Myocardial Protection, Peripheral Management, and Vascular Biology

Long-Term Results of Heart Operations Performed by Surgeons-in-Training
Serban C. Stoica, MD; Dimitri Kalavrouziotis, MD; Billie-Jean Martin, MD; Karen J. Buth, MSc; Gregory M. Hirsch, MD; John A. Sullivan, MD; Roger J.F. Baskett, MD

Survival After Resection of Primary Cardiac Tumors: A 48-Year Experience
Andrew W. ElBardissi, MD, MPH; Joseph A. Dearani, MD; Richard C. Daly, MD; Charles J. Mullany, MD; Thomas A. Orszulak, MD; Francisco J. Puga, MD; Hartzell V. Schaff, MD

Myocardial Protection, Peripheral Management, and Vascular Biology

Dynamic Changes in Matrix Metalloproteins Activity Within the Human Myocardial Interstitium During Myocardial Arrest and Reperfusion
Francis G. Spinale, MD, PhD; Christine N. Koval, BS; Anne M. Deschamps, PhD; Robert E. Stroud, MS; John S. Ikonomidis, MD, PhD

Pilot Proteomic Profile of Differentially Regulated Proteins in Right Atrial Appendage Before and After Cardiac Surgery Using Cardioplegia and Cardiopulmonary Bypass
Richard T. Clements, PhD; Gary Smejkal, MS; Neel R. Sodha, MD; Alexander R. Ivanov, PhD; John M. Asara, PhD; Jun Feng, MD, PhD; Alexander Lazarev, PhD; Shiva Gautam, PhD; Venkatachalam Senthilnathan, MD; Kamal R. Khabbaz, MD; Cesario Bianchi, MD, PhD; Frank W. Sellke, MD

Loss of Myocardial Ischemic Postconditioning in Adenosine A1 and Bradykinin B1 Receptors Gene Knockout Mice
Lei Xi, MD; Anindita Das, PhD; Zhi-Qing Zhao, MD, PhD; Vanessa F. Merino, PhD; Michael Bader, PhD; Rakesh C. Kukreja, PhD

Mechanisms of Sex Differences in TNFR2-Mediated Cardioprotection
Meijing Wang, MD, MS; Paul R. Crisostomo, MD; Troy A. Markel, MD; Yue Wang, PhD; Daniel R. Meldrum, MD

Calcium-Activated Potassium Channels Contribute to Human Coronary Microvascular Dysfunction After Cardioplegic Arrest
Jun Feng, MD, PhD; Yukhong Liu, MD; Richard T. Clements, PhD; Neel R. Sodha, MD; Kamal R. Khabbaz, MD; Venkatachalam Senthilnathan, MD; Katherine K. Nishimura, BA; Seth L. Alper, MD, PhD; Frank W. Sellke, MD

Bioengineered Three-Layered Robust and Elastic Artery Using Hemodynamically-Equivalent Pulsatile Bioreactor
Kiyotaka Iwasaki, PhD; Koji Kojima, MD, PhD; Shohta Kodama, MD, PhD; Ana C. Paz, BS; Melody Chambers, BS; Mitsuo Umez, PhD; Charles A. Vacanti, MD

Progestosterone Induces Human Leukocyte Antigen-G Expression in Vascular Endothelial and Smooth Muscle Cells
Rohit Sheshgiri, BSc; Vivek Rao, MD, PhD; Laura C. Tumiati, BSc; Rong Xiao, BSc; Jessica L. Prodg, BSc; Mtsh Badiwala, MD; Clifford Librach, MD; Diego H. Delgado, MD, MSc

Local Delivery of Imatinib Mesylate (STI571)–Incorporated Nanoparticle Ex Vivo Suppresses Vein Graft Neointima Formation
Satoshi Kimura, MD; Kien Isaka, MD, PhD; Kaku Nakano, PhD; Eiko Iwata, PhD; Miho Miyagawa, PhD; Hiroyuki Tsujimoto, PhD; Kaori Hara, PhD; Yoshiaki Kawashima, PhD; Ryuji Tominaga, MD, PhD; Kenji Sunagawa, MD, PhD

