

2005



annual meeting program

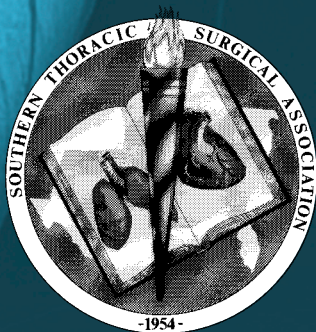
52nd

Southern

Thoracic

Surgical

Association



November 10-12

Orlando, Florida
Disney Yacht and
Beach Club

**SPECIAL THANKS TO STSA
52ND ANNUAL MEETING
CORPORATE SUPPORTERS**

Gold

*St. Jude Medical
Medtronic, Incorporated*

Silver

*Guidant
ATS Medical*

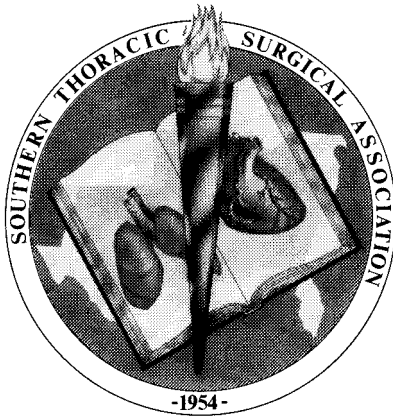


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**SOUTHERN THORACIC SURGICAL
ASSOCIATION**

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Editor

L. Henry Edmunds, MD
Philadelphia, Pennsylvania

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The Annals of Thoracic Surgery

L. Henry Edmunds, MD, Philadelphia, Pennsylvania

PAST MEETINGS OF THE SOUTHERN THORACIC SURGICAL ASSOCIATION

	PRESIDENT	SECRETARY
1954–Hollywood Beach, FL.....	James D. Murphy*	Hawley H. Seiler*
1955–White Sulphur Springs, WV ..	Paul W. Sanger*	Hawley H. Seiler*
1956–Miami Beach, FL	Donald L. Paulson*	Hawley H. Seiler*
1957–New Orleans, LA	Duane Carr*	Hawley H. Seiler*
1958–Miami Beach, FL	John S. Harter*	Hawley H. Seiler*
1959–Edgewater Park, MS	Edward F. Parker*	Hawley H. Seiler*
1960–Nassau Bahamas, B.W.I.	Edgar W. Davis*	Hawley H. Seiler*
1961–Memphis, TN	DeWitt C. Daughtry*	Hawley H. Seiler*
1962–Ocho Rios, Jamaica.....	James E. Dailey*	Hawley H. Seiler*
1963–San Antonio, TX	Lewis H. Boshier	Hawley H. Seiler*
1964–Atlanta, GA	Robert G. Ellison.....	Hawley H. Seiler*
1965–Freeport, Grand Bahama	Francis H. Cole*	Hawley H. Seiler*
1966–Asheville, NC.....	Will C. Sealy*	Hawley H. Seiler*
1967–Dallas, TX.....	Edward R. Munnell*	Hawley H. Seiler*
1968–San Juan, Puerto Rico.....	Milton V. Davis.....	Hawley H. Seiler*
1969–Washington, D.C.	Osler A. Abbott*	James W. Brooks
1970–Bermuda.....	Watts R. Webb	James W. Brooks
1971–Tampa, FL	Hawley H. Seiler*	James W. Brooks
1972–Port of Spain,.....	A. Robert Cordell	James W. Brooks
Trinidad and Tobago		
1973–Louisville, KY	James W. Pate	James W. Brooks
1974–Williamsburg, VA.....	Bertram A. Glass*	James W. Brooks
1975–New Orleans, LA	Frederick H. Taylor*	J. Kent Trinkle*
1976–Acapulco, Mexico.....	James W. Brooks	J. Kent Trinkle*
1977–Marco Island, FL.....	Joseph W. Peabody, Jr.*	J. Kent Trinkle*
1978–Marco Island, FL.....	Robert Carr*	J. Kent Trinkle*
1979–San Antonio, TX	Harold C. Urschel, Jr.	Richard B. McElvein
1980–White Sulphur Springs, WV ..	W. Glenn Young, Jr.	Richard B. McElvein
1981–Palm Beach, FL.....	Dennis Rosenberg*	Richard B. McElvein
1982–Hilton Head , SC.....	J. Kent Trinkle*	Richard B. McElvein
1983–Marco Island, FL.....	Francis Robicsek.....	Harvey W. Bender Jr.
1984–Hilton Head, SC	Charles R. Hatcher, Jr.	Harvey W. Bender Jr.
1985–Boca Raton, FL	George C. Kaiser	Harvey W. Bender Jr.
1986–White Sulphur Springs, WV ..	Richard B. McElvein.....	Harvey W. Bender Jr.
1987–Boca Raton, FL	J. Alex Haller, Jr.	Gordon F. Murray
1988–Marco Island, FL.....	O. Brewster Harrington... ..	Gordon F. Murray
1989–Scottsdale, AZ	Richard E. Clark	Gordon F. Murray
1990–Dorado, Puerto Rico	Harvey W. Bender, Jr.	Gordon F. Murray
1991–Orlando, FL	Robert M. Sade.....	Hendrick B. Barner
1992–Wesley Chapel, FL.....	William A. Cook.....	Hendrick B. Barner
1993–Panama City Beach, FL.....	Gordon F. Murray.....	Hendrick B. Barner
1994–Marco Island, FL.....	Ronald C. Elkins.....	Hendrick B. Barner
1995–San Antonio, TX	Frederick L. Grover.....	D. Glenn Pennington
1996–Cancun, Mexico	William C. Alford.....	D. Glenn Pennington
1997–Naples, FL	Kit V. Arom.....	D. Glenn Pennington
1998–Orlando, FL	Hendrick B. Barner.....	D. Glenn Pennington
1999–San Juan, Puerto Rico	William A. Baumgartner ..	Carolyn E. Reed
2000–Marco Island, FL.....	Donald C. Watson, Jr.	Carolyn E. Reed
2001–San Antonio, TX	William F. Sasser.....	Carolyn E. Reed
2002–Miami, FL	Constantine Mavroudis ..	Carolyn E. Reed
2003–Bonita Springs, FL	Joseph I. Miller, Jr.	John H. Calhoun
2004–Cancun, Mexico.....	D. Glenn Pennington.....	John H. Calhoun
2005–Orlando, FL	Irving Kron	John H. Calhoun

* Deceased

THE PRESIDENT'S AWARD

The President's Award for the best scientific paper is given annually to the author of the paper judged to be superior to all others delivered at the previous annual meeting of the Association. The award is given on the basis of originality, content and presentation. Previous winners have uniformly displayed excellence in all areas. The author receives a certificate identifying the award and a suitable monetary reward. The winner is chosen by the President with the assistance of the Council members.

THE PRESIDENT'S AWARD FOR THE BEST SCIENTIFIC PAPER

1964–Bertram A. Glass.....	New Orleans, Louisiana
1965–Harold C. Urschel, Jr.	Dallas, Texas
1966–Thomas J. Yeh.....	Savannah, Georgia
1967–Yale H. Zimberg	Richmond, Virginia
1968–J. Alex Haller, Jr.....	Baltimore, Maryland
1969–William H. Sewell	Sayre, Pennsylvania
1970–George R. Daicoff.....	St. Petersburg, Florida
1971–Charles E. Eastridge	Memphis, Tennessee
1972–J. Kent Trinkle	San Antonio, Texas
1973–Donald L. Bricker.....	Lubbock, Texas
1974–Harvey W. Bender, Jr.....	Nashville, Tennessee
1975–Charles E. Martin.....	Nashville, Tennessee
1976–Gordon F. Murray	Chapel Hill, North Carolina
1977–Denis H. Tyras	St. Louis, Missouri
1978–Joseph I. Miller, Jr.	Atlanta, Georgia
1979–M. Wayne Flye.....	Galveston, Texas
1980–Francis Robicsek.....	Charlotte, North Carolina
1981–Ellis L. Jones.....	Atlanta, Georgia
1982–William G. Malette.....	Omaha, Nebraska
1983–Robert H. Breyer.....	Springfield, Massachusetts
1984–Blair A. Keagy	Chapel Hill, North Carolina
1985–John W. Hammon, Jr.	Nashville, Tennessee
1986–William H. Frist	Nashville, Tennessee
1987–Jean-Nicolas Vauthey	New Orleans, Louisiana
1988–Robert A. Gustafson	Morgantown, West Virginia
1989–Harvey I. Pass	Bethesda, Maryland
1990–Vincent L. Gott	Baltimore, Maryland
1991–Ross M. Ungerleider.....	Durham, North Carolina
1992–William H. Frist	Nashville, Tennessee
1993–Kirk R. Kanter	Atlanta, Georgia
1994–Thomas L. Spray	St. Louis, Missouri
1995–Constantine Mavroudis.....	Chicago, Illinois
1996–David A. Fullerton.....	Denver, Colorado
1997–Christopher J. Knott-Craig	Oklahoma City, Oklahoma
1998–James L. Zellner	Charleston, South Carolina
1999–Thomas A. D'Amico	Durham, North Carolina
2000–Joseph C. Cleveland, Jr.....	Denver, Colorado
2001–Neal D. Kon.....	Winston-Salem, South Carolina
2002–Joseph S. Coselli.....	Houston, Texas
2003–Robert J. Cerfolio	Birmingham, Alabama
2004–Malcolm DeCamp	Boston, Massachusetts

THE TIKI AWARD

The quality of slides can greatly enhance or detract from a scientific presentation. In order to emphasize the importance of well planned and prepared slides, the Southern Thoracic Surgical Association has created the Tiki Award.

This award is given to that person who presents a slide at the annual meeting which is judged by a committee appointed by the President to be the most memorable and noteworthy. This slide can be selected because it is unintelligible, confusing, cluttered, irrelevant, or conversely because it is superbly clear, concise, colorful, pertinent, and/or utilizes state of the art graphics.

TIKI AWARD WINNERS

1964–Watts R. Webb	New Orleans, Louisiana
1965–J. Alex Haller, Jr.....	Baltimore, Maryland
1966–Richard M. Peters	San Diego, California
1967–Myron W. Wheat	St. Petersburg, Florida
1968–Carl H. Almond.....	Columbia, South Carolina
1969–Francis Robicsek.....	Charlotte, North Carolina
1970–William A. Neely	Jackson, Mississippi
1971–Paul C. Adkins	Washington, D.C.
1972–Panagiotis Symbas.....	Atlanta, Georgia
1973–James L. Alexander	Savannah, Georgia
1974–Lloyd H. Hudson.....	Flint, Michigan
1975–Richard E. Clark	St. Louis, Missouri
1976–William S. Lyons	Alexandria, Virginia
1977–Maruf A. Razzuk	Dallas, Texas
1978–Harold C. Urschel, Jr.	Dallas, Texas
1979–Maruf A. Razzuk	Dallas, Texas
1980–Francis Robicsek.....	Charlotte, North Carolina
1981–Robert Sade.....	Charleston, South Carolina
1982–Kit V. Arom.....	Minneapolis, Minnesota
1983–Herbert E. Warden	Morgantown, West Virginia
1984–Noel L. Mills.....	New Orleans, Louisiana
1985–George C. Kaiser	St. Louis, Missouri
1986–J. G. Selle	Charlotte, North Carolina
1987–Steven Gundry	Baltimore, Maryland
1988–Harvey I. Pass	Bethesda, Maryland
1989–Duke E. Cameron	Baltimore, Maryland
1990–Richard E. Clark	Pittsburgh, Pennsylvania
1991–William H. Coltharp	Nashville, Tennessee
1992–Joseph S. Coselli.....	Houston, Texas
1993–Benson R. Wilcox.....	Chapel Hill, North Carolina
1994–P. Michael McFadden	New Orleans, Louisiana
1995–Carolyn E. Reed.....	Charleston, South Carolina
1996–John L. Ochsner.....	New Orleans, Louisiana
1997–Clifford H. Van Meter, Jr.	New Orleans, Louisiana
1998–John D. Oswalt	Austin, Texas
1999–W. Randolph Chitwood, Jr.	Greenville, North Carolina
2000–Ross M. Ungerleider.....	Portland, Oregon
2001–Neal D. Kon	Winston-Salem, South Carolina
2002–W. Steves Ring.....	Dallas, Texas
2003–Betsey Urschel	Dallas, Texas
2004–Ross Ungerleider	Portland, Oregon

THE OSLER ABBOTT AWARD

The Osler Abbott Award was first given in 1960 and has been awarded annually to that member of the Association who excels in the art of discussionmanship. It was named for Osler Abbott, M.D. of Atlanta, Georgia, who, in 1950, somehow managed to discuss 26 papers, no mean feat since only 25 were presented and one was his own!

In the early years, sheer volume of discussion was sufficient to earn at least an honorable mention, but volume alone never won the award. More important were factors such as pomposity, arrogance, irrelevancy, and the use of outdated slides which had been shown on two or more occasions. In recent years the tactics have ranged from extreme subtlety to blatant exhibitionism and from apparent indifference to obvious covetousness.

To place this traditional award on a somewhat higher plane of competition, the Council, in its wisdom, decided to base the decision on Oslerian principles, and selection would come from evaluation of the more memorable of discussions during the scientific sessions.

Thus, the reincarnated purposes of the Osler Abbott Award of the Southern Thoracic Surgical Association are:

1. To focus on the importance of open, frank, and candid discussion in the spirit and substance of the Southern Thoracic Surgical Association and, in this way, to encourage more objective and active participation by all members attending the annual meeting.
2. To stimulate a healthy give-and-take among the members and, thereby, enhance the camaraderie and esprit-de-corps which have traditionally characterized the Southern Thoracic Surgical Association.

OSLER ABBOTT AWARD WINNERS

1960–Joseph W. Peabody, Jr.....	Washington, D.C.
1961–Milton V. Davis.....	Dallas, Texas
1962–E. Converse Peirce, II.....	New York, New York
1963–Lewis H. Boshier, Jr.....	Richmond, Virginia
1964–Sam E. Stephenson, Jr.	Jacksonville, Florida
1965–Bertram A. Glass.....	New Orleans, Louisiana
1966–Robert E. Carr.....	Fort Worth, Texas
1967–Osler A. Abbott.....	Atlanta, Georgia
1968–Watts R. Webb.....	New Orleans, Louisiana
1969–William A. Cook.....	Andover, Massachusetts
1970–Edward F. Parker.....	Charleston, South Carolina
1971–Minas Joannides, Jr.....	St. Petersburg, Florida
1972–J. Alex Haller, Jr.....	Baltimore, Maryland
1973–Harold C. Urschel, Jr.	Dallas, Texas
1974–Bertram A. Glass.....	New Orleans, Louisiana
1975–Gilbert S. Campbell.....	Little Rock, Arkansas
1976–James W. Brooks.....	Richmond, Virginia
1977–J. Kent Trinkle.....	San Antonio, Texas
1978–Raymond C. Read.....	Little Rock, Arkansas
1979–Richard E. Clark.....	St. Louis, Missouri
1980–Joseph W. Peabody, Jr.....	Washington, D.C.
1981–Robert M. Sade.....	Charleston, South Carolina
1982–James S. Donahoo.....	Philadelphia, Pennsylvania
1983–Francis Robicsek.....	Charlotte, North Carolina

1984–Milton V. Davis.....	Kaufman, Texas
1985–George C. Kaiser	St. Louis, Missouri
1986–Milton V. Davis.....	Kaufman, Texas
1987–J. Alex Haller, Jr.....	Baltimore, Maryland
1988–Ronald C. Elkins.....	Oklahoma City, Oklahoma
1989–Bradley M. Rodgers	Charlottesville, Virginia
1990–Harvey W. Bender, Jr.....	Nashville, Tennessee
1991–Kamal A. Mansour	Atlanta, Georgia
1992–Arthur E. Baue.....	St. Louis, Missouri
1993–Kit V. Arom.....	Minneapolis, Minnesota
1994–Frederick L. Grover	Denver, Colorado
1995–Constantine Mavroudis.....	Chicago, Illinois
1996–George Daicoff	St. Petersburg, Florida
1997–Ross M. Ungerleider.....	Durham, North Carolina
1998–Lynn H. Harrison	New Orleans, Louisiana
1999–William A. Baumgartner	Baltimore, Maryland
2000–Robert J. Cerfolio	Birmingham, Alabama
2001–Carolyn E. Reed.....	Charleston, South Carolina
2002–John H. Calhoun	San Antonio, Texas
2003–Constantine Mavroudis	Chicago, Illinois
2004–Keith Naunheim	St. Louis, Missouri

THE KENT TRINKLE EDUCATION LECTURESHIP

The Kent Trinkle Educational Lectureship was dedicated to J. Kent Trinkle, MD, (STSA President, 1981-1982) for his contributions to cardiothoracic surgery and STSA. Each year, in honor of Dr. Trinkle's remarkable dedication to student education, an STSA member is selected to present on his/her training program. Presenters are selected by the STSA President.

1993–Benson R. Wilcox.....	Chapel Hill, North Carolina
1994–George C. Kaiser	St. Louis, Missouri
1995–J. Kent Trinkle	San Antonio, Texas
1996–Irving L. Kron.....	Charlottesville, Virginia
1997–William A. Baumgartner	Baltimore, Maryland
1998–Donald C. Watson, Jr.....	Memphis, Tennessee
1999–Fred A. Crawford, Jr.....	Charleston, South Carolina
2000–Robert A. Guyton.....	Atlanta, Georgia
2001–Joel D. Cooper	St. Louis, Missouri
2002–W. Steves Ring.....	Dallas, Texas
2003–Walter G. Wolfe.....	Durham, North Carolina
2004–Joseph Coselli	Houston, Texas
2005–Neal Kon	Winston-Salem, North Carolina

HAWLEY H. SEILER RESIDENT'S COMPETITION AWARD

The Hawley H. Seiler Resident's Competition Award is presented to an outstanding cardiothoracic resident. This honor is bestowed upon the resident excelling in the following categories regarding their abstract submission: manuscript and oral presentation. This honor is named after Past President and STSA founding member, Hawley H. Seiler, MD.

Dr. Seiler's many contributions to STSA included serving as Secretary for 15 years and presenting on numerous topics at Annual Meetings.

