the devil is in the details.

Case Report: Congenital



e55 Tissue plasminogen activator for mediastinal tube clearance in pediatric chylothous effusion: A case report

Dennis R. Delany, MD, Jordan W. Newman, MD, and Andrew M. Atz, MD, Charleston, SC

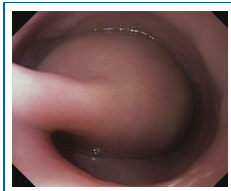
Tissue plasminogen activator is a viable option for clearance of occluded mediastinal tubes in the setting of chylothous effusion.



e57 Editorial Commentary: Curbing chyle leaks
Ming-Sing Si, MD, Ann Arbor, Mich

Treatment of chyle leaks after pediatric cardiac surgery is in need of innovation and standardization.

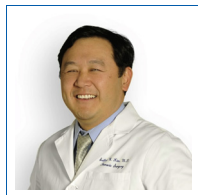
Case Reports: Thoracic



e59 Hemangioma of the cervical esophagus: A rare case of dysphagia mimicking a large esophageal polyp on endoscopy

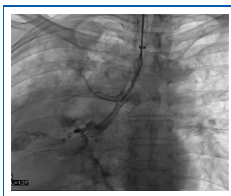
Juan A. Santamaria-Barria, MD, Farzaneh Banki, MD, Suresh Rajendran, MD, and Craig Floyd, MD, Houston, Tex

Cervical dysphagia should prompt comprehensive diagnostic evaluation, and mechanical obstruction should always be considered. This report emphasizes the need for comprehensive evaluation. Misleading diagnosis of a large polyp on upper endoscopy was corrected by obtaining a Videoesophagogram and neck CT scan. This allowed adequate treatment of a rare cavernous hemangioma.



e63 Editorial Commentary: Another freak of nature? Dysphagia hemangioma
Anthony W. Kim, MD, New Haven, Conn

The authors present their excellent management of a relatively rare cervical esophageal hemangioma.



e65 Sequential interventional treatment of right-sided lung cancer with complete lung atelectasis: A case report

Gang Wu, MD, Zongming Li, MD, Dechao Jiao, MD, and Xinwei Han, MD, Zhengzhou, China

Sequential intervention is an effective and minimally invasive treatment method for lung cancer with complete lung atelectasis.

(continued on page 18A)

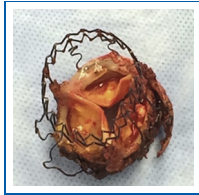
Table of Contents (continued)



- e69** **Editorial Commentary:** Cleaning the pipes before changing the furnace: Endoscopic patient optimization before major therapeutic intervention in lung cancer
Moishe Liberman, MD, PhD, Montréal, Québec, Canada

Interventional bronchoscopic treatment can allow for patient optimization before aggressive, potentially curable, treatment strategies in tumors causing airway obstruction with lung atelectasis.

Case Report: Acquired



- e71** **First case of Perceval S prosthesis early structural valve deterioration: Not an easy reoperation**

Ismail Bouhout, MD, MSc, Pierre-Emmanuel Noly, MD, MSc, Andres Parisi, MD, and Denis Bouchard, MD, PhD, Montreal, Québec, Canada

This is the first case reported of early dysfunction of a Perceval S prosthesis (Sorin Group, Saluggia, Italy). Explanation of the Perceval S prosthesis was difficult because the prosthesis stent was embedded in the aortic wall.



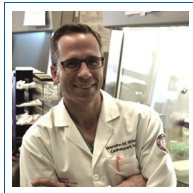
- e73** **Editorial Commentary:** The potential emerging truth about balanced sacrifices in surgery
Fraser D. Rubens, MD, MSc, FACS, FRCSC, Ottawa, Ontario, Canada

Durability is one of the key criteria surgeons weigh in valve choice. This case highlights the need for renewed critical focus on the balance of facilitating valve insertion and long-term outcomes.