CIRCULATION (ISSN 0009-7322) is published weekly except combined the first two weeks in January and the last two weeks in December by Lippincott Williams & Wilkins at 16522 Hunters Green Parkway, Hagerstown, MD 21740. Business offices are located at 530 Walnut Street, Philadelphia, PA 19106-3621. Production offices are located at 351 West Camden Street, Baltimore, MD 21201-2436. Individuals may subscribe for their personal use at the following rates: $216 for members of an American Heart Association scientific council and $386 for nonmembers; international: $371 for members of an American Heart Association scientific council and $649 for nonmembers. Periodicals postage paid at Hagerstown, MD, and additional mailing offices. POSTMASTER: Send address changes to CIRCULATION, American Heart Association, Lippincott Williams & Wilkins, 16522 Hunters Green Parkway, Hagerstown, MD 21740.
Arrhythmia Surgery
Epicardial Ultrasonic Ablation of Atrial Fibrillation During Concomitant Cardiac Surgery Is a Valid Option in Patients With Ischemic Heart Disease
Mark A. Groh, MD; Oliver A. Birns, MD; Harry G. Burton, III, MD; Gerard L. Champsaur, MD; Stephen W. Ely, MD, PhD; Alan M. Johnson, MD

Cardiac Transplantation and Surgery for Heart Failure
Impact of Donor-to-Recipient Weight Ratio on Survival After Heart Transplantation: Analysis of the United Network for Organ Sharing Database
Nishant D. Patel, BA; Eric S. Weiss, MD; Lois U. Nwakanma, MD; Stuart D. Russell, MD; William A. Baumgartner, MD; Ashish S. Shah, MD; John V. Conte, MD

Cell Transplantation and Tissue Regeneration
Minimally Invasive Epicardial Injections Using a Novel Semiautonomous Robotic Device
Takeyoshi Ota, MD, PhD; Nicholas A. Patronik, PhD; David Schwartzman, MD; Cameron N. Riviere, PhD

Comparison of Different Adult Stem Cell Types for Treatment of Myocardial Ischemia
Koen E.A. van der Bogt, MD; Ahmad Y. Sheikh, MD; Sonja Schreper, MD, PhD; Grant Hoyt, BS; Fung Cao, MD, PhD; Katherine J. Ransohoff; Rutger-Jan Swijnenburg, MD; Jeremy Pearl, BS; Andrew Lee, BS; Michael Fischbein, MD; Christopher H. Contag, PhD; Robert C. Robbins, MD; Joseph C. Wu, MD, PhD

Skeletal Myoblasts Preserve Remote Matrix Architecture and Global Function When Implanted Early or Late After Coronary Ligation Into Infarcted or Remote Myocardium
Patrick Farahmand, MD; Teresa Y.Y. Lai, MSc; Richard D. Weisel, MD, Shafie Fazel, MD, PhD; Terrence You, MD; Philippe Menasche, MD; Ren-Ke Li, MD, PhD

A Factor Underlying Late-Phase Arrhythmogenicity After Cell Therapy to the Heart: Global Downregulation of Connexin-43 in the Host Myocardium After Skeletal Myoblast Transplantation
Steven R. Coppen, PhD; Satsuki Fukushima, MD; Yasunori Shintani, MD, PhD; Kunihiro Takahashi, MD, PhD; Anabel Varela-Carver, PhD; Husein Salem, PhD; Kenta Yashiro, MD, PhD; Magdi H. Yacoub, FRS; Ken Suzuki, MD, PhD

Endothelial Cell Coculture Within Tissue-Engineered Cardiomyocyte Sheets Enhances Neovascularization and Improves Cardiac Function of Ischemic Hearts
Hidekažu Sekine, PhD; Tatsuya Shimizu, MD, PhD; Kyoko Hoba, MD, PhD; Sachiko Sekiya, PhD; Joseph Yang, ScB; Masayuki Yamato, PhD; Hiromi Kurosawa, MD, PhD; Eiji Kobayashi, MD, PhD; Teruo Okano, PhD
# Surgery for Aortic Diseases

## Risk Model of Thoracic Aortic Surgery in 4707 Cases From a Nationwide Single-Race Population Through a Web-Based Data Entry System: The First Report of 30-Day and 30-Day Operative Outcome Risk Models for Thoracic Aortic Surgery