1997–Elaine E. Tseng	Baltimore, Maryland
1998–Stephen Langley	Durham, North Carolina
1999–Aron Goldberg	Charleston, South Carolina
2000–Cullen D. Morris	Atlanta, Georgia
2001–Sitaram M. Emani	Durham, North Carolina
2002–Thomas S. Maxey	Charlottesville, Virginia
2003–Brian T. Bethea	Baltimore, Maryland
2004–Tara Karamlou	Portland, Oregon

CONTINUING MEDICAL EDUCATION (CME) OVERVIEW

Discussion of Papers

Discussions of papers at the Annual Meeting are submitted for publication to *The Annals of Thoracic Surgery*. Please review the program outline carefully to determine if you have a particular interest in some of the topics, then be prepared to discuss them at the meeting. If you wish, you may request a copy of the manuscript in advance of the meeting by contacting the author directly. (Discussions of papers are limited to seven minutes.)

Presentation and Publication

Please also note that authors of oral presentations are required to submit a manuscript for consideration for publication in *The Annals of Thoracic Surgery* before noon on Saturday, November 12, 2005. You must submit the manuscript via *The Annals* on-line manuscript submission system at www.atseditorialoffice.org. A paper copy of your manuscript will not be accepted for consideration. Primary authors and co-authors that are delinquent in submitting their manuscript to *The Annals* on time will not have their presentations considered for publication in *The Annals*. In addition, these authors will not have abstracts considered by the Program Committee of the STSA for two (2) subsequent meetings.

Accreditation

The Southern Thoracic Surgical Association is accredited by the Accreditation Council for Continuing Medical Education (AACME) to provide continuing medical education for physicians. The STSA designates this activity for a maximum of 20.25 category 1 credits toward the AMA Physician's Recognition Award. Each physician should claim only those credits that he/she actually devoted to the activity.

STSA CME Mission

The Southern Thoracic Surgical Association (STSA) will provide, through its annual meeting, a high quality scientific program in order to educate members and guests about what is new or of current importance in the field of cardiovascular and thoracic surgery.

Evaluations

A new CME/evaluation process will be implemented this year. In previous years, physicians completed both a CME form (found either in the program book or as a stand-alone form) and an evaluation form. This year, the CME and the session evaluation forms will be part of the same form.

Physicians wishing to receive credit for sessions they attend will be required to complete the evaluation form for the session. This will be the only way physicians will be able to earn CME for their attendance.

The evaluation form will provide physicians the opportunity to offer feedback to the STSA Council and Program Committee regarding content offered, including information about applicability of the content to current practice, quality of the material presented and recommendations for future programming. This information is invaluable in the planning of future STSA educational programs.

In addition to being useful for program planning, program evaluation and future needs assessment are important components of the requirements that the STSA must meet to maintain accreditation through the Accreditation Council for Continuing Medical Education (ACCME). It is by meeting the requirements set forth by the ACCME that the STSA is able to award CME credit for educational programming.

CME Process

To ensure that this new process will work effectively, the forms will be available on-site at all of the sessions offered.

Each evaluation will include a series of questions regarding the program content. In addition, physicians will need to fill in their STSA membership ID and the actual amount of time spent in individual sessions. Without this information, CME credit cannot be awarded.

Non-members will be given a number that is generated for this purpose. Physicians will simply fill in their member ID or specially generated number, note the actual time spent in the session, complete the evaluation, and submit it in an evaluation bin. Evaluation forms will be processed soon after the Annual Meeting and entered into an electronic file that STSA staff will use to generate a CME certificate after the meeting. These certificates will be mailed to physicians.

This new process will allow the STSA to maintain an electronic record of CME earned by physicians. Files will be maintained at STSA offices for a minimum of six (6) years.

Disclosure Policy

The Southern Thoracic Surgical Association (STSA) is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians. The STSA requires that all authors, or any individual who makes a presentation at a program, and/or presents a paper for publication, in any forum supported or sponsored in any way by the STSA must disclose any material financial or other relationships that may pose conflicts of interest.* This requirement is intended neither to imply any impropriety of such relationships nor to prejudice any individual presenter or author. It is merely to identify such relationships through full disclosure, and to allow the audience to form its own judgments regarding the presentation or paper.

Additionally, disclosure must be made if the presentation or paper describes (a) the use of a device, product, or drug that is not FDA approved or (b) an off-label use of an approved device, product, or drug. This requirement has been adopted in response to FDA policy and recent case law involving medical societies, and is not intended to prohibit or inhibit independent presentation or discussion regarding the uses of devices, products, and drugs as described at (a) and (b) above.

**Required disclosures include any relationship between the individual presenter or author (including known relationships of his or her immediate family, department, and partners) and any healthcare-related business or other entity whose products or services may be discussed in, or directly affected in the marketplace by, the presentation or paper that involves (1) a financial interest of \$10,000 or more (e.g., through ownership of stock, stock options, or bonds), (2) the receipt of \$10,000 or more in cash, goods or services within the current 12-month period (e.g., through research grants, employment, consulting fees, royalties, travel or gifts), or (3) a non-remunerative position of influence (e.g., as officer, director, trustee or public spokesperson). Excluded are blind trusts or other passive investments such as mutual funds.*

OTHER MEETING INFORMATION

Speaker Preview Room

The Speaker Preview Room is located in the **Asbury Hall D Room**, located on the lobby level of the convention center near the general session room. Speakers are requested to go to this room upon arrival, or at least 2 hours prior to the opening of their session to prepare.

Physician Message Center

Messages may be left and picked up at a special message center located in the meeting registration area. Please call the main number for the hotel (407/934-7000) and ask for the STSA registration desk. However, STSA staff will be unable to hand deliver messages. When calling the hotel, callers should ask to be transferred to STSA registration desk in the convention center of the hotel.

The message center will be open during registration hours. Please check this message center frequently. During the hours when registration is closed, please have all incoming calls directed to your room. Thanks!

ACTIVITIES/EVENTS

FRIDAY, NOVEMBER 11

Spouses' Hospitality Suite - *Cape Cod B & C, Lobby Level-Convention Center*

Time: 8:00 am - Noon

STSA is providing a hospitality room for your spouse to mingle with other spouses while enjoying your stay at the Disney Yacht and Beach Club.

Attendee Lunch - *Yacht Club Marina-Boardwalk*

Time: 12:00 pm - 1:30 pm

President's Mixer - *International Gateway, Epcot*

Time: 6:30 pm - 8:30 pm

Cost: Complimentary with Registration

Gather with fellow meeting attendees for an evening of networking and fun.

Dessert Reception - *French Island*

Time: 8:30 pm - 9:30 pm

Indulge your sweet tooth with delicious cakes, cookies, pastries and puffs.

SATURDAY, NOVEMBER 12

Spouses' Hospitality Suite - *Cape Cod B & C, Lobby Level-Convention Center*

Time: 8:00 am - Noon

Golf Tournament - *Disney's Palm Golf Course - Buses will depart from Porte-Cochere at 11:45 pm*

Time: 12:30 pm - shotgun start

Cost: \$135 person - includes greens fees, transportation and a box lunch. This Joe Lee-designed course features sparkling lakes and shimmering sand, all surround by a gorgeous "golfscape" with strategically placed palms. The Palm's 18th Hole is considered one of the most challenging on the PGA Tour. Feel free to bring your clubs or you can leave your gear at home, and rent or purchase anything from clubs and shoes, to balls and tees.

Tennis Tournament - *Disney Swan/Dolphin Tennis Courts*

Time: 1:00 pm

Cost: \$35/person - includes court fees, tennis balls and refreshments. Join fellow attendees for an afternoon on the hard court at the top-notch Disney Swan/Dolphin Tennis Facility. Rackets are available for rental.

Annual Dinner Dance/Reception & Banquet

Reception: 7:00 pm - 8:00 pm

Grand Harbor Ballroom, Salons 5 - 7, Lobby Level, Convention Center

Dinner (Black Tie): 8:00 pm - 11:00 pm

Grand Harbor Ballroom, North Lobby Level, Convention Center

Cost: \$95.00/person

End your STSA 52nd Annual Meeting experience in style - the annual formal black tie dinner dance is the event that attendees remember long after the conference has concluded. This evening of dining, dancing and networking with colleagues is sure to be an unforgettable time.

SCHEDULE OF EVENTS
52ND ANNUAL MEETING OF
THE SOUTHERN THORACIC
SURGICAL ASSOCIATION

WEDNESDAY, NOVEMBER 9, 2005

2:00 pm - 5:00 pm Registration - Asbury Registration,
Rotunda, Lobby Level-Convention Center

THURSDAY, NOVEMBER 10, 2005

7:00 am - 5:00 pm Registration - Asbury Registration,
Rotunda, Lobby Level-
Convention Center

8:00 am - 12:00 pm Postgraduate Program - Asbury Hall A-C,
Lobby Level- Convention Center

12:00 pm - 5:00 pm Exhibits Open - Scientific Posters in
Exhibit Area
Grand Harbor Ballroom South, Lobby
Level-Convention Center

12:00 pm - 1:00 pm Membership Committee Meeting - Cape
Cod B, Lobby Level-Convention Center

12:00 pm - 1:00 pm Nominating Committee Meeting -
Stonington Board Room, Lobby Level-
Convention Center

1:00 pm - 5:15 pm First Scientific Session - Asbury Hall
A-C, Lobby Level-Convention Center

2:30 pm - 3:00 pm Break - Visit Exhibits and View Scientific
Posters
Grand Harbor Ballroom South, Lobby
Level-Convention Center

5:00 pm - 5:15 pm CPT Coding Update - Asbury Hall A-C,
Lobby Level-Convention Center

8:00 pm - 10:00 pm Surgical Videos - Asbury Hall A-C, Lobby
Level-Convention Center

FRIDAY, NOVEMBER 11, 2005

6:45 am - 6:00 pm Registration - Asbury Registration,
Rotunda, Lobby Level-Convention Center

6:45 am - 12:00 pm Exhibits Open - Scientific Posters in
Exhibit Area
Grand Harbor Ballroom South, Lobby
Level-Convention Center

7:00 am - 8:00 am Basic Science Forum - Asbury Hall A-C,
Lobby Level-Convention Center

8:00 am - 12:00 pm Second Scientific Session - Asbury Hall
A-C, Lobby Level-Convention Center

10:00 am - 10:30 am Break - Visit Exhibits and View Scientific
Posters
Grand Harbor Ballroom South, Lobby
Level-Convention Center

10:30 am - 11:10 am President's Invited Lecturer: Tirone David -
Immediate Past President of AATS
Asbury Hall A-C, Lobby Level-
Convention Center

11:10 am - 11:20 am Kent Trinkle Education Lectureship: Neal
Kon, Wake Forest University - Asbury
Hall A-C, Lobby Level-Convention Center

11:20 am - 12:00 pm	Presidential Address: Irving Kron Asbury Hall A-C, Lobby Level- Convention Center
12:00 pm - 1:30 pm	Attendee Luncheon - Yacht Club Marina- Boardwalk
1:30 pm - 5:00 pm	Exhibits Open - Scientific Posters in Exhibit Area Grand Harbor Ballroom South, Lobby Level-Convention Center
1:30 pm - 2:30 pm	Poster Presentations - Asbury Hall A-C, Lobby Level-Convention Center
2:30 pm - 5:00 pm	Second Scientific Session, continued - Asbury Hall A-C, Lobby Level- Convention Center
3:30 pm - 4:00 pm	Break - Visit Exhibits and View Scientific Posters Grand Harbor Ballroom South, Lobby Level-Convention Center
5:00 pm - 6:00 pm	STSA Business Meeting - STSA Members Only Asbury Hall A-C, Lobby Level- Convention Center
6:30 pm - 8:30 pm	Presidents Mixer - International Gateway, Epcot
8:30 pm - 9:30 pm	Dessert Reception - French Island

SATURDAY, NOVEMBER 12, 2005

7:00 am - 11:00 am	Registration - Asbury Registration, Rotunda, Lobby Level-Convention Center
7:00 am - 11:00 am	Exhibits Open - Scientific Posters in Exhibit Area Grand Harbor Ballroom South, Lobby Level-Convention Center
7:15 am - 8:15 am	Ethics Session - Asbury Hall A-C, Lobby Level-Convention Center Grand Harbor Ballroom South, Lobby Level-Convention Center
8:30 am - 11:30 am	Third Scientific Session - Asbury Hall A-C, Lobby Level-Convention Center
9:45 am - 10:15 am	Break - Visit Exhibits and View Scientific Posters Grand Harbor Ballroom South, Lobby Level-Convention Center
11:30 am	Program Adjourns
12:30 pm - 5:00 pm	Various Social & Sporting Events - See page 11 for details
7:00 pm - 11:00 pm	Annual Black Tie Reception and Dinner Dance
7:00 pm - 8:00 pm	Reception - Grand Harbor Ballroom, Salons 5 - 7, Lobby Level-Convention Center
8:00 pm - 11:00 pm	Dinner and Awards - Grand Harbor Ballroom, North, Lobby Level- Convention Center

END OF CONFERENCE

POSTGRADUATE PROGRAM

THURSDAY, NOVEMBER 10, 2005

8:00am–12:00pm

Asbury Hall A-C, Lobby Level-Convention Center

Educational Objective: To provide new or important information from recognized authorities about the current practice of cardiothoracic surgery.

CME Credit Available: 3.50

Moderators: *David R. Jones, MD & *Robert J. Cerfolio, MD

- 8:00am - 8:12am **Pulmonary Valve Replacement for Adult Congenital Heart Disease**
*Ben Peeler, MD, *Charlottesville, Virginia*
- 8:12am - 8:20am **Discussion**
- 8:20am - 8:32am **Management of Esophageal Disasters**
*David R. Jones, MD, *Charlottesville, Virginia*
- 8:32am - 8:40am **Discussion / Questions & Answers**
- 8:40am - 8:52am **Pro/Con: Transcatheter Therapy as the Treatment of Choice for ASD**
*Charles B. Huddleston, MD (Pro), *St. Louis, Missouri*
- 8:52am - 9:04am *Constantine Mavroudis, MD (Con)
Chicago, Illinois
- 9:04am - 9:20am **Discussion / Questions & Answers**
- 9:20am - 9:32am **Concomitant Treatment of Atrial Fibrillation**
*James Cox, MD, *Washington, DC*
- 9:32am - 9:40am **Discussion / Questions & Answers**
- 9:40am - 10:10am **BREAK**
- 10:10am - 10:22am **Pro/Con: Aortic Stenting as Treatment of Choice for Thoracic Aortic Disease**
Edward B. Diethrich, MD (Pro), *Phoenix, Arizona*
- 10:22am - 10:34am *Joseph Coselli, MD (Con),
Houston, Texas
- 10:34am - 10:50am **Discussion / Questions & Answers**
- 10:50am - 11:02am **Pro/Con: VATS Lobectomy, New Standard of Care**
*Daniel Miller, MD (Pro), *Atlanta, Georgia*

11:02am - 11:14am	*Robert Cerfolio, MD, <i>Birmingham, Alabama (Con)</i>
11:14am - 11:30am	Discussion Questions & Answers
11:30am - 11:40am	Retirement 101 Retirement: The Necessary Plan *Joseph M. Craver, MD, <i>Atlanta, Georgia</i>
11:40am - 11:50am	Retirement: The Reality *Meredith Scott, MD, <i>Windermere, Florida</i>
11:50am - 12:00pm	Panel Discussion *David R. Jones, MD & *Robert J. Cerfolio, MD <i>Birmingham, Alabama</i>
12:00pm	Program Adjourns

**1ST SCIENTIFIC SESSION
SESSION A**

THURSDAY, NOVEMBER 10, 2005

1:00pm–2:30pm

Asbury Hall A-C, Lobby Level-Convention Center

Educational Objective: To provide new or important information from recognized authorities about the current practice of cardiothoracic surgery.

Speakers are limited to seven minutes for their presentation followed by seven minutes of discussion.

CME Credit Available: 1.50

Moderators: *Irving Kron, *John H. Calhoun

- 1:00pm- 1:15pm **Longterm Results Of The Endoscopic Atraumatic Coronary Artery Bypass**
*Thomas A. Vassiliades; *V S. Reddy;
Vinod Thourani;
*John D. Puskas; *Robert A. Guyton
Emory University, Atlanta, Georgia
- 1:15pm-1:30pm **Pediatric Cardiac Surgery Outcomes: Is The Bar Higher Than We Thought?**
Karl F. Welke; Irving Shen; *Ross M. Ungerleider
Oregon Health and Science University, Portland, Oregon
- 1:30pm-1:45pm **The Distribution And Likelihood Of Lymph Nodes Metastases Based On The Lobar Location Of Primary Nsclc**
*Robert J. Cerfolio; Ayesha S. Bryant
University of Alabama at Birmingham, Birmingham, Alabama
- 1:45pm-2:00pm **Lv Dysfunction In Atrial Fibrillation: Restoration Of Sinus Rhythm By The Cox-maze Procedure Significantly Improves Systolic Function And Functional Status**
John M. Stulak; Joseph A. Dearani;
Richard C. Daly; Kenton J. Zehr;
*Thoralf M. Sundt, III; *Hartzell V. Schaff
Mayo Clinic College of Medicine, Rochester, Minnesota

2:00pm-2:15pm

Axillary Cannulation For Proximal Aortic Surgery Is As Safe In The Emergent Setting As In Elective Cases

Jason M. Budde; Daniel L. Serna, Jr.; Mark Steele; *Edward P. Chen
 Carlyle Fraser Heart Center of Emory University School of Medicine, Atlanta, Georgia

2:15pm-2:30pm

Preoperative Ejection Fraction Does Not Predict Mortality Or Increased Length Of Stay With Left Ventricular Restoration

Joshua D. Adams; Carlos A. Tache Leon; *Benjamin B. Peeler; *John A. Kern; *Curtis G. Tribble; *Irving L. Kron
 University of Virginia Healthsystem, Charlottesville, Virginia

2:30pm-3:00pm

**Break- Visit Exhibits and View Scientific Posters
 Grand Harbor Ballroom South,
 Lobby Level**

**1ST SCIENTIFIC SESSION
SESSION B**

THURSDAY, NOVEMBER 10, 2005

3:00pm–5:15pm

Asbury Hall A-C, Lobby Level-Convention Center

Educational Objective: To provide new or important information from recognized authorities about the current practice of cardiothoracic surgery.

