Five Candidates Running for Two SCA Board of Directors’ Positions

The online election will open on or about February 1, 2012

Dr. Steven N. Konstadt, Chair of SCA's Nominating Committee, announces the following slate of candidates for director positions:

Lebron Cooper, MD

Dr. Cooper is Assistant Professor of Clinical Anesthesiology at the University of Miami Miller School of Medicine, where he currently serves as Chief of Anesthesiology, Co-Medical Director of Perioperative Services, and site director for cardiothoracic anesthesiology at University of Miami Hospital and as the Director of Clinical Operations at Sylvester Comprehensive Cancer Center.

He has been a member of the Society of Cardiovascular Anesthesiologists since 1996. Dr. Cooper previously served for three years on the SCA Scientific Program Committee, and he has moderated the Thoracic Session, the Electrophysiology Session, and the Hands-on Thoracic Workshop at the SCA Annual Meeting on numerous occasions.

Dr. Cooper is a co-organizer, responsible for abstract submission and review, of the new and upcoming Thoracic Anesthesia Symposium, to be held this coming year in Boston immediately prior to the SCA annual meeting. He has presented several abstracts at the Annual meeting and has been an active senior presenter of PBLD sessions at the Annual Meetings of SCA and ASA, working with junior faculty members to encourage their participation and professional advancement.

He serves on the Steering Committee for the SCA FOCUS Initiative, chairs its PR Committee, and is the liaison to SCA for Educational Outreach. As an SCA Board Member, he hopes to work with other members to adopt creative ways of increasing participation of fellows and young practitioners at the Annual Meeting and as Society members, to continue promoting recognition of fellowship training in cardiothoracic anesthesiology, and to advance mutual goals of anesthesiologists, surgeons, nurses, perfusionists and others by promoting the safest possible care of the cardiothoracic surgical patient.

Thomas F. Floyd, MD

Dr. Floyd is Professor of Anesthesiology at Stony Brook University, and carries secondary appointments in Biomedical Engineering, Neurology, and Radiology. Tom went to medical school at the University of Pennsylvania and completed his residency in Anesthesiology at the University of Minnesota in 1990. He then practiced anesthesia in Maine for nine years, during which time he served as the Director of Anesthesia and Chairman of the Operating Room Committee at the Maine Coast Memorial Hospital in Ellsworth, ME, President of Downeast Anesthesia, PA, and member of the Executive Committee of the Maine Medical Association.

In 1999 he re-entered academic practice at the University of Pennsylvania under the supervision of David Longnecker, MD, Chairman. There he completed a T32 research fellowship in Magnetic Resonance Imaging under the mentorship of John A. Detre, MD and a fellowship in Cardiothoracic Anesthesiology under Joseph S. Savino, MD. He was appointed Assistant Professor of Anesthesiology, Neurology, and Radiology in 2001 and has been an NIH funded investigator for nearly a decade, managing several translational and basic science projects focused on neurologic sequelae from cardiac surgery.

He actively practices cardiac anesthesiology and echocardiography and is a member of the Association of University Anesthesiologists. Finally, Tom is a Commander in the US Navy Reserves and is currently serving as Battalion Surgeon for the 3rd Battalion, 14th Regiment, 4th Marine Division.

Tom has served the SCA previously as a member of the Subcommittee on Research and as a presenter at national meetings. Tom’s experience in private practice, academic practice, and military practice places him in a good position to represent the broad clinical and research interests of SCA members.

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Colleen G. Koch, MD, MS, MBA

Dr. Koch is a Professor and Vice Chair for Research and Education in the Department of Cardiothoracic Anesthesia at Cleveland Clinic. She is currently completing her term as Scientific Program Chair for the Annual SCA meeting.

Her past service to the Society is highlighted by a term as Chair of the Program Committee (2010-2012), Vice-Chair of the Program Committee (2008-2010), Coordinator of Workshops and PBLDs (2006-2007), Program Committee member (2003-2005), Research, CME and Governmental Affairs Committee member over the last 18 years.

Dr. Koch also served on the Program Committee for the SCA’s Annual Perioperative Echocardiography meeting in San Diego. Dr. Koch has presented her research, and participated in moderating and lecturing at the Annual meeting, the Annual Review and Update of Perioperative Echo and the SCA’s Cardiopulmonary Bypass meetings over the last 18 years.

She serves on the editorial boards of the Annals of Thoracic Surgery as the Associate Editor of CME for Anesthesiology and the Journal of Cardiothoracic and Vascular Anesthesia. In addition, she serves on the Membership and Communications Committee of the Council on Cardiovascular Surgery and Anesthesia for the American Heart Association.

If elected to the Board, I am interested in continuing to facilitate the integration of practice management and quality and patient safety educational offerings, support programs for cardiothoracic fellows and new initiatives that appeal to the broad base of our society.

Christopher A. Troianos, MD

Professor and Chair of Anesthesiology of the Western Pennsylvania Hospital, West Penn Allegheny Health System in Pittsburgh, PA. SCA member since 1989, and SCA Board of Directors since 2009. He has served the SCA as Co-Director for the Comprehensive Review of Perioperative Echocardiography meeting, Chair of the SCA Economics Committee, member of the Annual Meeting Scientific Program and Nominating Committees, and faculty member for the SCA Annual, Perioperative Echo, and International Cardiovascular Anesthesiology Meetings.

He currently represents the SCA as a Board member of the National Board of Echocardiography, Intraoperative Council of the American Society of Echocardiography, and on the American Society of Anesthesiologists Committee on Economics. Dr. Troianos served on the SCA Task Forces that developed training and quality improvement guidelines for Perioperative TEE, and guidelines for performing ultrasound guided vascular cannulation.

Dr. Troianos led the development of the SCA salary survey to provide compensation information to the membership.

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Martin J. London, MD

Professor of Clinical Anesthesia, Department of Anesthesia at the University of California, San Francisco and Staff Anesthesiologist (specializing in cardiac anesthesia and intensive care medicine) at the San Francisco VA Medical Center. He has been a member of the Society since 1985.

He has served on the SCA Annual Meeting Program, Education, and Electronic Communication Committees. He has chaired the Membership Committee. He has been a frequent lecturer and abstract reviewer for the Annual Meeting and the Annual TEE Review Course. He served on the Board of Directors from 2004 – 2007 and 2009 - present.