Noboru Motomura, MD, PhD, FAHA; Hiroaki Miyata, PhD; Hiroyuki Tsukihara, MD, PhD; Shinichi Takamoto, MD, PhD; from the Japan Cardiovascular Surgery Database Organization

---

## Ascending and Transverse Aortic Arch Repair: The Impact of Retrograde Cerebral Perfusion

Anthony L. Estrera, MD; Charles C. Miller, III, PhD; Taek-Yeon Lee, MD; Pallav Shah, MD; Hazim J. Safi, MD

---

## Tight Heart Rate Control Reduces Secondary Adverse Events in Patients With Type B Acute Aortic Dissection

Kazuhisato Kodama, MD; Kazuhiro Nishigami, MD; Tomohiro Sakamoto, MD; Tadashi Sawamura, MD; Toutingu Hirayama, MD; Hiroyasu Misumi, MD; Koichi Nakao, MD

---

# Surgery for Congenital Heart Disease

## Factors Associated With Prolonged Recovery After the Fontan Operation

Joshua W. Salvin, MD, MPH; Mark A. Scheurer, MD; Peter C. Laussen, MBBS; John E. Mayer, Jr, MD; Pedro J. del Nido, MD; Frank A. Pigula, MD; Emile A. Bacha, MD; Ravi R. Thiagarajan, MBBS, MPH

---

## Performance of Cavopulmonary Palliation at Elevated Altitude: Midterm Outcomes and Risk Factors for Failure

Sunil P. Malhotra, MD; D. Dunbar Ivy, MD; Max B. Mitchell, MD; David N. Campbell, MD; Marshall L. Dines, BA; Shelley Miyamoto, MD; Joseph Kay, MD; David R. Clarke, MD; Francois Lacour-Gayet, MD

---

## Biventricular Response After Pulmonary Valve Replacement for Right Ventricular Outflow Tract Dysfunction: Is Age a Predictor of Outcome?

Alessandra Frigiola, MD; Victor Tsang, MD, FRCS; Catherine Bull, MRCP; Louise Coats, MRCP; Sachin Khambadkone, MD, MRCP; Graham Derrick, MD, MRCP; Bryan Mist, PhD; Fiona Walker, FRCP; Carin van Doorn, MD, FRSC(Th); Philipp Bonhoeffer, MD; Andrew M. Taylor, MD, MRCP, FRCR

---

## Ventricular–Vascular Stiffening in Patients With Repaired Coarctation of Aorta: Integrated Pathophysiology of Hypertension

Hideaki Senzaki, MD; Yoichi Iwamoto, MD; Hirotaka Ishido, MD; Satoshi Masutani, MD; Mio Taketazu, MD; Toshiki Kobayashi, MD; Toshiyuki Katogi, MD; Shunei Kyo, MD

---

# Surgery for Coronary Artery Disease

## Long-Term Outcomes of Coronary-Artery Bypass Graft Surgery Versus Percutaneous Coronary Intervention for Multivessel Coronary Artery Disease in the Bare-Metal Stent Era

Takeshi Kimura, MD; Takeshi Morimoto, MD; Yutaka Furukawa, MD; Yoshihisa Nakagawa, MD; Satoshi Shizuta, MD; Natsuhiko Ehara, MD; Ryosuke Taniguchi, MD; Takahiro Doi, MD; Kei Nishiyama, MD; Hirokazu Mitsuoka, MD; Mitsuru Abe, MD; Satoshi Teramukai, PhD; Masanori Toma, MD; Toru Kita, MD

---

## Does Location of the Second Internal Thoracic Artery Graft Influence Outcome of Coronary Artery Bypass Grafting?

Joseph F. Sabik III, MD; Alex Stockins, MD; Edward R. Nowicki, MD, MS; Eugene H. Blackstone, MD; Penny L. Houghtaling, MS; Bruce W. Lytle, MD; Floyd D. Loop, MD

---

## Comparison of Bilateral Internal Thoracic Artery Revascularization Using In Situ or Y Graft Configurations: A Prospective Randomized Clinical, Functional, and Angiographic Midterm Evaluation