Speakers are limited to seven minutes for their presentation followed by seven minutes of discussion.

CME Credit Available: 2.25

Moderators: *Irving Kron, *John H. Calhoon

- 3:00pm-3:15pm **Malignant Pleural Mesothelioma:
Surgical Management In 285
Patients**
Francis C. Nichols; Paul H. Schipper;
Brian S. Crownhart; Claude
Deschamps; Mark S. Allen; * Stephen
D. Cassivi; Peter C. Pairolero
*Mayo Clinic College of Medicine,
Rochester, Minnesota*
- 3:15pm-3:30pm **Aprotinin Use Reduces Early Graft
Failure After Opcab**
*Robert Poston; *James Gammie;
*James Brown; *Richard Pierson;
*Bartley Griffith
University of Maryland, Baltimore
- 3:30pm-3:45pm **T2 Microthoracoscopic
Sympathectomy For Palmar
Hyperhidrosis**
*Daniel L. Miller; *Seth D. Force
Emory University, Atlanta, Georgia
- 3:45pm-4:00pm **Minimally Invasive Surgical
Treatment For Congestive Heart
Failure Using Cellular Therapy: One
Year Follow-up**
Amit N. Patel¹; Roberto Paganini⁴;
Daniel Brusich⁴; Luis Geffner³;
Federico Benetti³; *Harold C. Urschel²
¹*University of Pittsburgh Medical
Center, Pittsburgh, Pennsylvania;*
²*Baylor University Medical Center,
Dallas, Texas;* ³*Benetti Foundation,
Rosario, Argentina;* ⁴*Asociacion
Espanola Primera de Socorros Mutuos,
Montevideo, Uruguay*

- 4:00pm-4:15pm **C A R E Study: Real World Experience With On And Off-pump Coronary Artery Revascularization**
 *George Palmer¹; Morley A. Herbert²;
 *Syma L. Prince³;
 *Michael J. Mack²
Central Florida Regional Hospital, Sanford, Florida; ²Medical City Dallas Hospital, Dallas, Texas; ³Cardiopulmonary Research Science and Technology Institute, Dallas, Texas
- 4:15pm-4:30pm **Early Repair Of Atrio-Ventricular Canal Defect Is Safe And Effective**
 R. Ramesh Singh; T. B. Reece;
 Patrick S. Warren; *Benjamin B. Peeler; *Irving L. Kron
University of Virginia Health system, Charlottesville, Virginia
- 4:30pm-4:45pm **Management Of The Contaminated Postpneumonectomy Space: Clinical Results**
 Salmam Saheer; Mark S. Allen;
 Claude Deschamps; Frank Nichols;
 *Stephen Cassivi; Craig Johnson;
 Peter Pairolero
Mayo Clinic, Rochester, Minnesota
- 4:45pm-5:00pm **Initial Experience With Minimally Invasive Ivor Lewis Esophagectomy**
 Costas S. Bizekis; Michael S. Kent;
 James D. Luketich; Rodney J. Landreneau; Matthew J. Schuchert;
 Miguel Alvelo-Rivera; Percival O. Buenaventura
University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania
- 5:00pm-5:15pm **CPT Coding Update *Peter Smith Asbury Hall A-C, Lobby Level-Convention Center**
Educational Objective: To help attendees understand how to deal with typical and challenging issues in coding and reimbursement of cardiothoracic surgery procedures.

VIDEO SESSIONS

THURSDAY, NOVEMBER 10, 2005

8:00pm–10:00pm

Asbury Hall A-C, Lobby Level-Convention Center

Educational Objective: To provide a visual instruction from recognized authorities on how to perform new or important procedures in the field of cardiothoracic surgery. Authors are present at the meeting and discussion time is allocated for questions from the audience.

Videos presentations are limited to 10 minutes followed by five minutes of discussion.

CME Credit Available: 2.00

Moderators: *John Kern, *Marc Moon

**Thoracic Aortic Aneurysm Repair
Via Bilateral Thoracosternotomy
(clamshell) Approach**

Jayesh J. Dhareshwar; * Thoralf M.
Sundt III

Mayo Clinic, Rochester, Minnesota

**A Modification Of The Ross
Procedure To Prevent Autograft
Dilation**

Uttam Tripathy; Christopher
Komanapalli; Karl F. Welke; Irving
Shen; * Ross M. Ungerleider

*Oregon Health and Sciences
University, Portland, Oregon*

**Open Extraction Of An Incorporated
Metallic Tracheal Stent**

Albert S. Chang; Thomas Gildea;
Sudish Murthy

*Cleveland Clinic Foundation,
Cleveland, Ohio*

**First Stage Palliation For
Hypoplastic Left Heart Syndrome,
Ascending Aortic Atresia And Single
Right Coronary Artery From The
Pulmonary Artery With Subclavian
Flap Reconstruction**

* Joseph M. Forbess; Reenu S. Eapen;
William A. Scott

*University of Texas Southwestern
Medical School and Childrens Medical
Center Dallas, Dallas, Texas*

**Bilateral Sequential Lung
Transplantation For Pulmonary
Fibrosis**

Cliff K. Choong; * Bryan F. Meyers;
* G. A. Patterson

*Washington University School of
Medicine, Saint Louis, Missouri*

**Robotic Lobectomy Utilizing The Da
Vinci Fourth Arm: A New Evolution
In Minimal Invasive Thoracic
Surgery**

Kenneth A. Lee¹; Jeffrey Fineberg¹;
Walter D. Boyd¹

¹*Cleveland Clinic Florida, Weston,
Florida;* ²*Anne Arundel Medical
Center, Annapolis, Maryland*

**Second Stage Elephant Trunk
Thoracoabdominal Aortic Aneurysm
Repair in A Marfan's Patient Using a
Multi-branched Graft**

* Anthony Estrera; Riad Meada;
Tam Huynh; * Eyal Porat; Ali
Azizzadeh; * Hazim Safi

*University of Texas Houston Medical
School Memorial Hermann Hospital,
Houston, Texas*

**Bilateral Minimally Invasive
Pulmonary Vein Isolation And
Directed Partial Cardiac
Denervation For Lone Atrial
Fibrillation**

Eric W. Schneeberger; John R.
Mehall; Randall K. Wolf

*University of Cincinnati College of
Medicine, Cincinnati, Ohio*

BASIC SCIENCE FORUM

FRIDAY, NOVEMBER 11, 2005

7:00am-8:00am

Asbury Hall A-C, Lobby Level-Convention Center

Moderators: *John Calhoon, *Glenn Pennington

Educational Objective: To provide new or important information from recognized authorities about research in current cardiothoracic surgery.

CME Credits Available: 1.00

- 7:00am-7:10am **Use Of A Miniaturized Circuit And Bloodless Prime To Avoid Cerebral No-reflow Following Neonatal Cardiopulmonary Bypass**
Edward J. Hickey; Tara Karamlou; Jamie You; Tara Dixon; Chris Komanapalli; Tom Person; *Irving Shen; *Ross M. Ungerleider
Oregon Health Sciences University, Portland, Oregon
- 7:10am-7:20am **Superiority Of Using Bipolar Radiofrequency Energy For Internal Mammary Artery Harvesting**
*Thomas A. Vassiliades¹; Ned Cosgriff²; Amy Denham²; Jessica Olson²; Donald H. Maul³
¹*Emory University, Atlanta, Georgia;*
²*Tycohealthcare, Boulder, Colorado;*
³*Colorado State University, Fort Collins, Colorado*
- 7:20am-7:30am **Endothelial Nitric Oxide Synthase Is Essential For Post-pneumectomy Compensatory Vasodilatation**
Thomas S. Maxey¹; William B. Keeling²; Thomas B. Reece¹; *Irving L. Kron¹; Victor E. Laubach¹
¹*University of Virginia, Charlottesville, Virginia;* ²*University of South Florida, Tampa, Florida*
- 7:30am-7:40am **Ex-vivo Evaluation Of Human Lungs For Transplant Suitability**
*Thomas M. Egan¹; John A. Haithcock²; William A. Nicotra²; Giovanna Koukoulis³; Hidetoshi Inokawa⁴; Paul Molina¹; William K. Funkhouser¹; Burton Mattice⁵
¹*University of North Carolina at Chapel Hill, Chapel Hill, North Carolina;* ²*UNC Hospitals, Chapel*

Hill, North Carolina; ³University of Pavia, Pavia, , Italy; ⁴University of Okayama, Okayama, , Japan; ⁵Carolina Donor Services, Durham, North Carolina

7:40am-7:50am

Lung Reperfusion Injury Can Be Modified By Ventilation And Perfusion Techniques

R. Ramesh Singh; Peter I. Ellman; Patrick S. Warren; Victor E. Laubach; *Irving L. Kron; *Curtis G. Tribble
University of Virginia Health System, Charlottesville, Virginia

7:50am-8:00am

Trans - Apical Aortic Valve Implantation : An Animal Feasibility Study

*Todd M. Dewey¹; Thomas Walther²; Mirko Doss³; David Brown¹; *William H. Ryan¹; Gerhard Wimmer-Greinecker³; Stefan Wildhirt⁴; Rainer Hambrecht²; Friedrich W. Mohr²; *Michael J. Mack¹

¹Cardiopulmonary Research Science and Technology Institute, Dallas, Texas; ²Heart Center Leipzig, Leipzig, Germany; ³University of Frankfurt, Frankfurt, Germany; ⁴German Heart Center Munich, Munich, Germany

2ND SCIENTIFIC SESSION SESSION A

FRIDAY, NOVEMBER 11, 2005

8:00am - 10:00am

Asbury Hall A-C, Lobby Level-Convention Center

Educational Objective: To provide new or important information from recognized authorities about the current practice of cardiothoracic surgery.

Speakers are limited to seven minutes for their presentation followed by seven minutes of discussion.

CME Credit Available: 2.00

Moderators: *David Harpole, *Dan Miller

- 8:00am-8:15am **Results After Reoperation For Failed Antireflux Procedures In The Laparoscopic Era**
Galen A. Ohnmacht; Claude Deschamps; *Stephen D. Cassivi; Francis C. Nichols III; Mark S. Allen; Cathy D. Schleck; Peter C. Pairolero
Mayo Clinic College of Medicine, Rochester, Minnesota
- 8:15am-8:30am **Short And Long Term Results Of Triple Valve Surgery In The Modern Era.**
Bahaaldin Alsoufi; Vivek Rao; Manjula Maganti; Christopher M. Feindel; Hugh E. Scully; Tirone E. David
Toronto General Hospital and The University Of Toronto, Toronto, Ontario, Canada
- 8:30am-8:45am **Adult ECMO: Improved Results with a Multidisciplinary Team Approach**
*Arthur J. Crumbley; Joel B. Cochran; Alicia N. Sievert; *John S. Ikonomidis; Joseph J. Sestino
Medical University of South Carolina, Charleston, South Carolina
- 8:45am-9:00am **Atrial Fibrillation Following Coronary Artery Bypass Surgery: Preliminary Results Of A Predictive Risk Algorithm**
*Mitchell J. Magee¹; Morley A. Herbert¹; *Todd M. Dewey¹; *James R. Edgerton¹; *William H. Ryan²; *Michael J. Mack¹
¹Medical City Dallas Hospital, Dallas,

- Texas; ²Presbyterian Hospital of Dallas, Dallas, Texas
- 9:00am-9:15am **Short And Intermediate- Term Comparison Of Aortic Root Replacement With St. Jude Mechanical Conduits And Aortic Allografts**
 Brian Lima; G. C. Hughes; Anthony Lemaire; James Jagers; *Donald D. Glower; *Walter G. Wolfe
Duke University Medical Center, Durham, North Carolina
- 9:15am-9:30am **Univentricular Heart With Excessive Pulmonary Blood Flow: results Following Pulmonary Artery Banding And Damus-kaye Stansel Operation**
 *Andrew C. Fiore¹; Mark W. Turrentine²; Palaniswamy ViJay²; Mark Rodefeld²; * John W. Brown²
¹Saint Louis University Health Sciences Center, St. Louis, Missouri; ²Indiana University, Indianapolis, Indiana
- 9:30am-9:45am **Cardiac Interventions Performed Either Before Or During Lung Transplantation Does Not Increase Mortality In Selected Patients**
 *Scott B. Johnson; Anna Allred; *Edward Y. Sako; Luis F. Angel; *Clinton E. Baisden; *John H. Calhoon
University of Texas Health Science Center, San Antonio, Texas
- 9:45am-10:00am **Outcomes After Late Reoperation In Patients With Repaired Tetralogy Of Fallot: The Impact Of Arrhythmia And Arrhythmia Surgery**
 Tara Karamlou¹; Brian W. McCrindle¹; Louise Harris²; Eugene Downar²; Gary D. Webb²; Jack M. Colman²; Glen S. Van Arsdell¹; William G. Williams¹
¹Hospital for Sick Children, Toronto, Ontario, Canada; ²Toronto General Hospital, Toronto, Ontario, Canada
- 10:00am - 10:30am **Break- Visit Exhibits and View Scientific Posters**
Grand Harbor Ballroom South, Lobby Level

SPEAKER SESSIONS

FRIDAY, NOVEMBER 11, 2005

10:30am-12:00pm

Asbury Hall A-C, Lobby Level-Convention Center

Educational Objective: To provide new or relevant information from recognized authorities about current or future trends in cardiothoracic surgery.

CME Credit Available: 1.50

- 10:30am - 11:10am **President's Invited Lecturer:** Tirone David, Immediate Past President, AATS "Surgical Creativity" - Introduction: Irving Kron
- 11:10am - 11:20am **Kent Trinkle Education Lectureship:** Neal Kon, Wake Forest University - Introduction: Irving Kron
- 11:20am - 12:00am **Presidential Address:** Irving Kron - Introduction: Joseph Coselli
- 12:00am - 1:30pm **Attendee Luncheon**
Yacht Club Marina-Boardwalk

MODERATED POSTER PRESENTATIONS

FRIDAY, NOVEMBER 11, 2004

1:30pm-2:30pm

Asbury Hall A-C, Lobby Level-Convention Center

Educational Objective: To provide new or important information from recognized authorities about the current practice of cardiothoracic surgery.

Poster Presentations are limited to six minutes.

CME Credit Available: 1.0

Moderators: *Clifford Van Meter, *Walter Merrill

- 1:30pm-1:36pm **Establishing Institutional Value: An Assessment Of The General Thoracic Surgery Outpatient Service**
*David R. Jones; Ann B. Vaughters;
*Thomas M. Daniel; K. R. Shen;
Janet L. Heinzmann
University of Virginia, Charlottesville, Virginia
- 1:36pm-1:42pm **Surgical Results Of Arterial Switch Operation For Taussig-Bing Anomaly: Is Position Of The Great Arteries A Risk Factor?**
*John W. Brown¹; Mark Ruzmetov¹;
Palaniswamy Vijay¹; *Andrew C.
Fiore²; Mark D. Rodefeld¹; Mark W.
Turrentine¹

¹Indiana University School of Medicine, Indianapolis, Indiana; ²St. Louis University School of Medicine, St. Louis, Missouri

1:42pm-1:48pm

Magnetic Resonance Spectroscopy Provides A Noninvasive Assessment Of Neurocognitive Dysfunction And The Effects Of Neuroprotective Agents Following Hypothermic Circulatory Arrest

Christopher J. Barreiro; Jason A. Williams; Torin P. Fitton; Mary S. Lange; Mary E. Blue; Kratz E. Lisa; Peter B. Barker; Mahaveer Degaonkar; *Vincent L. Gott; Juan C. Troncoso; Michael V. Johnston; *William A. Baumgartner
The Johns Hopkins Medical Institutions, Baltimore, Maryland

1:48pm-1:54pm

Pneumonectomy Following High Dose Radiotherapy And Concurrent Chemotherapy For The Treatment Of Advanced Non-small Cell Lung Cancer

Benedict D. Daly; Hiran C. Fernando; Ara Ketchedjian; Donna M. Morelli; Curtis J. Hunter; Richard J. Shemin
Boston Medical Center, Boston, Massachusetts

1:54pm-2:00pm

Subclavian Flap Aortoplasty: Still A Safe, Reproducible, And Effective Treatment For Infant Coarctation

Christopher J. Barreiro; Trevor A. Ellison; Jason A. Williams; Megan L. Durr; Raafeh A. Waseem; *Duke E. Cameron; *Luca A. Vricella
The Johns Hopkins Medical Institutions, Baltimore, Maryland

2:00pm-2:06pm

Lung Cancer Staging: A Case For A New T Definition

* Charles R. Mulligan
Walter Reed Army Medical Center, Washington, DC

2:06pm-2:12pm

Factors Affecting Survival After Pulmonary Metastasectomy For Gynecological Malignancies

Jose M. Clavero; Claude Deschamps; *Stephen D. Cassivi; Mark S. Allen; Francis C. Nichols; Brigitte A. Barrette; Peter C. Pairolero

*Mayo Clinic College of Medicine,
Rochester, Minnesota*

2:12pm-2:18pm

**Inhibition Of Retinoblastoma Tumor
Suppressor Activity By RNA
Interference In Lung Cancer Lines
Deregulates Growth**

Michael F. Reed; William A.
Zagorski; * John A. Howington; Erik
S. Knudsen

*University of Cincinnati College of
Medicine, Cincinnati, Ohio*

2:18pm-2:24pm

**Is Caspase-activation Always Bad
During Ischemia/reperfusion? The
Role Of Opioids**

Matthew A. Romano; Elisabeth M.
Seymour; Shu-Yung J. Wu; * Steven
F. Bolling

*University of Michigan, Ann Arbor,
Michigan*

**2ND SCIENTIFIC SESSION
SESSION B**

FRIDAY, NOVEMBER 11, 2005

2:30pm-3:30pm

Asbury Hall A-C, Lobby Level-Convention Center

Educational Objective: To provide new or important information from recognized authorities about the current practice of cardiothoracic surgery.

Speakers are limited to seven minutes for their presentation followed by seven minutes of discussion.