He is section editor for Perioperative Echocardiography and Cardiovascular Education for Anesthesia Analgesia. In this capacity he has also instituted and oversees the Echo Rounds database on the SCA website. He serves on the Steering Committee of the SCA FOCUS patient safety project. He was the SCA representative to the writing committee of the recently released 2011 ACCF/AHA Guideline for Coronary Artery Bypass Graft Surgery, authoring new sections on anesthetic, monitoring and perioperative medicine issues.
PRESIDENT’S MESSAGE

By Solomon Aronson, MD, FACC, FACCP, FAHA, FASE

A New Website – A New Face for the SCA

While many of us were making travel plans preparing to visit or preparing our home to receive family and friends over Thanksgiving break, the SCA quietly launched its new and improved website. This final action, albeit somewhat stealth, was worthy of very loud proclamation and deserved celebratory praise for great effort by so many dedicated to the task. It was the cumulated result of many hours of work by many people who deserve praise and recognition. Special thanks to Ruggles’ staff: Daniel Gainyard, Director of Information Technology, for his many, many hours of work on the “back end” of the website; Dana Gibson, Association Manager, for “proofreading” the site many times; and Heather Spiess, Executive Director, for overseeing the project and ensuring a stellar final product. Additional thanks should go to Dr. Michael Eaton, former Chair of the Electronic Communications Committee (ECC) and current Board member for his guidance on the design and layout as well as the members of the ECC: Drs. Shams Akhtar, Neil Feinglass, Tony Hernandez, Paul Kazanjian, Hong Liu, Jim Lynch, Ludmil Mitrev, Atif Raja, and Arvind Rajagopal, for their review of the beta site multiple times for constructive suggestions.

Our new interactive website redesign created by Hindsite Interactive Inc. enables the SCA to have a customized Content Management System (CMS) which now allows for flexibility and capability to help us better achieve our goals of outreach and innovative education.

Among the current features of the new site include: much improved ease of navigation and aesthetic improvement for viewing, Fellowship Lecture Series, e-Manual, Echo Rounds, educational offerings, and the Members Only section. In the coming months a Member Forum section will be added that will enable our membership to post approved surveys and ask each other questions.

The Fellowship Lecture Series, managed by Dr. Steven Ginsberg, includes a comprehensive first class collection of presentations by notable experts in the field of cardiovascular anesthesia. Among topics and lecturers included in the series are Coagulation Management for CPB & Heparin Alternatives by Linda Shore-Lesserson, MD; Minimally Invasive Cardiac Surgery: Aortic and Mitral Valve by James G. Ramsay, MD and Ratna Vadlamudi; Non-cardiac Major Vascular Surgery including Thoracic Stent Grafting by Albert T. Cheung, MD; Pathophysiology and Prevention of Adverse Renal Outcomes by Mark Stafford-Smith, MD and Robert Thiele, MD. In addition topics on Ethical Issues in Cardiothoracic Anesthesia Practice; Pathophysiology and Prevention of Adverse CNS Outcomes; Hypothermic Circulatory Arrest and Neuroprotection; Glucose/Insulin Management; Statistical Analysis and Experimental Design; On and off-pump and Hybrid Surgery; Transcutaneous Valve Surgery; Heparin Alternatives and Ethical Issues in Cardiovascular and Thoracic Heart and Lung Organ Transplantation are also being prepared for inclusion in this
President’s Message, from page 3

series. Please contact the SCA or Dr. Ginsberg if you are interested in contributing to this very important and useful section of the SCA website.

The e-Manual is the SCA Manual of Cardiovascular Anesthesia. This will be a comprehensive manual (all chapters to be published by the end of 2011) encompassing the field of perioperative cardiovascular care. It is a living document, published in a “Wiki” like form. It is open to outside submissions but subject to peer review by an appropriate designated SCA committee. The manual is available in the members’ section and it is hoped that it is seen as a useful member benefit.

For practitioners, the Echo Rounds database facilitates clinical needs when dealing with complex cardiac cases or for unexpected events in patients with cardiac disease undergoing non-cardiac surgery. For those in-training, those preparing for a TEE certification exam and for prospective echo rounds authors, the collection of echo rounds housed on SCA’s website enables them to read, study or compare cases. The database currently contains 166 echo rounds and 12 in-press rounds.

In the Members Only section, members are able to conveniently access their payment history and CME certificates as well as update their Member profile. Finding other SCA members by last name, city, state and/or country in the Membership Directory is a member benefit also accessible from this area of the website. Additionally, completion and submission of meeting Verification of Participation Forms is made available from this area of the website. These benefits along with many more are available from this area of SCA’s website.

The Member Forum is a feature soon to be available on the website. It is a place where members will be able to talk to their colleagues. Members would be able to post questions or comments and get answers from other members.

We have begun and will continue to develop opportunities for electronic education including online CME activities, dynamic education features, a reference and guideline library, video streaming, and social media networking to enhance dynamic learning, discussion and sharing of ideas.

We will also continue to build, through the electronic platform, professional development programs. To date, the On-line Clinical Ultrasound and Echocardiography (On-CUE) program in echocardiography and clinical ultrasound training is offered through a partnership arrangement with Heartweb.

I encourage everyone to visit the site and more importantly use the site. Although the new website was launched while most of us were distracted by food, family and friends, nearly 5,000 hits have occurred as of this newsletter distribution. We will continue to monitor activity and act on it within the weeks, months and years to come. It is important that this new tool – our new tool - serve our needs. We therefore encourage everyone to please enjoy the new site and provide feedback regarding features that work, don’t work, meet unmet needs and/or need to be added.
Have you had a chance to go to the SCA website and visit the Fellowship Lecture series?

For the past two years I have been working hard to have well-known speakers who are experts in their fields to bring you topics that you may not have at your home institution. These lectures are outstanding for fellows, residents and faculty.

This has been a project that has involved teamwork and outstanding lecture reviewers. There have been over 550 “hits” to the lecture series from July to October of this year. I hope to be able to bring you additional topics in the near future. Our present posted lecture series include:

- **Cardiac Anesthesiology Outside of the OR**
  Wendy L. Gross MD; Usha Tedrow MD; Pinak Shah MD

- **Embryology/Adult Congenital Heart Disease**
  Sundar Sugantha MD and James A. DiNardo MD

- **Management of CPB**
  Glenn P. Gravlee MD and Nathaen Weitzel MD

- **Mechanical Assist Devices**
  Marc E. Stone MD and Amanda Rhee MD

- **Practice Management for the Cardiothoracic Anesthesiologist**
  Christopher A. Troianos MD

- **Professionalism in the Cardiothoracic ORs**
  Jerry Reves MD, Dean of MUSC School of Medicine

**In the works**

- **Pathophysiology and Prevention of Adverse Renal Outcomes**
  Mark Stafford-Smith MD and Robert H. Thiele MD

- **Coagulation Management for CPB & Heparin Alternatives**
  Linda Shore-Lesserson MD

- **Minimally Invasive Cardiac Surgery: Aortic and Mitral Valve**
  James G. Ramsay, MD and Ratna Vadlamudi MD

- **Non-Cardiac Major Vascular Surgery Including Thoracic Stent Grafting**
  Albert T. Cheung MD

**Web Based Fellowship Education Committee**

James H. Abernathy, MD
Michael P. Eaton, MD
Steven H. Ginsberg, MD
Christina Mora Mangano, MD

**Lecture Reviewers**

James H. Abernathy, MD
Albert T. Cheung, MD
Michael P. Eaton, MD
Steven H. Ginsberg, MD
Philip E. Greilich, MD
Steven M. Haddy, MD
Doug Shook, MD
Christina Mora Mangano, MD

Please evaluate and survey us after you view the lectures. Please let me know if you have suggestions for future topics and who you might recommend for that talk.