David Glineur, MD; Claude Hanet, MD, PhD; Alain Poncelet, MD; William D’hoore, MD, PhD; Jean-Christophe Funken, MD; Jean Rubay, MD, PhD; Joelle Kefer, MD, PhD; Paria Astarci, MD; Valerie Lacroix, MD; Robert Verhelst, MD; Pierre Yves Etienné, MD; Philippe Noirhomme, MD; Gebrine El Khoury, MD
The Impact of Diabetic Status on Coronary Artery Bypass Graft Patency: Insights From the Radial Artery Patency Study
Steve K. Singh, MD; Nimesh D. Desai, MD; Stephanie D. Petroff, BSc; Saswata Deb, BSc; Eric A. Cohen, MD; Sam Radhakrishnan, MD; Leonard Schwartz, MD; James Dubbin, MD; Stephen E. Fremes, MD; for the Radial Artery Patency Study Investigators

Short Hairpin RNA Interference Therapy for Ischemic Heart Disease
Mei Huang, PhD; Denise A. Chan, PhD; Fangjun Jia, PhD; Xiaoyan Xie, PhD; Zongjin Li, MD, PhD; Grant Hoyt, BS; Robert C. Robbins, MD; Xiaoyuan Chen, PhD; Amato J. Giaccia, PhD; Joseph C. Wu, MD, PhD

Surgery for Valvular Heart Disease

Predictors of Outcomes in Low-Flow, Low-Gradient Aortic Stenosis: Results of the Multicenter TOPAS Study
Marie-Annick Clavel, DVM; Christina Fuchs, MD; Ian G. Burwash, MD; Gerald Mundigler, MD; Jean G. Dumesnil, MD, FRCPC, FACC; Helmut Baumgartner, MD; Jutta Bergler-Klein, MD; Rob S. Beanlands, MD; Patrick Mathieu, MD; Julien Magne, MSc; Philippe Pibarot, DVM, PhD, FACC, FAHA

The Effects of Mitral Regurgitation Alone Are Sufficient for Leaflet Remodeling
Elizabeth H. Stephens, BS; Tom C. Nguyen, MD; Akinobu Itoh, MD; Neil B. Ingels, Jr, PhD; D. Craig Miller, MD; K. Jane Grande-Allen, PhD

Saddle-Shaped Mitral Valve Annuloplasty Rings Experience Lower Forces Compared With Flat Rings
Morten O. Jensen, MSc; Henrik Jensen, MD; Morten Smerup, MD, PhD; Robert A. Levine, MD; Ajit P. Yoganathan, PhD; Hans Nygaard, DMSSc; J. Michael Hasenkam, MD, DMSSc; Sten L. Nielsen, MD, DMSSc

Alterations in Transmural Myocardial Strain: An Early Marker of Left Ventricular Dysfunction in Mitral Regurgitation?
Carl J. Carlhall, MD, PhD; Tom C. Nguyen, MD; Akinobu Itoh, MD; Daniel B. Ennis, PhD; Wolfgang Bothe, MD; David Liang, MD, PhD; Neil B. Ingels, PhD; D. Craig Miller, MD

A Novel Approach for Reducing Ischemic Mitral Regurgitation by Injection of a Polymer to Reverse Remodel and Reposition Displaced Papillary Muscles
Judy Hung, MD; Jorge Solis, MD; J. Luis Guerrero, BS; Gavin J.C. Braithwaite, PhD; Orhun K. Muratoglu, PhD; Miguel Chaput, MD; Leticia Fernandez-Friera, MD; Mark D. Handschumacher, BS; Van J. Wedeen, MD; Stuart Houser, MD; Gus J. Vlahakes, MD; Robert A. Levine, MD
The online version of this article, along with updated information and services, is located on the World Wide Web at:
http://circ.ahajournals.org/content/118/14_suppl_1.citation

Permissions: Requests for permissions to reproduce figures, tables, or portions of articles originally published in Circulation can be obtained via RightsLink, a service of the Copyright Clearance Center, not the Editorial Office. Once the online version of the published article for which permission is being requested is located, click Request Permissions in the middle column of the Web page under Services. Further information about this process is available in the Permissions and Rights Question and Answer document.

Reprints: Information about reprints can be found online at:
http://www.lww.com/reprints

Subscriptions: Information about subscribing to Circulation is online at:
http://circ.ahajournals.org//subscriptions/