CME Credit Available: 1.00

Moderators: *Ross Ungerleider, *Michael Mack

2:30pm-2:45pm

**Delayed Paraplegia Following
Thoracoabdominal Aortic Aneurysm
Repair**

*Joseph S. Coselli; John Bozinovski;
*Scott A. LeMaire

*Texas Heart Institute at St Lukes
Episcopal Hospital, Houston, Texas*

2:45pm-3:00pm

**Coronary Insufficiency After Aortic
Root Replacement: Risk Factors And
Solutions**

*Edward H. Kincaid; *A. R. Cordell;
*John W. Hammon; Sandy M. Adair;
*Neal D. Kon

Wake Forest University School of

Medicine, Winston-Salem, North Carolina

3:00pm-3:15pm

Ethical Process In Publication Of Human Research

*Mark I. Block²; Lev M. Khitin¹; *Robert M. Sade¹

¹Medical University of South Carolina, Charleston, South Carolina; ²Medical Regional Cancer Center, Hollywood, Florida

3:15pm-3:30pm

Outcomes Of Delayed Chest Closure Follow Bilateral Lung Transplantation

*Seth D. Force; * Daniel L. Miller; Allan Ramirez; David Vega; Clint Lawrence

Emory University, Atlanta, Georgia

3:30pm - 4:00pm

**Break- Visit Exhibits and View Scientific Posters
Grand Harbor Ballroom South, Lobby Level**

**2ND SCIENTIFIC SESSION
SESSION C**

FRIDAY, NOVEMBER 11, 2005

4:00pm-5:00pm

Asbury Hall A-C, Lobby Level-Convention Center

Educational Objective: To provide new or important information from recognized authorities about the current practice of cardiothoracic surgery.

Speakers are limited to seven minutes for their presentation followed by seven minutes of discussion.

CME Credit Available: 1.00

Moderators: *Ross Ungerleider, *Michael Mack

4:00pm-4:15pm

Thoracoscopic Lobectomy: a Safe And Effective Strategy For Patients Receiving Induction Therapy For Non-small Cell Lung Cancer

Rebecca P. Petersen; *Eric Toloza; William R. Burfeind; *David H. Harpole; Steven I. Hanish; *Thomas A. D'Amico

Duke University Medical Center, Durham, North Carolina

- 4:15pm-4:30pm **Safety Of Left Ventricular Apical Cannulation For Left Ventricular Assist Device In Massive Acute Anteroapical Myocardial Infarction**
Bradley G. Leshnower¹; Thomas G. Gleason¹; Mary Lou O'Hara¹; Alberto Pochettino¹; Y J. Woo¹; Rohinton J. Morris¹; * Timothy J. Gardner²; Michael A. Acker¹
¹University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania;
²Northwestern University Feinberg School of Medicine, Chicago, Illinois
- 4:30pm-4:45pm **The Maxsuv On Fdg-pet Of Mediastinal Lymph Nodes Predicts Metastatic Non-small Cell Lung Cancer**
*Robert J. Cerfolio; Ayesha S. Bryant; Buddhiwardan Ojha
University of Alabama at Birmingham, Birmingham, Alabama
- 4:45pm-5:00pm **Robotic Assisted Coronary Artery Bypass On A Beating Heart: Initial Experience And Implications For The Future**
*William F. Turner, Jr.
Center For Advanced Surgery And Technology At Trinity Mother Frances Health System, Tyler, Texas
- 5:00pm-6:00pm **STSA Business Meeting-STSA Members only**
Asbury Hall A-C, Lobby Level-Convention Center
- 6:30pm-8:30pm **President's Mixer**
International Gateway, Epcot
- 8:30pm-9:30pm **Dessert Reception**
French Island (5 minute walk from International Gateway)

ETHICS FORUM

SATURDAY, NOVEMBER 12, 2005

7:15am-8:15am

Asbury Hall A-C, Lobby Level-Convention Center

Moderator: * Robert Sade

Surgical Innovation: Too Dangerous to Remain Unregulated?

Haavi Morreim, PhD, University of Tennessee Health Science Center

*Michael Mack, MD, Cardiopulmonary Research Science and Technical Institute

Educational Objective: To provide an ethical viewpoint in the area of case selection related to factors surgeons encounter on a daily basis.

CME Credits Available: 1.00

3RD SCIENTIFIC SESSION SESSION A

SATURDAY, NOVEMBER 12, 2005

8:30am-9:45am

Asbury Hall A-C, Lobby Level-Convention Center

Educational Objective: To provide new or important information from recognized authorities about the current practice of cardiothoracic surgery.

Speakers are limited to seven minutes for their presentation followed by seven minutes of discussion.

CME Credit Available: 1.25

Moderators: *John Calhoun, *Glenn Pennington

8:30am-8:45am

Improved Neurologic Outcomes With A Beating Heart Coronary Artery Bypass Program

*Timothy H. Trotter; Michael Gibson; Mary Lane
University of Oklahoma College of Medicine, Oklahoma City, Oklahoma

8:45am-9:00am

Resection Of The Descending Thoracic Aorta: Outcomes Following Use Of Hypothermic Circulatory Arrest

Himanshu J. Patel; Michael S. Shillingford; Scott Mihalik;
* Steven F. Bolling; * Richard L. Prager; Mary C. Proctor; G. M. Deeb
University of Michigan Hospitals, Ann Arbor, Michigan

- 9:00am-9:15am **Left Atrial Reduction Enhances Outcomes Of Maze Procedure For Chronic Atrial Fibrillation During Concomitant Mitral Surgery**
 * Vinay Badhwar; Gail Davenport;
 * J. C. Pruitt, Jr.; Robert R. Lazzara;
 George Ebra; * Gary H. Dworkin
Cardiac Surgical Associates MAZE Investigators, Tampa-St. Petersburg, Florida
- 9:15am-9:30am **Stereotactic Radio Surgery (SRS) For The Treatment Of Lung Neoplasm**
 *Arjun Pennathur; Steven Burton;
 James D. Luketich; Ghulam Abbas;
 Hiran C. Fernando; Dwight Heron;
 Jill Ireland; Rodney J. Landreneau;
 Neil A. Christie
University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania
- 9:30am-9:45am **Thoracic Aorta False Aneurysm. What Surgical Strategy Should Be Recommended?**
 Mauricio A. Villavicencio; Thomas A. Orszulak; Richard C. Daly; Joseph A. Dearani; Christopher G. McGregor; Charles J. Mullany; Francisco J. Puga;
 * Thoralf M. Sundt; Kenton J. Zehr;
 * Hartzell V. Schaff
Mayo Clinic, Rochester, Minnesota
- 9:45am - 10:15am **Break- Visit Exhibits and View Scientific Posters**
Grand Harbor Ballroom South, Lobby Level

3RD SCIENTIFIC SESSION SESSION B

SATURDAY, NOVEMBER 12, 2005

10:15am-11:30am

Asbury Hall A-C, Lobby Level-Convention Center

Educational Objective: To provide new or important information from recognized authorities about the current practice of cardiothoracic surgery.

Speakers are limited to seven minutes for their presentation followed by seven minutes of discussion.

CME Credit Available: 1.25

Moderators: *John Calhoun, *Glenn Pennington

- | | |
|-----------------|--|
| 10:15am-10:30am | <p>Impact Of Radial Artery Use On Midterm Symptom Recurrence And Adverse Cardiac Events Following Off Pump Coronary Artery Bypass Graft Surgery</p> <p>Ahmet T. Gurbuz¹; Ali C. Vuran²; Ayhan A. Zia¹; Haiyan Cui¹; Aydin Aytac²</p> <p><i>¹Tucson Heart Hospital, Tucson, Arizona; ²Anadolu Saglik Merkezi, Gebze, Kocaeli, Turkey</i></p> |
| 10:30am-10:45am | <p>Heart Transplantation In Infants Ten Years Ago-Where Are They Now?</p> <p>* Charles B. Huddleston; * Sanjiv Gandhi¹; Charles E. Canter</p> <p><i>Washington University School of Medicine; St Louis Childrens Hospital, St. Louis, Missouri</i></p> |
| 10:45am-11:00am | <p>Pexelizumab Reduced Mortality In Multiple Risk Factor Patients With Extended Aortic Cross Clamp Time: A Subanalysis Of The Primo Cabg Trial</p> <p>* Peter K. Smith¹; Michel Carrier²; John C. Chen³; * Axel Haverich⁴; Jerrold H. Levy⁵; Phillippe Menache⁹; Stanton K. Shernan⁶; Frans Van De Werf⁷; Peter X. Adams⁸; Thomas G. Todaro¹⁰; Edward D. Verrier¹¹</p> <p><i>¹Duke University Medical Center, Durham, North Carolina; ²Montreal Heart Institute, Montreal, Quebec, Canada; ³University of Hawaii Kaiser, Honolulu, Hawaii; ⁴Hannover Medical School, Hannover, Germany; ⁵Emory Medical School, Atlanta,</i></p> |

Georgia; ⁶Brigham and Womens Hospital, Boston, Massachusetts; ⁷Leuven Coordinating Center, Leuven, Belgium; ⁸Alexion Pharmaceuticals, Cheshire, Connecticut; ⁹Hosp European George Pompidou, Paris, France; ¹⁰Procter and Gamble Pharmaceuticals, Mason, Ohio; ¹¹University of Washington School of Medicine, Seattle, Washington

11:00am-11:15am

Radioguided Detection Of Lymph Node Metastasis In Non-small Cell Lung Cancer

Chummy Nwogu; Gabor Fischer; Michal Glinianski; DongFeng Tan; Dominick Lamonica; *Todd Demmy Roswell Park Cancer Institute State University of New York, Buffalo, New York

11:15am-11:30am

Early Steroid Withdrawal Improves Late Survival After Heart Transplantation: 14 Year Results

David Rosenbaum; Rehal Bhojani; Patricia Kaiser; Dan Meyer; Michael Jessen; *Michael Wait; Clyde Yancy; *W. Steves Ring; *J. Michael DiMaio UT Southwestern Medical Center, Dallas, Texas

PROGRAM ADJOURNS

11:45am - 6:00pm

Tennis & Golf Tournaments

(See page 11 for details)

ANNUAL DINNER DANCE/RECEPTION & BANQUET

7:00 pm - 8:00 pm

Reception: Grand Harbor Ballroom, Salons 5 - 7, Lobby Level, Convention Center

8:00 pm - 11:00 pm

Dinner (Black Tie): Grand Harbor Ballroom, North, Lobby Level, Convention Center

SCIENTIFIC PAPERS

Educational Objective: To provide new or important information from recognized authorities about the current practice of cardiothoracic surgery.

1st Scientific Session: Session A

1. Longterm Results Of The Endoscopic Atraumatic Coronary Artery Bypass

Unless identified below, authors/speakers have no material financial or other relationship to disclose that may pose a conflict of interest. Unless listed below, authors/speakers will not discuss the use of a device, product, or drug that is not FDA-approved, or an off-label use of approved devices, products or drugs.

*Thomas A. Vassiliades¹, *V Seenu Reddy¹, Vinod Thourani¹,
*John D Puskas¹, *Robert A Guyton¹

¹Emory University, Atlanta, GA, United States

Objectives: The longterm clinical and angiographic outcome of the endoscopic atraumatic coronary artery bypass (endoACAB) operation is reported.

Methods: From 1996 to 2005, 607 consecutive patients (age range, 29-92 years, mean 62.7 ± 11.4 years) underwent an endoACAB consisting of: (1) thoracoscopic internal mammary artery (IMA) harvesting, (2) a 5-cm incision via the thoracic soft tissue (non-rib spreading), (3) cardiac positioning and stabilization under the incision using port-based instrumentation, and (4) off-pump, direct-vision, hand-sewn anastomoses to the left anterior descending (LAD) and/or diagonal coronary arteries. Clinical follow-up was 100%. A total of 380 patients (62.6%) had coronary angiography at a mean of 19.4 ± 17.1 months.

Results: The endoACAB was performed for single-vessel disease in 454 patients (74.8%) or for multivessel disease as a multi-graft endoACAB or as part of a hybrid procedure with stenting in 153 patients (25.2%). All patients received an IMA graft to the LAD. A total of 721 anastomoses (mean 1.19 anastomoses/patient) were constructed using 636 conduits. The mean thoracoscopic IMA harvest time was 41.4 ± 3.1 minutes and total operating time was 2.7 ± 0.6 hours. The 30-day clinical events were death 0.99% (6/607), myocardial infarction 0.49% (3/607), stroke 0.16% (1/607), infection 0.49% (3/607), conversion to sternotomy/thoracotomy 3.6% (22/607) and blood transfusion 11.5% (70/607). Patency scores for the LIMA to LAD+/-diagonal were FitzGibbon A of 95.7% (335/350) and FitzGibbon A + B of 99.1% (347/350). The three-year freedom from myocardial infarction was 96.8% (95%CI: 93.9%-99.7%) and freedom from LAD re-intervention was 97.8% (95%CI: 95.3-100%).

Conclusions: The longterm clinical outcome and patency of grafting the LAD with the IMA off pump through a non-rib spreading incision compares well with reported data of arrested-heart grafting through a sternotomy. The endoACAB offers a less invasive yet durable therapy for patients with LAD disease as a stand-alone procedure or as part of a hybrid procedure.

NOTES

2. Pediatric Cardiac Surgery Outcomes: Is The Bar Higher Than We Thought?

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Karl F Welke¹, Irving Shen¹, *Ross M Ungerleider¹

¹*Oregon Health and Science University, Portland, Oregon, United States*

Objectives: To evaluate whether published and widely used benchmarks for pediatric cardiac surgery (RACHS-1; Jenkins KJ et al J Thorac Cardiovasc Surg 2002; 123:110-118) accurately reflect current expectations. Our hypotheses are that: 1) mortality rates at high quality pediatric cardiac programs are lower than published national benchmarks despite 2) a change in case mix with a shift away from low complexity cases.

Methods: We requested data for all pediatric cardiac surgical procedures performed between 2001-2004 at 29 Congenital Heart Surgeon's Society (CHSS) member institutions (using CHSS as a surrogate for recognized high quality). Procedures were categorized by RACHS-1 category and mortality rates for each category were determined.

Results: We received data for 14,278 procedures from 9 institutions. Mean annual hospital case volume was 396 ± 213 (range 217-801). 10,584 cases (74%) could be placed into RACHS-1 categories. Overall mortality was 2.7% and was most related to case mix. The change in case mix between the Jenkins 2002 analysis and the current CHSS analysis by RACHS-1 category was 1) 29.5%--16.3%, 2) 10.2%--35%, 3) 46.6%--35%, 4) 8.4%--7.3%, 5) 0.1%--0.2% and 6) 5.1--4.9%. The difference in mortality by RACHS-1 category was (Jenkins 2002--CHSS) 1) 0.4%--0.5%, 2) 3.8%--1.0%, 3) 8.5%--2.6%, 4) 19.4-7.6%, 5) N/A and 6) 47.7-17.2%. There was no association between hospital surgical volume and mortality.

Conclusions: This outcomes "footprint" suggests that we could hold ourselves accountable to higher standards than those reflected by some published benchmarks. Mortality rates declined, despite a shift away from category 1 cases (e.g. PDAs, ASDs), which are now treated with interventional techniques. The lack of association between hospital case volume and mortality suggests that other factors determine outcomes at high quality institutions. In addition to continually validating our expectations for treatment, future research needs to identify these factors by understanding the system of care and identifying process measures that influence outcomes.

NOTES

3. The Distribution And Likelihood Of Lymph Nodes Metastases Based On The Lobar Location Of Primary NSCLC

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*Robert James Cerfolio¹, Ayesha S Bryant¹

¹University of Alabama at Birmingham, Birmingham, AL, United States

Objectives: PET and CT scans are often inaccurate for mediastinal and hilar lymph node involvement. Thus the likelihood of having N2 and N1 disease based on the location of a primary non-small cell lung cancer (NSCLC) may help guide staging tests

Methods: A retrospective review of a prospective database of consecutive patients with NSCLC who underwent lymph node biopsy and/or complete resection with thoracic lymphadenectomy by one surgeon

Results: There were 954 patients. 372 patients had RUL cancers and 27% of these patients had N2 disease. It was most commonly in the 4R (23%). 72 had RML cancers and 16% had N2 disease most commonly in the 4R (8%) and 7 nodes (6%). 151 had RLL cancers and 30% had N2 disease most commonly in the 4R (15%) and 7 nodes (14%). 248 had LUL cancers and 21% had N2 disease most commonly in the 6 nodes (16%). 111 had LLL cancers and 21% had N2 disease most commonly in the 7 (8%). Patients with adenocarcinoma were more likely to have N2 ($p<0.001$) and N1 ($p=0.039$) disease than those with squamous cell. Patients with RML cancer were more likely to have N1 ($p=0.014$). Skip metastases were most common with LUL going to the 6 node. Involvement of multiple N2 nodes was most common in RUL cancers. Patients with right-sided cancers were more likely to have N2 (26%) disease than those with left-sided lesions (20%) ($p=0.02$).

Conclusions: Patients with right-sided NSCLC are more likely to have N2 disease than those with left-sided lesions, especially if the primary is in the RU or RLL and for those with adenocarcinomas. Video-assisted biopsy of the 5 and 6 nodes should be considered for LUL lesions, mediastinoscopy for RUL and esophageal ultra-sound with fine needle aspiration for RLL, LLL and RML NSCLC.

NOTES

4. LV Dysfunction In Atrial Fibrillation: Restoration Of Sinus Rhythm By The Cox-maze Procedure Significantly Improves Systolic Function And Functional Status

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John Michael Stulak¹, Joseph A Dearani¹, Richard C Daly¹, Kenton J Zehr¹, *Thoralf M Sundt, III¹, *Hartzell V Schaff¹

¹*Mayo Clinic College of Medicine, Rochester, MN, United States*

Objectives: Atrial fibrillation (AF) with rapid, uncontrolled ventricular response may lead to left ventricular (LV) dysfunction, and conversion to sinus rhythm with control of heart rate can improve LV ejection fraction (EF). Little is known about the effects of the Cox-maze procedure on this form of tachycardia-induced cardiomyopathy.

Methods: 443 pt underwent the Cox-maze procedure from 1993 to 2002. Ninety-nine pt had AF without associated valvular or congenital heart disease, and 37 pt (37%) had decreased LV function (EF<35% in 11 pt (severe), EF 36-45% in 8 pt (moderate), and EF 46-55% in 18 pt (mild)). Ages of these 37 pt (34 male) ranged from 35-72 yrs (mean 55 years).