Thank you.

Steven H. Ginsberg, MD
Associate Professor
Program Director Cardiothoracic Fellowship
732-937-8841
Department of Anesthesia
UMDNJ/Robert Wood Johnson Medical School
GinzI@optonline.net
Percutaneous repair: A new approach to mitral valve regurgitation

By Eitezaz Mahmood, MD
Northwestern University, Chicago
and Robina Matyal, MD
Beth Israel Deaconess Medical Center
Harvard Medical School, Boston

Background
Approximately, one in ten patients who are more than 75 years of age have moderate to severe mitral regurgitation. The moderate to severe regurgitation overloads the left ventricle overtime leading to ventricular enlargement, atrial fibrillation, pulmonary hypertension and eventual heart failure. There are two mechanisms for mitral valve regurgitation either functional secondary to coronary artery disease resulting in dilated cardiomyopathy, or due to degenerative disease of the mitral valve including rheumatic heart disease.

Currently, surgical treatment of mitral regurgitation is carried out to restore leaflet mobility, increase the coaptation surface area of the mitral leaflets, or to improve the left ventricle function. Due to preservation of mitral valvular apparatus and its favorable effects on left ventricular remodeling, mitral valve repair is considered a more favorable option than replacement. Avoidance of life-long anticoagulation and additional consequences (infection, malfunction, stenosis) of a prosthetic valve are added benefits of a repair procedure. Recently, it has been possible to repair valve by minimally invasive approach with results comparable to open procedures. Since the successful use of even less invasive percutaneous balloon valvuloplasty in selected patients with mitral stenosis, there has been renewed interest in establishing percutaneous procedures for mitral valve repair in patients with mitral regurgitation, as well. There are at least 49% of patients with chronic severe mitral regurgitation who are not considered suitable candidates for surgery because of either reduced left ventricular function or advanced age. The new advancement in percutaneous treatment of valvular diseases may particularly help these patients and improve their quality of life.

As such, there are many different percutaneous techniques that have been created to address specific abnormalities of the heart. Specifically, these technologies have been traditionally grouped as those acting on the leaflets, direct or indirect annuloplasty or indirect chamber remodeling devices. In this review I will briefly go through the mitral valve anatomy and then various percutaneous strategies.

Mitral Valve Anatomy
Mitral valve is a complex structure with anterior and posterior leaflets, with equal contribution to the overall orifice area. The leaflets are attached to the anterolateral and posteromedial papillary muscles via the chordae tendineae. The mitral annulus is D shaped structure with a fibrous flat portion between the two trigones and the curved muscular posterior portion. It is in close proximity to the coronary sinus, but the proximity varies from patient to patient. The mitral annulus dysfunction generally occurs in this muscular posteromedial region as it is vulnerable to ischemia and dilatation.

Techniques for percutaneous mitral valve repair
1. Percutaneous edge-to-edge repair: This is based on the surgical technique of placing the Alferi stitch to open the leading edges of the mitral valve, thus creating a double orifice to reduce the regurgitation area without causing stenosis. During the open procedure, an annuloplasty procedure is also concurrently performed as a part of the stitch placement. For percutaneous purposes a MitraClip mitral valve repair system has been developed (Evalve, Menlo Park, CA) to create a double-orifice mitral valve.2 The procedure is performed in the cardiac catheterization laboratory under general anesthesia using fluoroscopy and transesophageal echocardiographic (TEE) guidance. The guide catheter is inserted from the femoral vein and advanced above the mitral valve following a transeptal puncture. With the help of the steering knob the clip is delivered to stitch the two leaflets. The degree of mitral regurgitation and ventricular function is assessed throughout the procedure. These patients are on heparin throughout the procedure and need anticoagulation, i.e aspirin for 6 months and clopidogrel for 30 days. The device was tested in the phase I trial of Endovascular Valve Edge-to-Edge Repair Study (EVERST).2,3 This month the results of phase II trial were published, suggesting that this method is not inferior to the surgical procedure. The freedom from combined end point of death, mitral valve surgery or re-operation>90 days and mitral regurgitation >2 at one year was 72.4% in the device and 87.8% in the surgical group. The safety endpoint which included the likelihood of blood transfusion was superior in device group (9.6% vs. 57% for surgery). However there was a significant rate of redo surgery.

2. Space occupier leaflet coaptation: This device acts as a “buoy” and is positioned across the mitral valve orifice to provide a surface against which the leaflets can coapt thus reducing the mitral regurgitation. This device is currently going through phase I trial.

3. Leaflet ablation: Target to use radiofrequency energy to effect structural or functional alternations. This technology is currently being tested in animal models.

Procedures for annuloplasty
These procedures are being developed to mimic the surgical approach of implantation of annuloplasty devices for degenerative and functional mitral regurgitation. There are multiple ways and different devices that have been developed to improve functional mitral regurgitation percutaneously. All the methods are being tested on animals or are on pre-clinical trials. There are two major techniques.4

1. Direct annuloplasty techniques:
   a. The Mitralign system. Consists of deflectable catheter that is advanced retrogradely through the aortic valve into the subvalvular mitral valve space. Once in place the anchor pledgets are delivered from left ventricle to left atrium across mitral annulus and pulled together. The technique is being tested as phase I clinical study in Europe.
   b. The AccuCinch system.
   c. The QuantumCor system.

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2. Indirect annuloplasty-coronary sinus technique:
   This is based on the concept that the coronary sinus lies in close relationship to the posterolateral circumference of the mitral valve annulus. So any change in the coronary sinus may be able to reduce the septal-lateral annulus dimensions and thus improve mitral regurgitation. There are different systems that are being developed.
   a. The Monarc system: It is a percutaneously implanted coronary sinus device that has a bioabsorbable spring like bridge and two self expanding stents that get anchored at both end of the sinus and thus shortens the annulus dimensions. The system is approved for EVOLUTION phase II trial this year.
   b. The Carillon Mitral Contour system.
   c. The Viacor Percutaneous Transvenous Mitral Annuloplasty device.

The percutaneous Septal Sinus Shortening system
Selecting patient population: The prevalence of degenerative mitral regurgitation and rheumatic heart disease causing mitral regurgitation is more than 61%. Additionally, either unfavorable anatomy, presence of predictors of repair failure and lack of surgical expertise leads to do more valve replacement than repair. The surgical mitral valve repair, especially, has provided improvement in longevity and quality of life for patients. Recent analyses have shown freedom of reoperation and quality of life reaching 92% for fifteen years after mitral valve replacement. The freedom from mitral regurgitation after annuloplasty is 95% after 7 years. Hence, the percutaneous treatment may only be useful for a very selected group of patients. The decision to choose the percutaneous method should be patient specific keeping in mind anatomical and functional pathology, expected improvement, change in medications, long term survival and repeat procedures requirement. The mitral valve has asymmetrical saddle shape with multiple factors leading to mitral regurgitation; thus, even for successful percutaneous repair, multiple methods have to be combined.