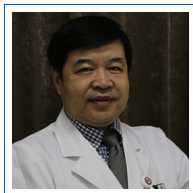
Letters to the Editor



- 933** **A new perspective on bibliometric data: Moving out of the mainstream**
Erwin Krauskopf, PhD, and Maria Cecilia Gamboa, PhD, Santiago, Chile

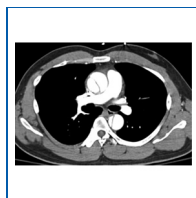


- 934** **Reply:** Metrics matter for knowledge workers like us
Brendon M. Stiles, MD, New York, NY



- 935** **The considerations of surgical treatment strategies of acute type a aortic dissection**
Cun-tao Yu, MD, Beijing, China

(continued on page 19A)



- 937** What defines the optimal safe operative management of acute type A aortic dissection?
Jennifer S. Lawton, MD, St Louis, Mo



- 938** Cardiothoracic surgical critical care is critical to cardiothoracic surgery
Bryan A. Whitson, MD, PhD, Columbus, Ohio

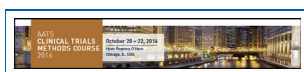
Notice of Correction

- 939** Shrestha M, Kaufeld T, Beckmann E, Fleissner F, Umminger J, Alhadi FA, et al, entitled Total aortic arch replacement with a novel 4-branched frozen elephant trunk prosthesis: single-center results of the first 100 patients. *J Thorac Cardiovasc Surg.* (2016;152:148-59).

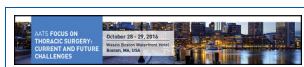
Announcements



- 940** The American Association for Thoracic Surgery
Heart Valve Summit: Medical, Surgical, & Interventional Decision Making



- 940** *Registration and Housing Open: AATS Clinical Trials Methods Course 2016*



- 940** *AATS Focus on Thoracic Surgery: Current and Future Challenges*

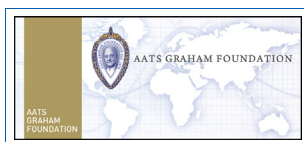


- 941** *International Coronary Congress*



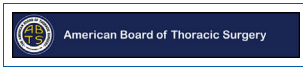
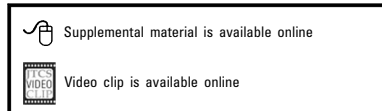
- 941** *AATS Week 2017*

The AATS Graham Foundation



- 941** *Graham Foundation News*

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The Western Thoracic Surgical Association942 *Applications for Membership*942 *WTSA 43rd Annual Meeting***The American Board of Thoracic Surgery**943 *ABTS Announcement*943 *ABTS Requirements for the 10-Year Milestone for Maintenance of Certification***Reader Services**23A *Recent Papers in the Seminars and Op Techs*31A *Information for Readers*

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See page 668 for details.

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Cover Photographs

Left: From Concomitant Replacement of the Ascending Aorta Is Free—For Some. Wheat procedure: Replacement of the aortic valve and supracoronary ascending aorta.

Center: From Intramural Ventricular Septal Defect After Repair of Conotruncal Anomalies: Is There Light at the End of the Tunnel? The defining feature of intramural ventricular septal defect (*VSD*) is a tunnel underneath the trabeculations that persists with often multiple exit points at the free wall of right ventricle (*RV*). *LV*, Left ventricle.

Right: From Operability Assessment in Chronic Thromboembolic Pulmonary Hypertension (CTEPH): Don't Miss the Chance of a Second Opinion! Pulmonary angiography tends to underestimate the amount of disease found at surgery in patients with chronic thromboembolic pulmonary hypertension, particularly at the segmental and subsegmental level. Hence, in our experience, the correlation between the extent of thromboembolic disease and the severity of the pulmonary hypertension has been abandoned from the algorithm to determine surgical candidacy. The key factor associated with good outcome is a correct diagnosis and not necessarily the extent of disease on imaging.