Results: AF was present for 3 months to 19 years (mean 58 months) preoperatively, and 24 pt (65%) exhibited symptoms of heart failure. Preoperative EF ranged from 25 to 55% (mean 44%). At last follow-up (mean, 42 months), the Cox-maze procedure eliminated AF in all but 1 pt, and the greatest improvement was observed in pt with the most severe preoperative impairment (31% to 53%, p=0.01, preop vs. follow-up) and pt with preoperative chronic AF (43% to 55%, p< 0.05 preop vs. follow-up). This improvement was observed immediately postoperatively (before dismissal) and was sustained at last follow-up. Further, improvement in LV function correlated with enhancement of functional status.

Conclusions: In some patients, AF may be the cause rather than the consequence of LV dysfunction. Importantly, systolic function and functional status can be significantly improved with the restoration of sinus rhythm by the Cox-maze procedure.

NOTES

5. Axillary Cannulation For Proximal Aortic Surgery Is As Safe In The Emergent Setting As In Elective Cases

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Jason M. Budde¹, Daniel L Serna, Jr.¹, Mark Steele¹, *Edward P Chen¹

¹Carlyle Fraser Heart Center of Emory University School of Medicine, Atlanta, Georgia, United States

Objectives: The use of right axillary artery cannulation and selective cerebral perfusion (SCP) for proximal aortic surgery has become more widely accepted. Potential pitfalls of SCP include malperfusion due to peripheral dissection, and use of valuable time in emergent situations. We retrospectively examined our use of SCP, specifically in the emergent setting, for outcomes.

Methods: Between January 2004 and April 2005, SCP via right axillary cannulation with a side graft (42/49, 86%), or standard perfusion, with or without circulatory arrest (St) (7/49, 14%), was performed. Mean followup was 6.2±0.60 months. Thirty-six percent (15/42) of SCP cases were emergent Stanford type A dissection or intramural hematoma cases, including 3/42 (7.1%) experiencing pericardial tamponade, versus 28% (2/7) emergent cases, and no tamponade, in the St group. Demographics and outcomes were compared.

Results: SCP was used in 15/17 (88.2%) of all emergent cases, with no unsuccessful attempts, and no peripheral arterial dissections encountered. In the 2 emergent St patients, deep hypothermic arrest was used via femoral vessel cannulation. With SCP flows maintained at 16.3±0.68 cc/kg/min. for an average of 25.9±1.5 min., SCP bypass time (179±8.9 min) was shorter than in St patients (228±23 min, p<0.05). SCP patients had shorter hospital stays (7.63±1.7 versus 14.2±4.6 days, p<0.05), with no incidences of temporary or permanent neurologic dysfunction in either group. Hospital mortality in emergent SCP cases (2/15, 13.3%) was not statistically different than either St emergent cases (0/2) or elective SCP cases (2/27, 7.4%, p=NS). All three SCP patients with preoperative tamponade survived without complication. Overall in SCP patients, redo sternotomy and higher minimum cooling temperatures were risk factors for death (p<0.05, Fisher's exact), but emergent status was not.

Conclusions: The use of axillary cannulation and SCP is safe and expedient in the emergent setting, with acceptable mortality rates, and no increased neurologic or peripheral vascular risk.

NOTES

6. Preoperative Ejection Fraction Does Not Predict Mortality Or Increased Length Of Stay With Left Ventricular Restoration

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Joshua D. Adams¹, Carlos A. Tache Leon¹, *Benjamin B. Peeler¹, *John A. Kern¹, *Curtis G. Tribble¹, *Irving L. Kron¹

¹*University of Virginia Healthsystem, Charlottesville, Virginia, United States*

Objectives: Ischemic hearts have been treated surgically with coronary artery bypass grafting and in cases with no viability, with heart transplant. Left ventricular restoration using the Dor technique has demonstrated improved outcomes in patients with ischemic, akinetic ventricles. Our hypothesis was that even marked reduction in preoperative cardiac function (EF<25%) would not correlate with worse outcomes since the ventricle would be reshaped to improve function.

Methods: A retrospective analysis was performed on all patients who had undergone ventricular restoration utilizing the Dor procedure from January, 1996 through January, 2005. Patients with preoperative ejection fractions below 25 percent and those with ejection fractions 25 percent or greater were compared. Mortality, length of stay(LOS), and need for intra-aortic balloon pump(IABP) were specifically analyzed.

Results: Eighty-five patients were included in the study. Twenty-nine patients had preoperative ejection fractions below twenty-five percent(8%-25%) with fifty-six patients' ejection fraction twenty-five percent or greater(25%-45%). When comparing these cohorts respectively, mortality was 0% versus 3%(p=NS), LOS was 7 days versus 9 days(p=NS), and need for IABP was 25% versus 6%(p<0.05). Overall, mortality of the entire cohort was 2%(2/85), average length of stay was 8 days, and need for IABP was 12%(9/78).

Conclusions: Ventricular restoration utilizing the Dor technique is a safe procedure. Marked reduction in ejection fraction is not a contraindication to left ventricular restoration. It only predicts an increased utilization of IABP.

NOTES

1st Scientific Session: Session B

7. Malignant Pleural Mesothelioma: Surgical Management In 285 Patients

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Francis C. Nichols¹, Paul H. Schipper¹, Brian S. Crownhart¹, Claude Deschamps¹, Mark S. Allen¹, *Stephen D. Cassivi¹, Peter C. Pairolero¹

¹Mayo Clinic College of Medicine, Rochester, Minnesota, United States

Objectives: Malignant pleural mesothelioma (MPM) is a rare, aggressive, often deadly thoracic malignancy. Despite a rising incidence, no treatment modality is accepted as standard of care. This report analyzes the surgical results for MPM.

Methods: Retrospective single institution review of all patients having surgery for MPM from January 1985 through December 2003. Factors affecting operative mortality, morbidity, and survival were analyzed.

Results: There were 285 patients (236 men and 49 women) with a median age of 66 years (range, 26-91 years). Biopsy alone with/without talc pleurodesis(BX) was performed in 146(51%) patients, extrapleural pneumonectomy(EP) 73(26%), subtotal parietal pleurectomy(SP) 34(12%), exploration without resection(EX) 22(8%), and total pleurectomy(TP) in 10(3%). Histopathology was epithelial-type in 134(47%) patients, biphasic or sarcomatous in 39(14%) each, desmoplastic 30(10%), and unclassified in 43(15%). Stage was Ia in 20(7%) patients, Ib 82(29%), II 24(8%), III 75(26%), IV 60(21%), and unknown in 24(8%). Chemotherapy was used in 101(35.4%) patients, radiation 17(6%), and both in 42(14.7%). Thirty-day mortality for patients undergoing EP, TP, SP, EX, and BX was 8.2%, 0%, 2.9%, 9.1%, and 6.2% respectively (p=0.79). Following EP, major complications occurred in 51% of patients which was significantly greater than all other patients (p<.0001). Median follow-up was 304 days (range, 0-7 years). Overall median survival was 10.7 months. Median survival for EP and TP was 16.6 months compared to 9.0 months for all other procedures (p<0.0001). Kaplan-Meier survival at 1-, 2-, and 3-years following EP was 61%, 25%, and 14% respectively. Survival following EP and TP was significantly better than EX and BX (p<0.001); however, survival following EP did not differ from TP and SP (p>0.18).

Conclusions: EP can be performed with similar 30-day mortality as other procedures for MPM including biopsy alone; however, EP is associated with significant morbidity. While better than BX and EX, survival following EP appears similar to TP and SP.

NOTES

8. Aprotinin Use Reduces Early Graft Failure After Opcab

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*Robert Poston¹, *James Gammie¹, *James Brown¹, *Richard Pierson¹, *Bartley Griffith¹

¹University of Maryland, Baltimore, United States

Objectives: We have recently discovered that postoperative aspirin resistance significantly increases the risk of graft failure. In light of the recent finding that aprotinin preserves aspirin responsiveness after OPCAB, we hypothesized that this agent would reduce the risk of early graft failure in this context.

Methods: A prospective cohort study was performed in 160 OPCAB patients treated with aspirin as the sole antiplatelet agent during the study. Full dose aprotinin was used in 54 patients due to surgeon preference. Arterial grafts were used in each patient but were not included in the analysis. Veins (n=309) were harvested endoscopically (91%) and prepared for grafting using standard techniques. Aspirin resistance was determined at baseline, immediately after surgery, and on postoperative days 1 and 3 according using modified thrombelastography, whole blood aggregometry, and flow cytometry and by a postoperative increase in 11-dehydro TXB2 levels, a prostaglandin metabolite that is typically suppressed by aspirin. Early graft patency was assessed on day 5 using multichannel CT angiography (CTA).

Results: Early graft failure was demonstrated in 15 out of 301 vein grafts evaluated by CTA (5%). Aspirin resistance developed in 15% of patients treated with an intraoperative course of aprotinin vs. 42% of untreated patients. The incidence of early graft failure was significantly reduced in those with preserved aspirin responsiveness (1 vs. 9%, p<0.01) and with the use of aprotinin (2 vs. 7%, p<0.05).

Conclusions: Although prior studies in on-pump CABG have suggested a prothrombotic effect, our data indicate that aprotinin use was associated with a reduction in graft thrombosis after OPCAB. A relative improvement in perioperative platelet function after OPCAB may enhance the clinical relevance of maintaining a normal postoperative aspirin response.

Relationship Disclosure (Robert Poston): Bayer Pharmaceutical - grant support

Regulatory Disclosure (Robert Poston): Aprotinin use in OPCAB

NOTES

9. T2 Microthoracoscopic Sympathectomy For Palmar Hyperhidrosis

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*Daniel L Miller¹, *Seth D Force¹

¹Emory University, Atlanta, GA, United States

Objectives: Sympathectomy for palmar hyperhidrosis (PH) is extremely successful when patients become refractory to conservative medical treatment. However, a significant percentage of patients develop severe compensatory hyperhidrosis (CH). Controversy exists as to which sympathectomy level (T2 or T3) should be performed to ensure the greatest benefit with the least risk of CH.

Methods: We reviewed the records of all 205 patients who underwent sympathectomy for hyperhidrosis at our institution from April 2002 through March 2005. Fifty patients (24%) underwent an outpatient microthoracoscopic sympathectomy (MTS) of a single level (T2) for PH. Operative reports, medical records and clinical charts were reviewed to determine incidence of CH and success of a single level (T2) MTS.

Results: There were 41 women (82%) and 9 men. Median age was 22 years (range, 14 - 62 years). MTS technique consisted of single lumen endotracheal tube, single bilateral access incisions (4mm), 3 mm 30 degree thoracoscope, CO2 insufflation, electrocautery nerve division, and no chest drainage. Median operating time was 24 minutes (range, 14 - 50 mins). Sympathectomy consisted of dividing the sympathetic chain at T2 and any accessory nerves if present. Anatomically, 19 patients (38%) had accessory nerves, right-sided in 11, left-sided in 5, and bilateral in 3. Two patients (4%) had a chest tube (10Fr) placed at the time of MTS because of lysis of adhesions. All patients were discharged the day of surgery. Median follow-up was 15 months (range, 1 - 36 months). CH developed in six patients (12%); four during rest and two while exercising. Successful MTS was achieved in 99 percent of the patient's hands without recurrence. A single patient required reoperation for recurrent sweating of the left hand.

Conclusions: T2 microthoracoscopic sympathectomy for PH was associated with a high success rate and minimal CH. T2 sympathectomy should be the preferred level for correction of PH.

NOTES

10. Minimally Invasive Surgical Treatment For Congestive Heart Failure Using Cellular Therapy: One Year Follow-up

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Amit N. Patel¹, Roberto Paganini⁴, Daniel Brusich⁴, Luis Geffner³, Federico Benetti³, *Harold C. Urschel²

¹University of Pittsburgh Medical Center, Pittsburgh, PA, United States; ²Baylor University Medical Center, Dallas, TX, United States; ³Benetti Foundation, Rosario, Argentina; ⁴Asociacion Espanola Primera de Socorros Mutuos, Montevideo, Uruguay

Objectives: Early results of cellular therapy have been promising to treat congestive heart failure (CHF). The human experience with a novel minimally invasive epicardial technique to deploy cells was evaluated and now followed one year after therapy.

Methods: After IRB and government approval, adult autologous cellular therapy using bone marrow derived (CD34+) cells was performed in patients with NYHA Class III/IV heart failure and an ejection fraction of <35%. Preoperatively, the patients had an echocardiogram, stress thallium imaging SPECT, and a cardiac catheterization. These imaging modalities were used in identifying dysfunctional regions of heart and to guide in mapping for injection of the cells. Cells were introduced into the myocardium using a thorascopic intrapericardial approach.

Results: There were ten patients enrolled in the study. All ten patients had successful injection of cells into the myocardium. Mean preoperative ejection fraction was 27%. There were no intraoperative complications. In early post-operative follow-up there were no perioperative arrhythmias, neurological, or ischemic myocardial events. All patients were discharged home within three days. One year echocardiograms still show maintained improvement in ejection fraction range 37-45%.

Conclusions: Minimally invasive cellular therapy for the treatment of heart failure is safe and promising. Continued follow-up will be necessary to evaluate long term effects.

NOTES

11. C A R E Study: Real World Experience With ON- And Off-pump Coronary Artery Revascularization

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*George Palmer¹, Morley A. Herbert², Syma L. Prince³, *Michael J. Mack²

¹Central Florida Regional Hospital, Sanford, Florida, United States; ²Medical City Dallas Hospital, Dallas, Texas, United States; ³Cardiopulmonary Research Science and Technology Institute, Dallas, Texas, United States

Objectives: CARE is a multi-center study comparing real world experience with interventional cardiology and surgical revascularization for the treatment of coronary artery disease. Comparison of the on- and off-pump patients provides insight into the differences in resource utilization.

Methods: Prospectively collected data for 1208 consecutive patients from 8 centers treated 2/1/2004-7/31/2004 was analyzed; 577 (47.8%) operated off-pump and 631 (52.2%) on-pump. Analysis used chi-squared statistics (categorical variables) and t-tests (continuous); statistical significance required a p-value less than 0.05.

Results: Data analysis showed the two groups were comparable. The Society of Thoracic Surgeons predicted risk of mortality was the same for both groups (off-pump 2.25 ± 4.35 ; on-pump 2.56 ± 4.29 p = ns). This also serves as a surrogate marker for severity of the patient's disease. Pre-operative risk factors showed no statistical difference between groups for mean age, females, smokers, incidence of diabetes or renal failure, congestive heart failure, lung disease, myocardial infarction or cerebrovascular disease. Only the number of redos differed with 38 (6.0%) in the on-pump and 18 (3.1%) in the off-pump groups (p=0.02). The ejection fraction also differed between groups measuring $48.6 \pm 11.6\%$ on-pump and $51.0 \pm 12.6\%$ off-pump, a statistically significant difference (p=0.002) but not likely a clinically significant difference.

Pre-operative medication usage was the same in both groups (aspirin, beta-blockers, ace inhibitors, inotropes).

There was no difference in operative mortality (on-pump 1.7%; off-pump 1.9%; p=ns). On-pump procedures showed high rates of prolonged ventilation (9.8% vs 3.1% off; p<0.001), atrial fibrillation (24.2% vs 14.6% off; p<0.001), blood product usage (50.6% vs 34.2% off; p<0.001), renal failure (4.4% vs 1.7% off; p=0.007)

Length of stay was longer on-pump (7.6 ± 6.8 days) than off-pump (6.1 ± 5.2), p<0.001.

Conclusions: In this study off and on-pump patients had equal operative mortality but on-pump showed higher morbidity rates resulting in increased resource utilization and length of stay.

NOTES

12. Early Repair Of Atrio-ventricular Canal Defect Is Safe And Effective

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R. Ramesh Singh¹, T. Brett Reece¹, Patrick S. Warren¹, *Benjamin Banks Peeler¹, *Irving L. Kron¹

¹University of Virginia Health System, Charlottesville, VA, United States

Objectives: Surgical repair of complete atrioventricular canal (CAVC) defects is a well established procedure performed on young children. Our hypothesis is that with modern techniques, the current risks of CAVC repair in children less than 3 months of age and in children over 3 months of age are equal.

Methods: This was a retrospective review of 65 infants and children (age range 1 month to 15.5 years, mean 10.9 months) who underwent CAVC repair from 1990 to 2004. Twenty-six repairs (40%) were done on or before 3 months of age (Group A) and thirty-nine repairs (60%) after 3 months of age (Group B). In all patients, the ventriculoseptal defect was repaired via an individualized approach according to each patient's specific anatomy: direct suturing without a patch and/or interposition of a small pericardial patch with a running suture. The atrioventricular cleft was closed with interrupted sutures, and all atrial defects were closed with a pericardial patch. Data was analyzed using the Chi-square analysis and Fisher's Exact test.

Results: There were 3 hospital deaths (<30 days), 2 in Group A and 1 in Group B (7.7% versus 2.6% respectively, $p=0.33$). One death in Group A occurred during another non-cardiac surgery. Early reoperation (within one year of initial surgery) for residual ventriculoseptal defect and/or significant mitral regurgitation occurred in 3 patients in Group A and 4 patients in Group B (11.5% versus 10.3% respectively, $p=0.68$).

Conclusions: These results suggest that repair of CAVC defects in children 3 months of age or younger had similar outcomes when compared to those who underwent surgical repair after 3 months of age.

NOTES

13. Management Of The Contaminated Postpneumonectomy Space: Clinical Results

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Salmam Saheer¹, Mark S. Allen¹, Claude Deschamps¹, Frank C. Nichols¹, *Stephen D. Cassivi¹, Craig H. Johnson¹, Peter C. Pairolero¹

¹Mayo Clinic, Rochester, MN, United States

Objectives: To analyze the outcome of our management of the contaminated postpneumonectomy space.

Methods: Data was collected from our prospective database on 115 consecutive patients that underwent operations between June 1985 to June 2004 for a contaminated postpneumonectomy space.