3-D TEE for percutaneous mitral valve repair
The real time 3-D TEE gives optimum spatial real-time information for catheter guidance, valvular and ventricular functional. The use of TEE guidance is important for transeptal puncture at a specific area of the interatrial septum, precise positioning of the clip delivery system, and confirmation of optimum leaflet grasp location.

References:
Late Outcomes of a Single-Center Experience of 400 Consecutive Thoracic Endovascular Aortic Repairs


Reviewers: Jenny Kwak, MD
Loyola University Medical Center, Maywood, IL
W. Brit Smith, MD
Department of Anesthesiology, University of Florida College of Medicine, Gainesville, FL

Background
Thoracic endovascular aortic repair is becoming an alternative to open repair. Though there are published reports on short-term results, this is one of the earlier reports on long-term outcomes. In addition, the use of endovascular repair for off-label pathologies is also described.

Methods
A prospectively maintained registry and the electronic medical records of 400 consecutive thoracic endovascular aortic repair performed at a tertiary care center were reviewed.

Results
30-day/in-hospital mortality of 6.5%, elective mortality of 2.6%, stroke rate of 3.0%, rate of permanent paresis/paraplegia of 4.5%, 3-year survival of 60%. Risk factors for mortality include stroke, urgent/emergent repair, age ≥ 80 years, general anesthesia, and dissection pathology.

Reviewers' Comments
Due to the risks of open repair of thoracic aortic repairs, thoracic endovascular aortic repair (TEVAR) has emerged as a less invasive alternative. This institution’s experience provides information about preemptive left subclavian artery revascularization, prevention and management of spinal cord ischemia, and the need for late secondary procedures. Unclear from this study is whether or not TEVAR significantly alters the natural history of aortic disease. As the authors emphasize in the discussion, the success of TEVAR may be a matter of patient selection.

One limitation of a decade-long study is the evolution of methods from experience gained during the study. However, this limitation provides an interesting window into the anesthetics used for this procedure. General anesthesia was routinely used early in the study, but regional anesthesia was the preferred technique by the second half of the study. If a spinal catheter was placed preoperatively, it was used to administer spinal anesthesia then opened for drainage in the postoperative period. As stated in the methods section, general anesthesia was reserved for cases in which the patient was unable to cooperate during the procedure or when spinal anesthesia was contraindicated or ineffective. General anesthesia was a risk factor for mortality in this study. It is unclear whether general anesthesia was an independent risk factor or if the patients who were not able to have regional anesthesia had more complex preexisting comorbidities. Contraindications for regional anesthesia and indications for general anesthesia may be factors to consider in patient selection for TEVAR.

Outcomes of Simultaneous Liver Transplantation and Elective Cardiac Surgical Procedures


Reviewers: Henry Liu, MD, Nakeisha Perrier, MD, and Philip Kalarickal, MD, MPH

Background
Patients with end-stage liver disease and co-existing cardiac disorders pose significant challenges to clinical management. Most liver transplantation centers will be reluctant to list this category of patients for liver transplantation and cardiac surgery rarely operates cardiac patients with severe liver failure due to documented considerable morbidities and mortalities. Dr. Lima et al studied whether concomitant elective cardiac operations and hepatic transplantation would yield improved outcomes.

Methods
The study included 10 patients who underwent simultaneous liver transplantation and elective cardiac operations at a single institution between July 1999 and June 2010. Patients’ age ranged from 44 to 72 years old. Co-existing cardiac diseases included: aortic stenosis, aortic insufficiency, mitral regurgitation, tricuspid regurgitation and coronary artery disease. MELD Scores were from 11 to 27 and they were Child-Pugh B and C patients. All data were collected through the follow-up visits; deaths from all causes were included in the analysis; and the Social Security Death Index was queried to confirm all patient deaths. Major postoperative (in-hospital) complications were catalogued and included stroke, renal failure requiring renal replacement therapy, sepsis, and liver allograft rejection. Cardiac procedures were performed before liver transplantation for all patients. Postoperative outcomes were analyzed using a prospectively maintained database.

Results
The 10 patients were men: 7 were in Child-Pugh class B and 3 were in class C. Mean MELD Score was 17.0 +/- 5.8. Cardiac operations included coronary artery bypass grafting in 1, aortic valve replacement in 4, coronary artery bypass grafting and aortic valve replacement in 3, coronary artery bypass grafting and mitral valve repair in 1, and tricuspid valve repair in 1. All cardiac procedures used CPB. In-hospital and 30-days mortality was 20%. Mean postoperative length of stay was 23 +/- 8 days. Actuarial survival at 3 years was 70%.

Conclusions
Survival was modestly improved relative to that observed in previous studies from Cleveland Clinic of advanced liver failure patients undergoing heart operations without concomitant hepatic replacement. Moreover, the medium-term survival outcomes approach those documented with liver transplant alone. Further studies are warranted with this combined surgical strategy to determine if such an approach would be routinely preferable to staged repair of cardiac pathology and liver transplant.

Comments
This study was a descriptive analysis of 10 patients who underwent combined liver transplantation and elective cardiac procedures. The author achieved more favorable outcomes comparing cardiac patients with severe
Liver dysfunction and patients undergoing elective cardiac surgical intervention without liver transplantation. The mortality rate approached liver transplantation alone without cardiac surgery. There are many questions to be answered:

1. All the patients in this study group had normal left ventricular function (EF 55%-75%). If patients have EF 40% or less, are they still candidates for this combined liver transplantation and elective cardiac procedure?

2. All the patients were male. Do females also benefit from this simultaneous liver replacement and cardiac intervention?

3. CPB use seems to be related to the higher mortality. Does that mean off-pump coronary artery bypass procedure will offer even more favorable outcomes if combined with liver transplantation in selective patients?

4. The impact of the severity of liver disease (Child-Pugh classifications and/or MELD Score) and the complexity of cardiac procedure on the decision-making process. Do Child-Pugh Class B patients with relatively less complicated cardiac diseases benefit the most from the simultaneous liver transplantation and cardiac surgery?

5. Patients with what severity of cardiac diseases should disqualify them from the candidacy for liver transplantation?

**Intra-Aortic Ballon Counterpulsation and Infarct Size in Patients with Acute Anterior Myocardial Infarction Without Shock**


**Reviewer: Mojca Remskar Konia, MD**

University of Minneapolis, Minneapolis, MN

**Abstract Excerpt**

Patel et al performed an open, multicenter, randomized controlled trial in which they investigated whether insertion of intra-aortic balloon counterpulsation (IABC) prior to primary percutaneous coronary intervention (PCI) reduces infarct size measured by cardiac magnetic resonance imaging (MRI) in patients with acute anterior ST elevation myocardial infarction (STEMI) compared to PCI alone. The study further investigated all-cause mortality rate, re-infarction and heart failure of new onset.