Results: There were 92 men and 23 women. The median age was 63.5 (range 28.4 to 76.7). Indications for pneumonectomy were carcinoma in 82 patients and benign disease in 33. The pneumonectomy was done at our institution in 74 patients and elsewhere in 41. Right pneumonectomy was done in 81 patients and left in 34. An infection secondary to bronchopleural fistula (BPF) (group A) was present in 55 patients, an empyema without a BPF (group B) in 30 and the chest was packed open at the time of pneumonectomy (group C) in 30 patients. Management included serial operative debridements, closure of BPF (if present), reinforcement of the bronchial stump with muscle if necessary and delayed closure of the chest cavity with antibiotic solution. The bronchial stump was reinforced with muscle in 51 (93%) patients in group A, 10 (33%) in group B and 25 (83%) in group C. Operative mortality was 7.3%, 10% and 26.7% in groups A, B, and C respectively. Median follow-up was 5.4 months (range 0 to 177 months). Overall 78.3% of patients had a healed chest incision at last follow-up. Specifically, 85.5% were healed in group A, 70% in group B and 73% in group C.

Conclusions: We conclude that our strategy of surgical treatment of the contaminated postpneumonectomy space is successful in the majority of these challenging patients.

NOTES

14. Initial Experience With Minimally Invasive Ivor Lewis Esophagectomy

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Costas S. Bizekis¹, Michael S. Kent¹, James D. Luketich¹, Rodney J. Landreneau¹, Matthew J. Schuchert¹, Miguel Alvelo-Rivera¹, Percival O. Buenaventura¹

¹*University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania, United States*

Objectives: We have previously reported our experience with minimally invasive esophagectomy. Our standard approach involves laparoscopic and thoracoscopic mobilization of the esophagus with a cervical esophagogastric anastomosis. In the present study we report our early experience with a modification of this technique, in which an intrathoracic anastomosis is performed

Methods: From 2002-2005, a minimally invasive Ivor Lewis esophagectomy was performed in 25 patients. The planned approach included a totally laparoscopic abdominal procedure and a mini-thoracotomy or thoracoscopy. Indications for esophagectomy included Barrett's esophagus with high-grade dysplasia or resectable adenocarcinoma of the gastroesophageal junction (GEJ).

Results: Pathologic stage included 3 patients with Barrett's high-grade dysplasia and 22 patients with stage I-III adenocarcinoma of the GEJ. Fourteen (56%) received either preoperative chemotherapy or chemoradiation. The median age was 65 (range 38-79). The abdominal components of all operations were completed entirely laparoscopically with no open conversions. Planned mini-thoracotomy was successful in 21 patients; the most recent 4 patients had the entire thoracic component performed thoracoscopically. A circular stapled anastomosis was performed in all patients. The mean number of lymph nodes harvested per patient was 14.3 (3-39). The median length of stay was 9 days (range 6-21). Median stay in the intensive care unit was 1 day (range 1-2 days). There was no operative mortality. Two patients developed an anastomotic leak (8.0%). Other complications included chylothorax (n=1), delayed gastric emptying (n=1), and atrial fibrillation (n=4). No complication required additional operative interventions. There were no recurrent laryngeal nerve injuries.

Conclusions: Minimally invasive Ivor Lewis esophagectomy was technically feasible and resulted in good initial results in our center that is experienced in minimally invasive esophageal resections. This approach minimizes the length of gastric tubularization and thereby anastomotic ischemia, avoids the potential risk of recurrent laryngeal nerve injury and pharyngeal dysfunction associated with a cervical anastomosis.

NOTES

Video Sessions

1V. Thoracic Aortic Aneurysm Repair Via Bilateral Thoracosternotomy (Clamshell) Approach

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Jayesh J. Dhareshwar¹, *Thoralf M. Sundt III¹

¹Mayo Clinic, Rochester, MN, United States

Objectives: Thoracic Aortic Aneurysm Repair Via Bilateral Thoracosternotomy (Clamshell) Approach

Methods: 73-year-old woman with extensive aneurysmal disease of the thoracic aorta and evidence of expansion of the descending thoracic aortic component. The ascending aorta measured 6 cm in diameter, while the upper descending thoracic aorta measured 5.5 cm.

Results: The video demonstrates graft replacement of the ascending aorta, arch, and descending thoracic aorta to the level of diaphragm using profound hypothermia and circulatory arrest. The procedure is performed via a transverse thoracosternotomy (Clamshell) incision. The brachiocephalic vessels are reconstructed using a Carrel patch.

NOTES

2V. A Modification Of The Ross Procedure To Prevent Autograft Dilation

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Uttam Tripathy¹, Christopher Komanapalli¹, Karl F Welke¹, Irving Shen¹, *Ross M Ungerleider¹

¹Oregon Health and Sciences University, Portland, OR, United States

Objectives: The Ross procedure is frequently used for aortic valve replacement in adolescents and adults. However, early as well as late autograft dilation is a realistic concern. We have devised a modification to the Ross procedure which we believe will eliminate the risk of autograft dilation for this population of patients without adding complexity to the operation.

Methods: Methods have been described previously to prevent autograft dilation after the Ross procedure. Briefly, these methods consist of either wrapping the autograft in pericardium; placing the pulmonary autograft inside the native aorta (inclusion technique), plicating the annulus with circumferential sutures or wrapping the annulus with a strip of felt or Dacron. Some of these procedures can be cumbersome and have not completely eliminated the potential for dilation, as it is not only the neo-aortic annulus that can dilate but also the pulmonary autograft itself. We have performed a modification of the Ross procedure which consists of inserting the pulmonary autograft in a slightly oversized Dacron graft and then performing a Ross procedure by the root replacement technique, using the composite graft. The entire pulmonary autograft is contained within a nondilatable external Dacron shell, except the sites of implantation of the coronary buttons.

Results: The technique described above makes it theoretically unlikely, if not impossible for the pulmonary autograft to dilate. Early clinical and echocardiographic results are very encouraging in the 5 patients for whom we have applied this technique.

Conclusions: We believe this method to be reproducible, simple and ideal for adults and adolescents who have completed their aortic growth. The potential for extending the operation to various forms of collagen vascular diseases is intriguing and can be explored.

NOTES

3V. Open Extraction Of An Incorporated Metallic Tracheal Stent

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Albert S.Y. Chang¹, Thomas Gildea¹, Sudish Murthy¹

¹*Cleveland Clinic Foundation, Cleveland, Ohio, United States*

Objectives: Self-expanding metallic stents (SEMS) are increasingly being used to palliate benign tracheal stenoses with little regard for long-term sequelae. Unfortunately, SEMS-related complications are frequently more difficult to treat than the original airway diseases. We demonstrate the extraction of an incorporated SEMS responsible for high grade tracheal stenosis.

Methods: A 61 year old man involved in a motor vehicle accident in the remote past required a tracheostomy for respiratory failure. Thirty years after decannulation, he presented with a symptomatic tracheal stenosis. A covered 20 mm x 60 mm SEMS was placed for symptom palliation six years ago. The patient ultimately developed a high grade in-stent stenosis that proved refractory to endobronchial treatment. The patient was referred for surgical management of this problem. An incidental thyroid neoplasm was discovered during his pre-operative evaluation and concomitant subtotal thyroidectomy and open SEMS extraction was offered.

Results: After rapid sequence anesthesia induction, the trachea was pneumatically dilated and intubated. A subtotal thyroidectomy was performed and the trachea exposed. Complete SEMS extraction required two separate tracheotomies and removal of the stent in a piecemeal fashion. The airway was reconstructed over a T-tube. The patient was extubated post-operative day two and discharged day 10. The patient is doing well eight months later. The T-tube has been downsized and there has been marked resolution of airway granulation tissue.

Conclusions: When considering options for management of benign major airway stenoses, the long-term complications of SEMS must be appreciated. Latent extraction of incorporated SEMS is a formidable undertaking and requires thoughtful preoperative planning.

NOTES

4V. First Stage Palliation For Hypoplastic Left Heart Syndrome, Ascending Aortic Atresia And Single Right Coronary Artery From The Pulmonary Artery With Subclavian Flap Reconstruction

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*Joseph M Forbess¹, Reenu S Eapen¹, William A Scott¹

¹*University of Texas Southwestern Medical School and Childrens Medical Center Dallas, Dallas, TX, United States*

Objectives: A 2.9 kg patient with hypoplastic left heart syndrome, ascending aortic atresia, and a single right coronary from the main pulmonary artery presents for first stage palliation. Direct anastomosis of the main pulmonary artery to the transverse aortic arch may result in compression of the left pulmonary artery, the left mainstem bronchus, or both of these structures. We sought a surgical strategy that would provide growth potential for the ascending neo-aorta while avoiding the direct anastomosis of the pulmonary artery to the transverse aorta.

Methods: A 3.5mm e-PTFE graft is anastomosed to the right common carotid artery for arterial inflow and a single venous cannula is placed in the right atrium. During cardioplegic arrest and selective cerebral perfusion, the right subclavian artery is turned down as a flap and anastomosed to the divided main pulmonary artery. This arrangement simulates the usual autologous component of the ascending neo-aorta. A full coarctectomy is performed with pulmonary homograft augmentation of the aortic arch. The atrial septum is resected during a three minute period of circulatory arrest. A 6mm ring-reinforced e-PTFE is placed from the right ventricle to the pulmonary arteries prior to weaning from cardiopulmonary bypass. The chest is closed in the operating room.

Results: The aortic arch is unobstructed. The patient demonstrates good ventricular function and appropriate hemodynamics. He is discharged home on postoperative day nineteen.

Conclusions: The right subclavian flap technique utilized in this rare HLHS anatomic variant may also hold value for surgeons choosing to divide and reimplant the diminutive ascending aorta in HLHS while avoiding the potentially deleterious effects of direct pulmonary artery to transverse aortic arch anastomosis.

NOTES

5V. Bilateral Sequential Lung Transplantation For Pulmonary Fibrosis

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Cliff K. C. Choong¹, *Bryan Fitch Meyers¹, *G. Alexander Patterson¹

¹Washington University School of Medicine, Saint Louis, Missouri, United States

Objectives: Lung transplantation is an important treatment option for patients with pulmonary fibrosis refractory to maximal medical treatment. This video demonstrates our current surgical techniques for bilateral sequential lung transplantation performed for a 44 year old patient with idiopathic pulmonary fibrosis. The patient had been on the waiting list for 970 days and had been treated with continuous supplementary oxygen. Preoperative data included secondary pulmonary hypertension with moderate cardiomegaly, FEV1 of 0.8L (39% predicted), FVC of 0.99L (31% predicted), TLC of 2.32L (60% predicted) and a PaO₂ of 65mmHg on room air.

Methods: We performed a sequential left posterolateral (via 5th intercostal space) and a separate right anterolateral (via 4th intercostal space) thoracotomy for the transplantation. The procedure was performed without cardiopulmonary bypass support. Bilateral sequential implantation was carried out by performing the bronchial anastomoses with continuous suture (4-0 PDS) on the membranous wall and interrupted sutures on the cartilaginous wall. Peribronchial tissue was used to wrap the bronchial anastomoses. Pulmonary arterial anastomoses were performed with continuous suture (5-0 Prolene). Pulmonary venous anastomoses were then performed with a continuous everting technique (4-0 Prolene) to the posterior wall and simple continuous running technique to the anterior wall. Ischemic time of the left and right lung was 3.5 and 5.0 hours respectively.

Results: The surgery was uneventful. The patient had a smooth postoperative recovery and was discharged on the 8th postoperative day. The 9 months follow-up visit demonstrated stable cardiopulmonary function, improved exercise capability, normal pulmonary arterial pressure and normal heart size.

Conclusions: This video displays current surgical techniques of bilateral sequential lung transplantation for pulmonary fibrosis.

NOTES

6V. Robotic Lobectomy Utilizing The Da Vinci Fourth Arm: A New Evolution In Minimal Invasive Thoracic Surgery

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Kenneth Adam Lee², Jeffrey Fineberg¹, Walter Douglas Boyd¹

¹*Cleveland Clinic Florida, Weston, Florida, United States;* ²*Anne Arundel Medical Center, Annapolis, MD, United States*

Objectives: To demonstrate robotic surgery is as safe as thoracotomy or video assisted thorascopic lobectomies. Anatomical oncologic thoracic procedures are performed in the same manner as a thoracotomy lobectomy, and earlier discharge home with less pain and return to daily activities.

Methods: All patients were clinically staged as stage IA-IIB by CT and PET scan; as well as considered resectable, were enrolled for robotic lobectomy. All lobectomies were performed with the da Vinci robotic system(Surgical Intuitive, Inc., Sunnyvale, CA) utilizing the fourth arm.

Results: Seventeen pulmonary lobectomies(six men and eleven women) were performed. 35% were discharged in one to two days, and 53% were discharged within one to three days.

Conclusions: The addition of the fourth arm to the da Vinci system has provided a greater ability to perform more complex thoracic procedures than previously. Now there is the ability to retract and expose vascular and airway structures, while providing the surgeon 2 hands for detailed dissection. The robotic lobectomy is safe and performed in the same anatomical oncologic manner as a thoracotomy, with earlier discharges from the hospital and less pain.

NOTES

7V. Second Stage Elephant Trunk Thoracoabdominal Aortic Aneurysm Repair in A Marfan's Patient Using a Multi-branched Graft

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*Anthony Estrera¹, Riad Meada¹, Tam Huynh¹, *Eyal Porat¹, Ali Azizzadeh¹, *Hazim Safi¹

¹*University of Texas Houston Medical School Memorial Hermann Hospital, Houston, Texas, United States*

Objectives: Purpose: This video demonstrates the surgical repair of an Extent II thoracoabdominal aortic aneurysm in a patient with Marfan syndrome using the multi-branched aortic graft. The second stage Elephant trunk technique is used.

Methods: Methods and Results: A 48 year-old woman with Marfan syndrome and who is status-post replacement of her ascending aorta due to Type A aortic dissection presented with extensive aortic aneurysm. She underwent repair of the aortic root, ascending, and transverse aortic arch using the multi-branched arch graft with the adjuncts of integrated cerebral perfusion with the first stage Elephant trunk.

Results: The Second stage Elephant trunk procedure was performed for repair of her extent II thoracoabdominal aortic aneurysm. The adjuncts of distal aortic perfusion and cerebrospinal fluid drainage were used. The procedure was successfully completed. She awoke neurologically intact and was discharged on post-operative day 14.

Conclusions: Conclusion: This video illustrates successful repair the Extent II thoracoabdominal aortic aneurysm using the second stage Elephant trunk technique.

NOTES

8V. Bilateral Minimally Invasive Pulmonary Vein Isolation And Directed Partial Cardiac Denervation For Lone Atrial Fibrillation

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Eric William Schneeberger¹, John Robert Mehall¹, Randall K. Wolf¹

¹*University of Cincinnati College of Medicine, Cincinnati, OH, United States*

Objectives: The object of the video is to demonstrate that bilateral pulmonary vein isolation is possible with amputation of the left atrial appendage. In addition we wished to show the technique of directed partial cardiac denervation.

Methods: The procedure is commenced with the patient in the left lateral position. A thoracoscope is introduced into the right chest and used to direct the 6cm non-rib spreading access incision into the 3rd intercostal space. The pericardium is opened anteriorly and parallel to the right phrenic nerve. Stay sutures are placed and the oblique sinus entered. A special articulating lighted dissector is used to encircle the right pulmonary veins. High frequency (HF) stimulation is performed to identify and map vagal ganglionic plexi around the PVs and Waterson's groove. Pulmonary vein electrocardiograms (ECG) and corresponding surface ECGs are documented. The inferior jaw of a non-irrigated bipolar radiofrequency clamp is then directed behind the pulmonary veins and the anterior jaw of the clamp positioned on the left atrial cuff and medial to Waterston's groove. Transmural ablation lesions are created in each of these positions. Pulmonary vein ECGs are repeated to confirm electrical isolation and HF is repeated to confirm denervation.

The left chest is then prepped and draped and similar incisions are made and pericardial well fashioned. After similar mapping of ganglion plexi and PV ECGs, the ligament of Marshall is divided using bipolar cautery. Dissection and ablation of the left veins occurs as on the right side. Stimulation and recording are again repeated. Once ablation is complete, an EZ 45mm thick tissue stapler is introduced through the port and the left atrial appendage removed.

Results: The video demonstrates the ease of the procedure and its reproducibility.

Conclusions: We feel that this is an easily reproducible procedure that may prove to be the first step in treatment of lone atrial fibrillation.

Relationship Disclosure (Eric Schneeberger): Dr Schneeberger is a Consultant for AtriCure

Relationship Disclosure (Randall Wolf): Dr Wolf is a Consultant for AtriCure

NOTES

Basic Science Forum

1B. Use Of A Miniaturized Circuit And Bloodless Prime To Avoid Cerebral No-reflow Following Neonatal Cardiopulmonary Bypass

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Edward J Hickey¹, Tara Karamlou¹, Jamie You¹, Tara Dixon¹, Chris Komanapalli¹, Tom Person¹, Irving Shen¹, *Ross M Ungerleider¹

¹*Oregon Health Sciences University, Portland, Oregon, United States*

Objectives: We have successfully developed a miniaturized bloodless prime circuit (MBP) for neonatal cardiopulmonary bypass (CPB), with which we have previously demonstrated superior recovery of pulmonary function and reduced systemic inflammation. We studied the effects of MBP on cerebral re-perfusion following deep hypothermic CPB strategies, as "no-reflow" appears in part related to inflammation.

Methods: 20 neonatal piglets (2-5kg) were randomized to CPB with miniaturized circuitry using either blood prime (group I) or MBP (group II). At 18°C, animals were subjected to 60 minutes of either: A, circulatory arrest (DHCA) or B, continuous low-flow bypass (CLF)(50cc/kg/min), then rewarmed and separated from CPB. Fluorescent microsphere analysis of cerebral blood flow (CBF) was undertaken pre-CPB (baseline) and 30 minutes post-CPB.

Results: All hemodynamics including cardiac output were similar, as were baseline hematocrits. Ending group II hematocrits were lower (24%±1.3 vs 28%±2.5, p<0.05). A blood prime resulted in a fall in CBF from baseline (-60.8%±18.0 Group IA, -25%±36.7 Group IB). In contrast, MBP yielded a reactive hyperemia (+24.6%±10.1 Group IIA (p<0.001 vs IA), +39.5%±57.2 Group IIB (p<0.07 vs IB)). Final serum TNFα concentrations were significantly higher (3166±1887 pg/ml) in group IB (blood prime, CLF) compared with either IA (257±185pg/ml, p<0.01), IIA (353±410pg/ml, p<0.05) or IIB (536±429pg/ml, p<0.05).