In order to be included in the study patients had to have 12 lead EKG showing 2 mm or higher ST elevation in 2 contiguous leads or a total ST elevation of 4 mm or higher in anterior leads. Patients in cardiogenic shock, or with contraindications for placement of IABC or contraindications to MRI were excluded. 337 patients were randomized. 161 patients received IABC prior to PCI for 12 to 24 hours and 176 received PCI alone. In IABC + PCI group 1 patient was lost to follow-up and 4 withdrew consent and in PCI alone group 1 was lost to follow-up and 2 withdrew consent. In 25 patients in IABC + PCI and 27 patients in the PCI only group did not have MRI. The primary end-point was the size of myocardial infarction expressed as a percentage of left ventricular mass. The patients were divided into 2 populations – modified intention-to-treat population or subset of patients with proximal left anterior descending lesion and TIMI flow score 0 or 1. The primary safety end-points were all cause mortality and the rate of adverse cardiac events including death, myocardial infarction, and heart failure within 30 days and 6 months. Secondary safety end-points were major bleeding and vascular events. To deal with missing infarct size data the multiple imputations was performed.

The infarct size was not statistically significantly different between IABC + PCI and PCI only groups (p=0.06; 42.1% [95% CI, 38.7 to 45.6%] vs. 37.5% [95% CI, 34.5 to 40.8%]). There was also no difference between the two groups in subset of patients with proximal left anterior descending lesion and TIMI flow score 0 or 1 (p=0.11; 46.7% [95% CI, 42.8 to 50.6%] vs. 42.3% [95% CI, 38.6 to 45.9%]). 15 patients in the PCI only group crossed over and received IABC for sustained hypotension or cardiogenic shock. There was no statistically significant difference between mean microvascular obstruction (p=0.34) and mean IV ejection fraction (p=0.17). No statistically significant difference between bleeding and vascular complications was found. By 6 months 3 patients in IABC + PCI group and 9 patients in PCI only group died (p=0.12). Looking at the composite end point of death, shock or heart failure there were fewer events in the IABC + PCI (8 events [5.0%; 95% CI, 2.6 to 9.8%] vs. 21 events [125; 95% CI, 8.0 to 17.8%], p=0.03). The authors ascribe this primarily to the absence of shock in the IABC + PCI group. The authors concluded that IABC prior to PCI in patients without shock (even in high-risk patients) does not reduce the % of infarcted myocardium.

**Reviewer’s Comments**

The placement of IABC is class I recommendation in the most recent ACC guidelines for the management of patients with myocardial infarction and cardiogenic shock (1). The effects of IABC placement in patients without cardiogenic shock is less clear. Two early studies performed in the 80s did not demonstrate any benefit of IABC placement in patients with myocardial infarction without cardiogenic shock (2,3). Similarly, a randomized study by Stone and co-authors that evaluated the use of IABC in high-risk hemodynamically stable patients defined by age>70, three-vessel disease, EF<45%, vein graft occlusion, malignant ventricular arrhythmia and suboptimal PTCA results, did not demonstrate decreased rates of infarct-related artery reocclusion or reinfarction, better myocardial recovery or improved overall clinical outcome (4). In contrast a study by Ohman and co-authors in 1994, which randomized 182 patients into a group receiving IABC immediately after PCI and a “PCI only” group, demonstrated significantly decreased rates of reocclusion (8 vs. 21%, p<0.03) and significantly decreased rate of composite end point (death, stroke, reinfarction, need for emergency revascularization, recurrent ischemia) (5). Similarly a prospective review of use of IABC in patients with cardiogenic shock, low EF and all high-risk patients combined indicated beneficial effects of IABC and reduced numbers of laboratory events in high-risk patients with acute myocardial infarction (6). Since most of the existing studies are relatively small, Sjauw and co-authors performed a meta-analysis of existing studies to evaluate the evidence for IABC in STEMI with and without cardiogenic shock (7). Seven randomized trials including 1009 patients showed neither a 30-day survival benefit nor improved left ventricular ejection fraction, while being associated with higher stroke and bleeding rates in high-risk STEMI patients. In patients with cardiogenic shock and thrombolysis, IABC was associated with decreased 30-day mortality. In patients with cardiogenic shock and PCI, IABC was associated with increased 30-day mortality. Prondzinsky and co-authors performed a prospective randomized controlled, open-label study to determine whether IABC ameliorates multiorgan dysfunction syndrome in patients with acute myocardial infarction complicated with cardiogenic shock (8). They demonstrated only modest effect on APACHE II score, modest improvement of cardiac index and reduction of inflammatory state, but the study was limited with a small number of enrolled patients.

Based on the presented data the results of CRISP trial may not be surprising (9). The explanation for no effect on infarct size in the presented study may be due to the 3 and more hour delay to reperfusion in spite of a short door-to-balloon time, when the majority of myocardial damage has already occurred.
LITERATURE REVIEWS

Clinically there was a slightly higher complication rate and a need for the insertion of IABC in the "PCI only" group, due to deterioration, indicating that there may be a subgroup of patients at risk for rapid deterioration postprocedure who need to be identified and who may benefit from IABC. This may be in accordance with the results of the meta-analysis performed by Field et al, which suggested beneficial effect of IABC on mortality and morbidity in high-risk patients undergoing coronary artery bypass grafting (10). Available data indicates that there is a benefit of IABC in patients who receive thrombolysis and high-risk patients who will receive surgical reperfusion. There may also be some beneficial effect in high-risk patients with cardiogenic shock or high-risk patients at risk for rapid deterioration. However, additional large multicenter studies are needed to better define the utility of IABC in patients with myocardial infarction with or without cardiogenic shock and to identify subgroups of patients who may benefit from it most.

References

Differential effects of etomidate and its pyrrole analogue carboetomidate on the adrenocortical and cytokine responses to endotoxemia


Reviewers: Laura C. Myers, BA, and Theodore A. Alston, MD, PhD
Massachusetts General Hospital, Harvard Medical School, Boston, MA

Abstract
Etomidate carries an imidazole group, a five-membered aromatic ring with two nitrogen atoms. One of these nitrogen atoms can complex with heme iron at the active site of 11-beta-hydroxylase, an enzyme necessary for adrenal steroid production. Concerns as to impaired cortisol release limit the application of the drug.

Researchers at MGH have developed a novel compound called carboetomidate in which a CH moiety replaces the heme-binding N atom of etomidate. Chemically, the carbo compound is a pyrrole instead of an imidazole. Previous work showed the pyrrole to retain desirable properties of etomidate: hypnosis, hemodynamic stability, rapid recovery, and high therapeutic index.

The present paper demonstrates that carboetomidate produces less suppression of adrenocortical function than etomidate in a rat model of sepsis. Rats were injected with E. coli LPS and then given one or multiple boluses of etomidate or carboetomidate at a dose that was double the ED50 for loss of righting reflex. There was no effect on plasma ACTH. Plasma levels of corticosterone were significantly blunted by etomidate, especially in case of multiple doses, but not by carboetomidate. Accordingly, the etomidate animals had higher levels of the inflammatory cytokines TNF-alpha, IL-1-beta, and IL-6.

Comments
Etomidate was discovered as Paul Janssen and colleagues systematically prepared analogs of meperidine, which had accidentally been discovered to be an opioid. Also based originally on meperidine, the Janssen work yielded fentanyl, alfentanil, sufentanil, droperidol, haloperidol, and ketoconazole. Like etomidate, ketoconazole has an imidazole group. Indeed, the antifungal activity of ketoconazole involves attachment of its imidazole group to the iron of a fungal heme enzyme involved in steroid synthesis.