Conclusions: No reflow, though poorly understood, is related in part to malperfusion (ischemia) and inflammation. This is the first report describing reactive hyperemia following DHCA, and it is disproportionate to the mild fall in hematocrit. CLF generates a significantly more pronounced inflammatory load due to the prolonged exposure to CPB, but a bloodless prime greatly reduces this. The more variable cerebral perfusion following CLF and MBP may be due to the unpredictable regional cerebral perfusion when adopting low flow rates. Intermittent perfusion techniques with MBP warrant future investigation as they may combine enhanced cerebral re-perfusion and a lesser inflammatory load.

NOTES

2B. Superiority Of Using Bipolar Radiofrequency Energy For Internal Mammary Artery Harvesting

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*Thomas A Vassiliades¹, Ned Cosgriff², Amy Denham², Jessica Olson², Donald H Maul³

¹Emory University, Atlanta, GA, United States; ²Tycohealthcare, Boulder, CO, United States; ³Colorado State University, Fort Collins, CO, United States

Objectives: The study objectives were to observe the acute effects of harvesting the internal mammary artery using a novel bipolar (BP) radiofrequency (RF) energy device on endothelial function and integrity of porcine internal mammary artery (IMA) and the strength of side-branch sealing.

Methods: Thirty-two porcine internal mammary arteries were harvested as skeletonized segments using one of four methods: monopolar cautery (MP), bipolar cautery (BP), harmonic scalpel (HS) and mechanical dissection with clips (CL). Untouched and mechanically denuded IMA segments acted as controls. IMA segments were pre-contracted with potassium chloride (KCL) and phenylephrine, and concentration-dependent relaxation was evaluated under increasing concentrations of adenosine triphosphate (ATP). The ability of ATP to reverse (relax) KCL- and phenylephrine-induced IMA contraction is a sensitive test of endothelial function. Samples were also evaluated for endothelial integrity by a blinded pathologist using scanning electron microscopy (SEM). Security of side-branch sealing was assessed by increasing hydrostatic pressure until burst.

Results: ATP-induced relaxation was greatest with IMA segments harvested by bipolar cautery in comparison to monopolar cautery (BP vs. MP, $p = .0271$), harmonic scalpel (BP vs. HS, $p = .0047$) and mechanical clipping (BP vs. CL, $p = .0381$). Using a four-point grading scale, MP exhibited the most endothelial disruption by SEM. While all four harvesting methods provided secure side-branch sealing under physiologic pressure, clips and bipolar cautery exhibited the most secure seals with burst pressures exceeding 350 mmHg.

Conclusions: IMA segments harvested using a novel bipolar cautery (BP) device retained a greater degree of endothelial function and integrity when compared with monopolar cautery (MP) and harmonic scalpel (HS). Additionally, side-branch sealing using bipolar cautery (BP) was as secure as mechanical clips (CL), even at high levels of hydrostatic pressure. Customized instrumentation using bipolar RF could enable a faster, safer and less traumatic method to harvest the IMA, both open and thoracoscopically.

NOTES

3B. Endothelial Nitric Oxide Synthase Is Essential For Post-pneumonectomy Compensatory Vasodilatation

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Thomas S. Maxey¹, William B. Keeling², Thomas B. Reece¹,
*Irving L. Kron¹, Victor E. Laubach¹

¹University of Virginia, Charlottesville, VA, United States;

²University of South Florida, Tampa, FL, United States

Objectives: Following pneumonectomy, the vasculature of the remaining lung must vasodilate to compensate for increased blood volume. We hypothesized that endothelial nitric oxide synthase (eNOS) is essential for compensatory vasodilation following pneumonectomy.

Methods: Adult, wild-type C57BL6 (WT) and eNOS deficient (eNOS^{-/-}) mice underwent left pneumonectomy and recovered under normoxic conditions. Animals were lightly anesthetized at days 1, 3, 7, or 14 (n=4/group) following pneumonectomy, and closed chest, right ventricular pressure (RVP) was recorded using fine needle cannulation. The RV to left ventricular weight ratios were measured as an index of RV hypertrophy (RVI). Two additional groups of mice (WT and eNOS^{-/-}, n=6/group) were recovered in inhaled nitric oxide (iNO, 10ppm), and RVP was measured on post-pneumonectomy day 7.

Results: eNOS^{-/-} mice had significantly higher preoperative RVP than WT (17.1 vs. 14.3 mmH₂O, p<0.05). Both groups exhibited relative periods of pulmonary hypertension following pneumonectomy. On post-pneumonectomy day 1, RVP was 79% above baseline in eNOS^{-/-} mice (30.7 mmH₂O) versus 41% in WT mice (20.2 mmH₂O, p<0.001). RVP returned to baseline in WT animals (16.3 mmH₂O) but remained significantly elevated in eNOS^{-/-} animals (28.6 mmH₂O) at day 3 and at each timepoint thereafter (p<0.001). iNO significantly diminished RVP in eNOS^{-/-} animals (15.2 mmH₂O, p<0.001) and had no effect in WT (14.0 mmH₂O) at day 7. RVI did not differ among groups.

Conclusions: Pneumonectomy results in transient increases in RVP. Under normal circumstances, these pressures return to baseline in the early post-operative period. eNOS^{-/-} mice failed to display compensatory vasodilation yet could be rescued with iNO.

NOTES

4B. Ex-vivo Evaluation Of Human Lungs For Transplant Suitability

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*Thomas M. Egan¹, John A. Haithcock², William A. Nicotra²,
Giovanna Koukoulis³, Hidetoshi Inokawa⁴, Paul L. Molina¹,
William K. Funkhouser¹, Burton J. Mattice⁵

¹University of North Carolina at Chapel Hill, Chapel Hill, NC, United States; ²UNC Hospitals, Chapel Hill, NC, United States;
³University of Pavia, Pavia, Italy; ⁴University of Okayama, Okayama, Japan; ⁵Carolina Donor Services, Durham, NC, United States

Objectives: If lungs could be retrieved from non-heart beating donors, the critical shortage of lungs for transplant could be alleviated. An obstacle to this approach is the inability to predict suitability for transplant of lungs retrieved from non-heart beating donors. We used human lungs deemed unsuitable for transplant to develop a method to perfuse and ventilate human lungs ex-vivo to assess gas exchange and vascular resistance, and to perform bronchoscopic inspection, and radiographic evaluation.

Methods: Human lungs were retrieved from six brain-dead organ donors after cold Perfadex® flush, stored cold for 6-13 hours, (mean=8.7 hours) then perfused and rewarmed in a modified cardio-pulmonary bypass circuit with buffered colloid/crystalloid containing type-specific leukocyte-filtered blood (hematocrit of 10-12%). Perfusion pressure was maintained < 20 mm Hg during re-warming. Perfusate was circulated through a membrane oxygenator ventilated with oxygen during re-warming, switched to CO₂ and nitrogen to deoxygenate the perfusate when 32°C was reached, then lungs were ventilated with FiO₂ 0.5. Gas exchange and vascular resistance was assessed at 5 l/min flow at 37°C, FiO₂ 0.5 and 1.0. Bronchoscopy, plain radiographs and spiral CT scans were performed. Lung biopsies were obtained pre- and post-reperfusion.

Results: Ex-vivo perfusion did not cause increased wet/dry ratio, or major abnormalities by microscopy but was associated with elevated tissue levels of conjugated dienes, implying generation of oxygen free radicals. The pAO₂/FiO₂ ratio in the ex-vivo circuit correlated better with pAO₂/FiO₂ ratio in the donor when circuit FiO₂ was 0.5 compared to 1.0, and was higher in the circuit than in the six donors. Ex-vivo radiographs and CT scans were abnormal in all lungs, confirming unsuitability of these lungs for transplant.

Conclusions: Ex-vivo evaluation of human lungs is feasible and may be useful to evaluate transplant suitability of lungs retrieved after circulatory arrest from non-heart beating donors.

Relationship Disclosure (Thomas Egan): this research was supported by a grant from the CF Foundation. Support for this project was also received from: Cincinnati Sub-Zero, Cryolife, Ethicon, Medtronic, Olympus, Pilling Surgical, Portex, Terumo, US Surgical, and Vitrolife

NOTES

5B. Lung Reperfusion Injury Can Be Modified By Ventilation And Perfusion Techniques

Unless identified below, authors/speakers have no material financial or other relationship to disclose that may pose a conflict of interest. Unless listed below, authors/speakers will not discuss the use of a device, product, or drug that is not FDA-approved, or an off-label use of approved devices, products or drugs.

R. Ramesh Singh¹, Peter I. Ellman¹, Patrick S. Warren¹, Victor E. Laubach¹, *Irving L. Kron¹, *Curtis G. Tribble¹

¹University of Virginia Health System, Charlottesville, VA, United States

Objectives: High ventilation and perfusion pressures used at the time of transplantation may have a deleterious effect on the donor lung. We hypothesize that utilizing a more conservative approach for both ventilation and perfusion will reduce reperfusion injury.

Methods: Using an isolated rabbit lung model, lungs underwent 2 hours of reperfusion either immediately (Groups I and II) or after 18 hours of cold ischemia (Groups III-VI). Conservative ventilation involved gradually increasing the flow rate over 5 minutes, while maintaining peak inspiratory pressure below 15cmH₂O, to a maximum rate of 1.8 l/min, as opposed to the conventional protocol that immediately began the flow rate at 1.8 l/min. Conservative perfusion involved gradually increasing the perfusion rate to 60cc/min over a 5 minute period, whereas the conventional protocol immediately began perfusion at 60cc/min. Groups I and III underwent conservative ventilation and perfusion whereas Groups II and IV underwent conventional ventilation and perfusion. Combinations of ventilation and perfusion strategies were applied to Groups V and VI. Airway pressures, pulmonary artery pressures and arterial blood gasses (ABG) were measured throughout reperfusion. Wet-to-dry weight ratios, oxygenation index and bronchoalveolar lavage (BAL) protein concentrations were also measured.

Results: Conservative ventilation and perfusion after ischemia (Group III) resulted in significantly improved (all $p < 0.05$) values of ABG, airway pressures, oxygenation index, wet-to-dry weight ratio (6.5 versus 8.1) and BAL protein concentration (1206 versus 2639 $\mu\text{g/ml}$) compared to the conventional approach (Group IV). Regression analysis showed that 'group' was a significant predictor for PO₂, PCO₂, oxygenation index and mean airway pressure in favor of Group III versus Group IV. Groups V and VI were similar to Group IV.

Conclusions: A conservative approach of ventilation and perfusion may lead to improved lung function after transplantation.

NOTES

6B. Trans - Apical Aortic Valve Implantation : An Animal Feasibility Study

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*Todd M. Dewey¹, Thomas Walther², Mirko Doss³, David Brown¹,
*William H. Ryan¹, Gerhard Wimmer-Greinecker³, Stefan Wildhirt⁴,
Rainer Hambrecht², Friedrich W. Mohr², *Michael J. Mack¹

¹Cardiopulmonary Research Science and Technology Institute, Dallas, Texas, United States; ²Heart Center Leipzig, Leipzig, Germany; ³University of Frankfurt, Frankfurt, Germany; ⁴German Heart Center Munich, Munich, Germany

Objectives: Percutaneous aortic valve implantation has recently been performed clinically in non-surgical patients with severe aortic stenosis. Retrograde valve delivery has been problematic due to the size of the delivery system and concomitant peripheral vascular disease. We investigated a minimally invasive approach through the left ventricular apex for antegrade placement of a device deliverable aortic valve.

Methods: Trans-apical aortic valve implantation was performed using a 23mm equine valve mounted on a stainless steel stent in fifteen 35 to 45kg swine. A limited or a full sternotomy was used to access the apex of the heart. The crimped valve was introduced through a sheath in the left ventricular apex. Fluoroscopy, and intracardiac or epicardial echo was used for guidance. Deployments were performed on the beating heart either with ventricular unloading using femoral extracorporeal circulation or rapid ventricular pacing.

Results: Valves were successfully deployed at the target site with acceptable visualization of the non-calcified annulus. Valve migration occurred in five procedures (two distal and three retrograde) secondary to ventricular output, unfavorable annular anatomy, and dislodgement by the delivery catheter. Exact positioning of the non-dislodged valves at the target area was confirmed by autopsy at the end of the procedures. Paravalvular leak was noted in all but three implants.

Conclusions: The trans-apical approach provides a safe, accurate and effective route for antegrade delivery of a stented valve, and obviates the technical problems associated with a large delivery system transiting the peripheral vascular system. Stent design contributing to paravalvular leak remains problematic.

NOTES

2nd Scientific Session: Session A

15. Results After Reoperation For Failed Antireflux Procedures In The Laparoscopic Era

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Galen A Ohnmacht¹, Claude Deschamps¹, *Stephen D Cassivi¹, Francis C Nichols III¹, Mark S Allen¹, Cathy D Schleck¹, Peter C Pairolero¹

¹Mayo Clinic College of Medicine, Rochester, MN, United States

Objectives: To report our results of reoperation for a failed antireflux procedure in the laparoscopic era.

Methods: Retrospective chart review of consecutive cases from July 1, 1995 to April 1, 2004.

Results: 126 patients underwent reoperation without esophageal resection for prior failed antireflux procedure. Two declined research participation. There were 53 men and 71 women. Median age was 53 years (range 19 to 83 years). Seventy-six patients (61.3%) had a prior laparoscopic repair, while 48 (38.7%) had a prior laparotomy. A single previous operation had been performed in 100 patients, two in 20, and 3 in four. The median interval between our most recent reoperation and the previous operation was 28 months (range 1 to 368 months). All patients were symptomatic. The surgical approach at reoperation was thoracotomy in 84(67.7%), laparotomy in 36(29.0%), initial laparoscopy in 8(6.5%), and thoracoabdominal in 1(0.8%). Three patients were converted to laparotomy from laparoscopy and two received both laparotomy and thoracotomy. A Nissen fundoplication was performed in 86 patients (69.4%), a Belsey Mark IV fundoplication in 32 (25.8%), a Toupet fundoplication in 3 (2.4%), a vagotomy with antrectomy in 2 (1.6%), and a Dor fundoplication in 1(0.8%). An uncut Collis gastroplasty was performed in 35 patients (28.2%) and a cut Collis gastroplasty in 6 (4.8%). Complications occurred in 27 patients (21.7%). There were no perioperative deaths. Median hospitalization was 6 days (range 2 to 32 days). Median follow-up was 9.5 months, range 4 days to 10 years. Overall, 114 patients (91.9%) were improved. Functional results were excellent in 69 patients (55.6%), good in 19 (15.3%), fair in 26 (20.9%), and poor in 10 (8.0%). No single operative approach proved to be functionally superior.

Conclusions: Reoperative antireflux operations in the laparoscopic era results in benefit for the majority of patients, and can be performed with low mortality and acceptable morbidity.

NOTES

16. Short And Long Term Results Of Triple Valve Surgery In The Modern Era.

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Bahaaldin Alsoufi¹, Vivek Rao¹, Manjula Maganti¹, Christopher M. Feindel¹, Hugh E. Scully¹, Tirone E. David¹

¹Toronto General Hospital and The University Of Toronto, Toronto, Ontario, Canada

Objectives: Triple valve procedures are complex operations with reported mortality of 20-25% and ten year survival of 40%. We examined the results of triple valve surgery in the modern era and assessed the factors influencing short and long term survival.

Methods: We reviewed all patients who underwent Triple valve surgery between 1990 and 2004. Univariate and multivariate analyses were performed to identify predictors of early and late survival.

Results: 174 patients (121 females, 53 males) with the mean age of 59Y were identified. The most common etiology was rheumatic fever (59.8%) followed by prosthetic valve dysfunction (20.1%). 94% were in NYHA class III and IV and 61.4% had previous cardiac operations. The Aortic procedures included 160 replacement and 14 repair, the Mitral procedures included 153 replacement and 21 repair, Tricuspid procedures were 12 replacement and 162 repair. 77% of the implanted valves were mechanical and 9.8% had concomitant Aortocoronary bypass grafting. The Mean cardiopulmonary bypass and aortic cross clamp times were 158 and 123 minutes respectively. 30 day mortality was 13%. Factors influencing perioperative mortality included urgent surgery, shock, preoperative renal failure, and the presence of peripheral vascular disease. Factors such as age, reoperation, endocarditis, preoperative angina, NYHA class and ejection fraction <40% did not significantly influence mortality.

Survival at five and ten years was 75% and 61% respectively. 73% of patients were in NYHA class I and II. 10 year freedom from thromboembolism was 87.7%, from anticoagulation related hemorrhage 83.2%, from endocarditis 95.9%, and from cardiac reoperation 92%.

Conclusions: Patients with advanced rheumatic valve disease and prosthetic valve dysfunction are at high risk for requiring Triple valve surgery. Compared to historical reports, the results of surgery, primary and reoperative, have improved. Although early mortality is high, long term and event free survival is comparable to patients undergoing single valve replacement.

NOTES

17. Adult ECMO: Improved Results with a Multidisciplinary Team Approach

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*Arthur J. Crumbley¹, Joel B. Cochran¹, Alicia N. Sievert¹, *John S. Ikonomidis¹, Joseph J. Sistino¹

¹Medical University of South Carolina, Charleston, South Carolina, United States

Objectives: Extracorporeal membrane oxygenation (ECMO) is not widely used in adults because of poor reported survival rates (<50%) compared with children (~70%) and infants (~85%). We assembled a multidisciplinary team consisting of an adult cardiothoracic surgeon, a pediatric intensivist, perfusionists and neonatal ECMO nurses to care for these challenging patients.

Methods: Since 1999, 14 adults, ages 18 to 66 (mean=36, SD=17.6) were supported with ECMO for 1 to 14 days (mean=8.0, SD=4.5). Selection criteria included reversible cardiac or pulmonary failure completely unresponsive to conventional therapy, reasonable expectation of reversibility of multi-organ dysfunction, and absence of malignancy. Causes of cardiac and/or pulmonary failure were: ARDS (4, including 2 patients on biventricular assist devices), cardiogenic shock (2), fat embolism syndrome (2), pulmonary embolism (1), endotoxic shock complicating severe systemic lupus erythematosus (1), bilateral traumatic tracheobronchial disruption (1), and intrapulmonary hemorrhage from Wegener's granulomatosis (1). Seven patients with pulmonary failure had venovenous ECMO and 7 patients with cardiac or combined cardiopulmonary failure had venoarterial support. Anticoagulation was achieved with heparin in 11 patients and argatroban in 1 for heparin induced thrombocytopenia (HITT). Heparin-bonded circuits were used in 2 without systemic heparinization.