The MGH researchers have another analog of etomidate that they call MOC-etomidate. This methoxy-carbonyl compound is ultra-short acting because it carries an added ester group in the manner of remifentanil. The team also has a third analog that carries both changes. It is likely that we will soon avail clinically of rationally designed etomidate analogs that are ultra-short acting and free of both cardiovascular depression and adrenal side effects.
Benefits of Ethyl Gallate versus Norepinephrine in the Treatment of Cardiovascular Collapse in Pseudomonas aeruginosa Septic Shock in Dogs


Abstract

Investigators in Winnipeg find that ethyl gallate, an antioxidant found in foods, preserves blood pressure in experimental sepsis. Anesthetized and ventilated dogs received intravenous infusions of live pseudomonads. MAP and SVR were roughly halved when the infusions were completed. The parameters were successfully restored with either intravenous norepinephrine or ethyl gallate. However, ethyl gallate treatment produced lower heart rate, lower troponin T level, and greater urine output (p < .05). Interestingly, ethyl gallate does not increase arterial pressure in non-septic animals. Its mechanism of action is therefore likely to be anti-inflammatory.

Comments

Gallic acid is a venerable chemical reagent that was well known to Lavoisier. It is so-named because it is abundant in gall nodules formed by plants in response to a variety of pathogens. It chelates and reduces metal ions, and its reaction with iron salts was long an important source of printing ink. Ethyl gallate occurs widely in nontoxic foods, and tannic acid of tea contains many gallate groups in ester linkage.

Mink and colleagues have a working hypothesis that sepsis releases leukocyte lysozyme that in turn causes generation of deleterious hydrogen peroxide in sepsis (1). A lysozyme inhibitor unrelated to ethyl gallate also attenuates septic shock (2). It is not clear how peroxide is elicited by lysozyme. However, gallic acid and its esters are chemical reducing agents capable of terminating peroxide and other reactive oxygen species.

The apparently nonadrenergic mechanism of ethyl gallate in sepsis is intriguing. It is to be hoped that the remarkable ester will improve SVR in other inflammatory states. For instance, it will be of interest to see if the nontoxic molecule also improves the vasoplegia that can follow cardiopulmonary bypass.

References


Risk factors and survival in patients with respiratory failure and cardiac operations


Reviewers: Feroze Mahmood, MD
Omair Shakil, MD
Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA

Background

Postoperative respiratory failure (RF) has been variably defined and the exact duration of mechanical ventilation to make this diagnosis is debatable. It is a well-known complication of cardiac operations and represents a significant morbidity and mortality burden. Our ability to more reliably identify at-risk patients has the potential to improve postoperative outcome. The authors in this study aimed to evaluate the characteristics and outcomes of patients who suffered postoperative respiratory failure following cardiac operations.

Methods

This was a prospective study. All patients aged 18 years or older who underwent a coronary artery, valve or thoracic aortic operations between January 2002 and December 2007 were included. Data pertaining to patient demographics, operative details, preoperative ventilation status, initial ventilation time, reventilation time, hours spent in the intensive care unit and mortality, were collected. Logistic regression was used to assess risk factors for RF, which was defined as the requirement of mechanical ventilation exceeding 48 hours at anytime in the postoperative period. Additionally long-term mortality for patients with and without RF was assessed for patients who underwent procedures between 1994 and 2005 and Kaplan-Meier survival curves were generated.

Results

A total of 7408 patients were analyzed, excluding 32 patients who died within 3 days of their operations. The sample population had a mean age of 64.6 years and 28.5% were women. Mean initial ventilation time was 17.8 hours. The mean reventilation time was 4.77 hours. Total ventilation times exceeded 24 hours in 707 patients (9.5%), 48 hours in 392 (5.3%), and 72 hours in 279 (3.8%). Statistically significant independent variables predictive of RF were critical preoperative state, neurological dysfunction, ejection fraction of less than 30%, active endocarditis, chronic obstructive respiratory disease, preoperative Creatinine greater than 0.2 mmol/L, age older than 70 years, previous cardiac operations and vascular disease. Urgency and complexity of procedure also predisposed to RF. Kaplan-Meier survival curves were generated for 18,488 patients who underwent cardiac operations between 1994 and 2005; these showed that for the first 7 postoperative years mortality was higher for patients with RF (hazard ratio of 3 to 4 for dying), after which the mortality for patients with and without RF became comparable.

Comments

RF as a complication of cardiac operations and the risk factors that predispose to it have been well established. This study reiterated risk factors for RF that have been previously identified. The results of this study, which is the first of its kind to be conducted on an Australasian population, further indicate
Age and Outcomes After Carotid Stenting and Endarterectomy: The Carotid Revascularization Endarterectomy Versus Stenting Trial


Reviewer: Susan M Martinelli, MD

*University of North Carolina, Chapel Hill, NC*

**Abstract**

BACKGROUND AND PURPOSE: stroke event rates among carotid artery stenting (CAS)-treated patients in the Carotid Revascularization Endarterectomy Versus Stenting Trial (CREST) lead-in registry generated a priori hypothesis that age may modify the relative efficacy of CAS versus carotid endarterectomy (CEA). In the primary CREST report, we previously noted significant effect modification by age. Here we extend this investigation by examining the relative efficacy of the components of the primary end point, the treatment-specific impact of age, and contributors to the increasing risk in CAS-treated patients at older ages.

METHODS: Among 2502 CREST patients with high-grade carotid stenosis, proportional hazards models were used to examine the impact of age on the CAS-to-CEA relative efficacy, and the impact of age on risk within CAS-treated and CEA-treated patients.

RESULTS: Age acted as a treatment effect modifier for the primary end point (P interaction=0.02), with the efficacy of CAS and CEA approximately equal at age 70 years. For CAS, risk for the primary end point increased with age (P<0.0001) by 1.77-times (95% confidence interval, 1.38-2.28) per 10-year increment; however, there was no evidence of increased risk for CEA-treated patients (P=0.27). Stroke events were the primary contributor to the overall effect modification (P interaction=0.033), with equal risk at age 64 years. The treatment-by-age interaction for CAS and CEA was not altered by symptomatic status (P=0.96) or by sex (P=0.45).

CONCLUSIONS: Outcomes after CAS versus CEA were related to patient age, attributable to increasing risk for stroke after CAS at older ages. Patient age should be an important consideration when choosing between the 2 procedures for treating carotid stenosis.

**References**


**Comparison of two-dimensional and three-dimensional imaging techniques for measurement of aortic annulus diameters before transcatheter aortic valve implantation**


Reviewer: Sapna Govindan, MD, Bala Subramaniam, MD, MPH

*Harvard Medical School, Department of Anesthesiology*

**Background**

Transcatheter aortic valve implantation (TAVI) is an alternative to surgery for severe aortic stenosis in high-risk patients. Paravalvular aortic regurgitation, a common limitation of this procedure, could be due to an undersized prosthesis. Two-dimensional imaging techniques analyze the annulus diameter in only one view and thus may lead to underestimation of the annular dimensions. This happens due to the ellipsoid shape of the annulus. This study aimed to evaluate (1) potential differences in annular dimensions determined by 2D imaging techniques compared with 3D imaging techniques and, (2)
whether 3D transesophageal echocardiographic (TEE) measurements of annular dimensions allow more accurate analysis of annular diameters than 2D TEE with dual source CT (DSCT) as reference.

Methods

49 consecutive patients with severe aortic stenosis undergoing TAVI were selected for the study. Angiography, 2D transthoracic echocardiography (TTE), 2D TEE, DSCT, and 3D TEE were performed in all patients. Diameters of the aortic annulus, the distance between the aortic root and the left main coronary artery ostium and the distance between the aortic root and the right coronary artery ostium were determined. Paired sample t-test and one-way analysis of variance were performed. Pearson correlation coefficients \( r \) with p value and 95% CI for \( r \) were calculated. Intra- and inter-observer agreements and SE of estimate (SEE) were determined for all imaging techniques.

Results

TTE and 2D TEE measured only the sagittal diameter. Angiography, DSCT, and 3D TEE measured both sagittal and coronal diameters. Sagittal diameters determined by angiography,

TTE, 2D TEE, 3D TEE and DSCT were smaller than coronal diameters determined by angiography. 3D TEE and DSCT coronal and sagittal diameters measured by 3D TEE highly correlated with the DSCT measurements (23.60 ± 1.9 vs. 23.40 ± 2.1mm and 22.2 ± 1.96 vs. 22.3 ± 2.0mm, respectively). There was a high correlation between DSCT and 3D TEE in the definition of sagittal diameter (\( r =0.77, \) SEE=1.26mm) and the coronal diameter (\( r =0.88, \) SEE=0.89mm) of the aortic annulus. Correlation of 3D TEE (13.47 ± 1.67mm) and DSCT (15.64 ± 1.82mm) in the analysis of the distance between aortic annulus and left main coronary artery ostium was better (\( r =0.54, \) SEE=1.55 mm) than between angiography (14.9 ± 3.8mm) and DSCT (\( r =0.35, \) SEE=1.77 mm).

Discussion

Accurate annular measurements and prosthesis sizing are critical for minimizing paravalvular aortic regurgitation. 3D TEE accurately analyzed the aortic valve diameters in both coronal and sagittal planes with only minimal differences from DSCT measurements. There are some potential limitations. 3D TEE is operator dependent. Accuracy of annular measurements could be reduced in those with pronounced calcification. 67% of patients in the study were female. This may have led to the smaller measurements of annulus di-

Comments

3D TEE allows more accurate measurements of annulus dimensions and is comparable to DSCT. This technique should be used in the assessment of the aortic annulus before TAVI.

Abstract

The FDA approved LeGoo in October as an aid to vascular anastomosis. The chemical is a polymer of ethylene and propylene glycols and is a liquid that firmly gels at body temperature. The gel re-liquefies on contact with cold saline. Any systemically absorbed material is apparently nontoxic and is renally excreted. The gel can reversibly plug arteries without need of a clamp. The gel had value in off-pump coronary surgery and is approved for temporarily stopping blood flow in non-cerebral blood vessels that are 4 mm or less in diameter.

This paper reviews one surgeon’s outcomes using LeGoo in a femoral-pop-
lited bypass and 7 upper limb access procedures. Additional polymer was required in two cases, one of which required reversion to clamp method. Patency rate was 91% with a median follow-up time of 36 weeks. LeGoo appears a safe and effective method of occluding peripheral vessels during surgery. The efficacy rate that is similar to that seen with LeGoo as a coronary clamp.

Comments

LeGoo is an interesting material. A related product, known as BackStop, is used to immobilize kidney stones for lithotripsy. It is interesting to wonder if LeGoo or BackStop or other temperature-sensitive gels might have applications in anesthesia. For instance, might they provide lung isolation? Could the stuff stanch bleeding around a percutaneous vascular catheter? On a less serious note, hirsute patients would certainly appreciate EKG stickers that slip off with the aid of a bit of ice.

Early Complications and Immediate Postop-erative Outcomes of Paravalvular Leaks After Valve Replacement Surgery


Reviewer: Jesse Shurter, MD and Dalia Banks, MD
UC San Diego Medical Center, San Diego, CA

Background

This study employed a retrospective review of four hundred and forty two consecutive patients undergoing aortic valve repair (AVR) and/or mitral valve repair (MVR) at a single tertiary care university hospital in Canada. Their objective was to evaluate the incidence of paravalvular leaks (PVLs) after valve replacement and assess its impact on postoperative outcomes.

Methods

The authors analyzed the intraoperative transesophageal echocardiographic (TEE) examinations of all patients undergoing primary or redo MVR and AVR with or without coronary artery bypass graft surgery at their institution during the study period. Where PVLs were identified, they were graded as trivial, mild, moderate or severe. The degree of native valve calcification was also graded qualitatively as mild, moderate, or severe. The patients were divided into two groups based on the presence or absence of PVLs and peri-operative variables and postoperative outcomes were compared between the two groups. Follow up transthoracic echocardiograms (TEE) were examined for the presence of residual PVLs.

The Use of Reverse Thermosensitive Polymer (LeGoo) for Temporary Vessel Occlusion in Clampless Peripheral Vascular Surgery


Reviewers: Laura C. Myers, BA and Theodore A. Alston MD, PhD
Massachusetts General Hospital, Harvard Medical School
Results

PVLs were identified in 53 (12%) patients, 24 (11%) after AVR and 29 (13%) after MVR. Most were graded as trivial or mild (19 after AVR, 20 after MVR). Attempts were made to surgically correct all moderate and severe PVLs (5 after AVR, 9 after MVR) as well as 2 trivial or mild PVL (each after AVR and MVR). The surgical repairs were successful except in 2 patients undergoing MVR. Both of these patients died within two weeks. Follow-up TTE performed one week after surgery on 50 (94%) patients with PVL identified persistent PVLs in 9 (39%) of 23 patients after AVR and 10 (37%) of 27 patients after MVR. At one year, TTE follow-up demonstrated that 2 (7%) of 27 patients after MVR, and no patients after AVR, had residual PVLs. Of the perioperative variables measured, only duration of CPB (before the detection of PVL) was a significant predictor of PVLs. Although patients with PVL had higher incidences of low-cardiac-output syndrome, atrial fibrillation, and sepsis, as well as longer stays in the ICU and hospital, multivariate regression analysis identified an association only between PVLs and sepsis.

Conclusions

The authors conclude that the incidence of PVL was similar after MVR and AVR and that prolong CPB time was predictive of PVLs. They reiterate that trivial and mild PVLs can be left unrepaired without increasing mortality. Lastly, they point out the need for further study of the demonstrated relationship between PVL and postoperative sepsis.

Comments

While this study adds to the body of literature that shows that small PVLs can be left alone, the authors acknowledge some limitations. Most notably, all of the follow up studies after valve replacement were performed with TTE, which might not be as sensitive as TEE for detecting small PVLs. In his accompanying editorial, Andrew Maslow states “The presence of a PVL may reflect a difficult procedure on a more complicated patient requiring a longer CPB period. Although the PVL itself may not directly cause adverse outcome, the longer CPB and/or baseline disease might.” Lastly, Maslow makes the point that the “sepsis” that was associated with PVLs could very well be vasoplegic syndrome.

Long-Term Mortality of Coronary Artery Bypass Grafting and Bare-Metal Stenting


Reviewers: W. Brit Smith, MD and Yong G. Peng, MD, PhD

Background

The authors of this study tested the hypothesis that CABG is associated with a lower risk of long-term (8-year) mortality than is stenting with bare-metal stents for multivessel coronary disease. The authors of this study compared CABG with bare metal stenting for coronary artery disease. Patients were matched to a 1:1 ratio between the groups based on the number of diseased vessels, the presence of proximal LAD artery disease, and propensity scoring. Survival rates were examined for matched patients using Kaplan-Meier survival curves and hazards ratios for death after CABG or stenting. Despite the limitations of an observational study, the large sample population from New York’s Cardiac Surgery Reporting System (CSRS) and Percutaneous Coronary Intervention Reporting System (PCIRS) allowed the authors to ensure excellent matching to compare the two groups. In all pairs evaluated, the results suggest that CABG patients have better long-term survival than patients treated by percutaneous intervention with bare metal stenting. The authors identified other randomized-controlled trials (RCTs) (SoS trial) that confirm their current finding of superiority of survival in the CABG group, as opposed to that of the bare metal stenting group. The authors also acknowledged that several other RCTs (ARTS, ERACI II, and MASS II) have shown no survival benefit between the groups.

This study has several limitations that prevent it from showing a clear superiority of CABG to stenting. Because it is a retrospective observational study for which conclusions cannot be completely controlled and are limited to inferential analysis, the authors’ use of propensity matching does significantly decrease this bias. The authors assessed only bare metal stenting in this study, with no comparison of drug-eluting stenting or its efficacy. Though the relative superiority of drug eluting vs. bare metal stenting is still being evaluated, the increasing use of drug-eluting stents (especially in the US) warrants further investigation to compare this modality with surgical intervention. Another shortfall of this study is that it uses the primary endpoint of death, without comparing other potential morbidities. Overall, the study has validated the potential benefit of CABG vs. percutaneous treatment in individuals with multi-vessel coronary artery disease. However, further studies (ideally controlled prospective studies) are needed before we make the conclusion that there is a long-term survival benefit of CABG vs. stenting as a whole.
Consequences of Delirium After Cardiac Operations


Reviewers: Mark. Poblete MD and Yong G. Peng, MD, PhD
Department of Anesthesiology, University of Florida, Gainesville, FL

Background

Delirium is a transient mental syndrome characterized by disturbances in consciousness, cognition, and perception. The risk that delirium will develop is increased in patients who undergo cardiac operations, especially the elderly. Generally, delirium during hospital admission is independently associated with many negative consequences, such as higher mortality, increased length of hospital stay, nursing home placement after admission, and cognitive and functional decline.

Methods

This prospective follow-up study used the Short Form 36-Item questionnaire, the Cognitive Failure Questionnaire, and a purpose-designed questionnaire to assess 300 patients who underwent elective cardiac operations at 6 months after the procedure. Postoperative delirium developed in 52 patients (17%). Mortality and readmission were also assessed.

Results

Delirium after cardiac procedures is associated with increased mortality (13.5% vs 2.0% in patients without), more hospital readmissions (45.7% vs 26.5%), and reduced quality of life. It is also associated with reduced cognitive functioning, including failures in attention, memory, perception, and motor function, and with functional dysfunction such as independence in activities of daily living and mobility.

Conclusions

Postoperative delirium after cardiac operations is associated with many important consequences. These findings provide justification for intervention studies to evaluate whether delirium prevention, early recognition, or treatment strategies might improve postoperative functional and cognitive function.

Comments

In this prospective follow-up study, the authors found a prevalent incidence of delirium post procedure among 300 patients who underwent elective cardiac surgery. Results of this study indicate that the consequences associated with delirium in patients undergoing cardiac surgery are important and lasted more than 6 months after surgery. The 17% incidence of delirium found in this study falls within the previously reported range of 3% to 52%. The authors also attempted to specify consequences that were only generalized in their previous study. Sample size was in turn increased; unfortunately no power analysis was mentioned.

This study indicated a statistically significant mean age difference between patients with and without delirium. Correction of age had little impact on the occurrence and consequences of delirium except that dependency in activities of daily living (ADL) was no longer statistically significant. The CFQ and SF-36 questionnaires and DOS scoring allow standardization of data gathering that is reproducible and can be validated. However, the author’s purpose-designed questionnaire is not widely validated. Nevertheless, delirium after cardiac surgery is an established occurrence that has negative and specific consequences associated with patient quality of life. The study also suggested that there were alarming increases in the mortality and readmission rates for patients who developed postoperative delirium.

One weakness in this study was that delirium was diagnosed by nursing staff members using the DOS scale, rather than by a psychiatrist. Also, there are potential discrepancies in mailed questionnaire responses as opposed to face-to-face interviews. The study made no attempt to analyze any potential causes that may be associated with delirium.

DSM-IV describes delirium as a disturbance of consciousness; change in cognition, developed over a short period of time caused by the direct physiological consequences of a general medical condition. However, while the state is transient, longstanding postoperative impact is evident. Since the initial therapeutic approach for delirium is to treat the underlying cause and focus on prevention, future investigation on interventional and risk factors is warranted.
Announcing the Kaplan Leadership Grant Program

By James Abernathy, III, MD and Douglas Shook, MD

The SCA Foundation announces the inaugural Kaplan Leadership Grants to be awarded in May, 2012 at the SCA Annual Meeting & Workshops. The grant is a $2,000 award with a matching amount to be funded from the applicant’s institution to fund a leadership education opportunity. Applications are due to the SCA Foundation by March 1, 2012.

This grant will assist cardiac anesthesiologists early in their careers to develop leadership skills. The grant allows for the applicant to participate in a leadership education opportunity and apply that classroom experience in a leadership project that the applicant is involved with in his/her workplace.

More details on the eligibility requirements can be found on the SCA Foundation website.

2012 Research Grants Deadline Approaching

Hilary P. Grocott, MD, FRCPC, FASE
Chair, SCA Research Committee

At the heart of all research is the ultimate goal of positively impacting patients. At times, the link between research and patients can seem obscure, and often span a huge time chasm, but the fundamental reason these investigations are needed is to put the pieces together of an increasingly complex puzzle of human health and disease. Without the fundamental support that these types of grant programs provide, important advancements in our understanding of problems facing the patient undergoing cardiovascular and thoracic surgery could not have been made.

The SCA Foundation is proud to announce the 2012 Research Grants to be awarded.

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