Results: Eleven of 14 patients are alive, an overall survival rate of 79%. All 10 discharged patients are currently alive and well. One patient remains hospitalized. Thirteen patients (93%) were successfully weaned from ECMO. One venoarterial patient died after 5 hours on ECMO from bleeding at the cannulation site. There were two late hospital deaths, 1 each from multiorgan failure and intractable gastrointestinal bleeding. ECMO-related complications included bleeding (3), infection (3), temporary hemodialysis (3), limb ischemia (1), and HITT causing thrombosis of the ECMO circuit (1).

Conclusions: Survival rates with adult ECMO can approach 80% when a multidisciplinary team approach is used. ECMO should be strongly considered in critically ill adults who meet strict selection criteria.

NOTES

18. Atrial Fibrillation Following Coronary Artery Bypass Surgery: Preliminary Results Of A Predictive Risk Algorithm

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*Mitchell J. Magee¹, Morley A. Herbert¹, *Todd M. Dewey¹,
*James R. Edgerton¹, *William H. Ryan², *Michael J. Mack¹

¹Medical City Dallas Hospital, Dallas, Texas, United States;

²Presbyterian Hospital of Dallas, Dallas, Texas, United States

Objectives: Atrial fibrillation (AF) is a costly complication occurring in 15-40% of patients following CABG. Aggressive prophylactic treatment should be directed toward, and limited to selected high risk patients. Utilizing perioperative risk factors, we sought to develop an algorithm to predict the relative risk of developing postoperative AF in patients undergoing CABG in order to tailor perioperative management.

Methods: Data was extracted from our STS Database on 17,171 patients undergoing CABG between 01/1995 and 12/2003. Every third patient was moved to a test dataset to validate the algorithm. Using perioperative risk factors, we developed a logistic regression equation predictive for the development of post-operative AF. The test dataset was used to validate the model by comparing the predicted probability of AF with the known outcome.

Results: Perioperative parameters in the risk model with the greatest predictive influence included: patient age, gender, the use of cardiopulmonary bypass, history of previous CABG, and preoperative intra-aortic balloon pump. Using the validation data set to test the model, the calculated probability of developing AF ranged from 0.1% to 69.5% (mean $21.3 \pm 11.0\%$, median 19.4%). The concordance and ROC area were both 70% indicating a good model.

Patients were then divided into low risk (probability < 40%) and high risk (probability > or = 40%) groups. The observed rate of AF for the high risk group was 44% and 19% for the low risk group.

Conclusions: Based on a validated predictive risk algorithm for developing postoperative AF, patients undergoing CABG can be reliably stratified into high and low risk groups. This may be used preoperatively to appropriately target high risk patients for aggressive prophylactic treatment.

NOTES

19. Short And Intermediate- Term Comparison Of Aortic Root Replacement With St. Jude Mechanical Conduits And Aortic Allografts

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Brian Lima¹, G. Chad Hughes¹, Anthony Lemaire¹, James Jaggars¹,
*Donald D. Glower¹, Walter G. Wolfe¹

¹*Duke University Medical Center, Durham, N.C., United States*

Objectives: Few studies have directly compared outcomes in patients undergoing aortic root replacement (ARR) with St. Jude mechanical conduits (MECH) or aortic allografts (ALLO), yet both approaches have been advocated. The purpose of this study was to test the hypothesis that ARR utilizing MECH or ALLO would have equivalent outcomes.

Methods: A retrospective analysis was performed on 172 consecutive adult patients undergoing ARR with either MECH (n=73) or ALLO (n=99) from 1/1990-12/2002.

Results: Both groups were similar with regards to median age, preoperative ejection fraction, and NYHA class. The ALLO patient group had a higher proportion ($p < 0.05$) of females (43% vs. 18%), prior sternotomies (52% vs. 26%), preoperative renal failure (9% vs. 1%), and cerebrovascular disease (16% vs. 4%). Operative indications for the ALLO group were more frequently endocarditis (29% vs. 3%, $p < 0.0001$) and prosthetic valve dysfunction (13% vs. 1%, $p < 0.01$), and less frequently annuloaortic ectasia (34% vs. 60%, $p < 0.001$) or aortic dissection (3% vs. 26%, $p < 0.0001$). Concomitant CABG or other valve surgery was performed in 30% patients in both groups. Incidence of early postoperative complications, including bleeding, arrhythmia requiring pacemaker, stroke, renal failure, and respiratory failure was similar in both groups. Thirty-day mortality was 5.5% in the MECH group and 8.1% in the ALLO group ($p = 0.4$). Unadjusted actuarial survival at 1, 5, and 10 years was 90%, 81%, 67%, and 86%, 70%, 67%, for the MECH and ALLO groups, respectively ($p = 0.09$). Event-free survival at 1- and 5-years was similar for both groups ($p = 0.4$). Adjusting for differences in preoperative risk factors using propensity score analyses yielded similar 5-year survival rates for both groups ($p > 0.2$). By multivariate analysis, NYHA class III/IV, emergently performed ARR, postoperative respiratory failure, but not valve conduit type ($p = 0.3$), were independent predictors of mortality.

Conclusions: Despite being more commonly performed in the hazardous setting of endocarditis, redo sternotomy, or other comorbidities, ALLO ARR is a viable alternative to MECH ARR with similar overall outcomes.

NOTES

20. Univentricular Heart With Excessive Pulmonary Blood Flow: results Following Pulmonary Artery Banding And Damus-kaye Stansel Operation

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*Andrew C Fiore¹, Mark W Turrentine², Palaniswamy ViJay², Mark Rodefeld², *John W Brown²

¹*Saint Louis University Health Sciences Center, St. Louis, Missouri, United States;* ²*Indiana University, Indianapolis, Indiana, United States*

Objectives: Pulmonary artery banding (PAB) to palliate neonates with univentricular heart (UH) and excessive pulmonary blood flow (PBF) remains controversial. Controversy surrounds the effect of PAB creating pulmonary insufficiency (PI) complicating subsequent Damus-Kaye Stansel (DKS) connection and the induction of ventricular hypertrophy negatively effecting Fontan repair. The aim of this study is to review the long-term effects of neonatal PAB with DKS in palliation of UH.

Methods: From Jan. 1994 to Mar. 2004, 26 pts underwent PAB (mean:25da;3.4kg)followed by de-banding and DKS connection at a mean of 8.5 mon. PBF was established with Glenn-Hemi-Fontan alone 16 pts; central shunt alone 7 pts; or both 3 pts. Associated procedures included repair of coarctation or interrupted arch 15 pts (60%), atrial septectomy 14 pts (54%), and patch augmentation of pulmonary artery 11 pts (42%).

Results: There were six early deaths (23%) following DKS all secondary to low cardiac output. Of these, 5 pts had central shunts. Follow up was complete in all patients with a mean of 4.7 yrs. Echocardiography revealed no PI (15 pts); mild (5 pts); and a mean of 5 mmHg in the LVOT. Fifteen pts (58%) have completed Fontan repair with 4 pts pending and one patient not a Fontan candidate. There have been no late deaths.

Conclusions: PAB with interval DKS is effective palliation for UH and excessive PBF; 2) PAB does not create significant PI in patients requiring DKS and 3)the need for central shunt is associated with increased mortality. This experience suggests that PAB for up to eight months does not compromise subsequent DKS connection and does lead to successful Fontan repair.

NOTES

21. Cardiac Interventions Performed Either Before Or During Lung Transplantation Does Not Increase Mortality In Selected Patients

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*Scott B. Johnson¹, Anna M. Allred¹, *Edward Y. Sako¹, Luis F. Angel¹, *Clinton E. Baisden¹, *John H. Calhoun¹

¹*University of Texas Health Science Center, San Antonio, TX, United States*

Objectives: To determine if patients that undergo cardiac procedures either prerequisite or concurrent with lung transplantation have an increased operative or long term mortality when compared to lung transplant recipients that do not require cardiac intervention.

Methods: A retrospective chart review of all patients who underwent lung transplantation at our institution from January 1994 to June 2004 was performed. Data collected included age, gender, type of cardiac intervention (if any), transplant performed, median length of stay following transplant, operative mortality, and overall survival.

Results: During this time period, 133 patients underwent lung transplantation of which 13 patients had associated cardiac procedures. Six had prerequisite cardiac procedures performed in anticipation of their lung transplantation (three angioplasties/stent placements, two coronary bypass surgeries, and one mitral valve replacement). The remaining seven had concomitant cardiac procedures performed at the time of their transplantation (five closures of patent foramen ovale, one single vessel coronary bypass surgery, and one closure of ventricular septal defect). Age, gender, and median length of stay were not significantly different between those patients that had cardiac intervention and those that did not. Bilateral transplants were performed more frequently in the group of patients that had cardiac interventions (6/13 [46.2%] vs. 23/120 [19.2%], $p = 0.04$). Operative mortality was similar in both groups (7.7% [1/13] and 7.6% [9/120], respectively [$p = 1.00$]), as was their overall survival (Kaplan Meier method, $p = 0.40$).

Conclusions: Cardiac interventions performed either prerequisite or concurrent to lung transplantation does not necessarily increase operative or long term mortality in selected patients.

NOTES

22. Outcomes After Late Reoperation In Patients With Repaired Tetralogy Of Fallot: The Impact Of Arrhythmia And Arrhythmia Surgery

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Tara Karamlou¹, Brian W McCrindle¹, Louise Harris², Eugene Downar², Gary D Webb², Jack M Colman², Glen S Van Arsdel¹, William G Williams¹

¹Hospital for Sick Children, Toronto, Ontario, Canada; ²Toronto General Hospital, Toronto, Ontario, Canada

Objectives: We evaluated outcomes in patients requiring late reoperation following Tetralogy of Fallot (ToF) repair to identify factors associated with arrhythmia and the influence of arrhythmia surgery on the risk of subsequent death or recurrent arrhythmia.

Methods: Medical records of all patients from 1969-2005 undergoing reoperation late (>1 year) after ToF repair were reviewed. 249 patients underwent 375 procedures at late reoperation, including pulmonary valve replacement (PVR) in 217, ablation in 65, tricuspid valve repair/replacement in 46, and other in 47 patients. Arrhythmias were present in 75 at reoperation, and included isolated supraventricular tachycardia (SVT) in 31, isolated ventricular tachycardia (VT) in 34, and SVT+VT in 10 patients. Time-related events were analyzed by parametric hazard function modeling and incremental risk factors for mortality and recurrent arrhythmia were sought.

Results: Median age at reoperation was 23 years (range 1-63). 10-year survival after reoperation was 93%, and was equivalent in those with and without arrhythmia ($P=0.86$). Older age at initial repair significantly increased risk of death ($P<0.001$). Those with arrhythmia were characterized by the following factors: older age at initial repair ($P<0.001$) and at late reoperation ($P<0.001$), longer QRS-duration ($P=0.01$), tricuspid and pulmonary regurgitation ($P<0.001$), and associated atrioventricular septal defect ($P=0.047$). Factors associated with decreased risk of arrhythmia recurrence included PVR ($P=0.04$) and shorter QRS duration ($P=0.02$). 59 patients underwent surgical ablation at reoperation, including SVT ablation in 28 (3 of whom recurred), VT ablation in 25 (3 of whom recurred), and SVT+VT ablation in 6. SVT ablation improved 7.5-year arrhythmia-free survival (75% vs. 33%, $P<0.001$), but VT ablation did not (96% vs. 95%, $P=0.50$).

Conclusions: Late mortality in patients requiring reoperation after ToF repair is not impacted by arrhythmia, but is decreased by a strategy of early primary repair. Early PVR, and surgical ablation in those with SVT, favor arrhythmia resolution.

NOTES

Posters Session

1P. Establishing Institutional Value: An Assessment Of The General Thoracic Surgery Outpatient Service

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*David R. Jones¹, Ann B. R. Vaughters¹, *Thomas M. Daniel¹, K. Robert Shen¹, Janet L. Heinzmann¹

¹University of Virginia, Charlottesville, VA, United States

Objectives: The initial outpatient evaluation for general thoracic surgery (GTS) patients requires intense involvement and time commitment by the surgeon. One aspect of the definition of the institutional value for any program is based on the return on investment (ROI) for that program. Program requests for future resource allocations depend, in part, on that information. The purpose of this project was to determine the ROI for outpatient services of initial patient visits only for our GTS program.

Methods: The number of GTS outpatient visits, studies, and requested consultations ordered by the thoracic surgeon only was determined following review of the hospital database and office records for the CY2003. Only charges associated with the initial patient visits (no inpatient or physician charges) were included in the analysis. Charges were based on hospital finance department data. The ROI for GTS outpatient services was calculated using total hospital costs and hospital collections (based on our institutional outpatient Medicare collection rate of 41%).

Results: There were 2008 total and 689 initial outpatient GTS visits. Of the initial visits, the majority were for lung cancer (48%), benign lung diseases (21%), and esophageal diseases (14%). Sixty-six percent (451/689) of outpatients ultimately had an operation. Total outpatient charges were \$1.25M and by disease process were lung cancer (\$644K), benign lung disease (\$90K), esophageal disease (\$159K), and other (\$357K). The most significant hospital charges were: radiology (\$850K), laboratory studies (\$82K), GI medicine (\$59K), and cardiology (\$42K). Total operational costs for GTS clinic were \$415K, hospital collections were \$513K, yielding an ROI of \$98K or a profit margin of 24%.

Conclusions: A profit margin for GTS outpatient services of 24% is better than most Fortune 500 companies. Acquisition and sharing of this type of information by general thoracic surgeons may be helpful for future programmatic development and institutional resource allocation.

NOTES

2P. Surgical Results Of Arterial Switch Operation For Taussig-BING Anomaly: Is Position Of The Great Arteries A Risk Factor?

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*John W. Brown¹, Mark Ruzmetov¹, Palaniswamy Vijay¹, *Andrew C. Fiore², Mark D. Rodefeld¹, Mark W. Turrentine¹

¹Indiana University School of Medicine, Indianapolis, IN, United States; ²Saint Louis University School of Medicine, St.Louis, MO, United States

Objectives: A variety of definitive operations have been used to manage patients with double-outlet right ventricle with subpulmonary ventricular septal defect (Taussig -Bing anomaly). This study identifies the impact of the position of the great arteries on the outcome following the arterial switch operation (ASO) in children with the Taussig -Bing anomaly.

Methods: From 1985 through March 2005, 32 patients with the Tausig-Bing anomaly underwent ASO. The median age at operation was 21 days. Based on position of the great arteries, patients were divided into group I (side-by-side; n=14) and group II (anterior-posterior; n=18). Aortic arch obstruction was present in 18 patients (56%) in which 14 had prior repair with aortic arch reconstruction. Unusual coronary artery patterns were present in 12 patients (38%).

Results: There were four early and one late deaths (three from group I and two from group II). The actuarial survival rate was 85% at 15 years (79% at group I and 89% at group II). Right ventricular outflow tract obstruction (mean gradient, 46.0+5.5 mmHg) developed in 4 cases (one from group I and three from group II) and was stabilizing after 2 years. One patient underwent reoperation for residual aortic arch obstruction. Freedom from reoperation was 82% at year 5 and thereafter 91% in group I and 75% in group II. Statistical analysis of contributing factors revealed no significant risk factors for death or need for reoperation between groups.

Conclusions: ASO remains our preferred choice treatment for children with Taussig-Bing anomaly. The position of the great arteries has no effect on postoperative morbidity and mortality. Right ventricular outflow tract obstruction often complicates the postoperative course and is the main cause for reintervention.

NOTES

3P. Magnetic Resonance Spectroscopy Provides A Noninvasive Assessment Of Neurocognitive Dysfunction And The Effects Of Neuroprotective Agents Following Hypothermic Circulatory Arrest

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Christopher J Barreiro¹, Jason A Williams¹, Torin P Fitton¹, Mary S Lange¹, Mary E Blue¹, Kratz E Lisa¹, Peter B Barker¹, Mahaveer Degaonkar¹, *Vincent L Gott¹, Juan C Troncoso¹, Michael V Johnston¹, *William A Baumgartner¹

¹*The Johns Hopkins Medical Institutions, Baltimore, MD, United States*

Objectives: Studies have confirmed the neuroprotective effect of diazoxide in canines undergoing hypothermic circulatory arrest (HCA). A decreased N-acetyl-aspartate:choline (NAA:Cho) ratio is believed to reflect the severity of neurologic injury. We demonstrated that noninvasive measurement of NAA:Cho, using magnetic resonance spectroscopy (MRS), facilitates assessment of neuronal injury post-HCA and allows for evaluation of neuroprotective strategies. Results were correlated with fresh tissue NAA extraction and clinical neurologic assessment.

Methods: Canines underwent 2 hours of HCA at 18°C and were followed for 24 hours. The animals were divided into 3 groups (n=15/group): normal (un-operated), HCA (HCA only), and HCA+diazoxide (pharmacologic treatment pre-HCA). NAA:Cho ratios were obtained with MRS 24 hours post-HCA. Immediately following MRS, the brains were harvested for fresh tissue NAA quantification via mass spectrometry. Data were obtained from the cortex, cerebellum, and hippocampus. Separate cohorts of HCA (n=16) and HCA+diazoxide (n=23) canines were followed for 72 hours for neurologic assessment performed at 24, 48, and 72 hours post-HCA.

Results: NAA:Cho ratios were significantly decreased in the cortex of HCA versus normal animals (1.01 vs 1.31; p=0.01), confirming the severe neurologic injury associated with HCA. Pretreatment with diazoxide limited neurologic injury versus HCA alone, reflected in a preserved NAA:Cho ratio (1.21 vs 1.01; p=0.01). Data were substantiated with fresh tissue NAA extraction. A significant decrease in cortical NAA was observed in HCA vs normal (7.07 vs 8.54 $\mu\text{mol/g}$; p=0.02), with maintenance of normal NAA levels with diazoxide pretreatment (9.49 $\mu\text{mol/g}$; p=0.02). Similar trends were observed in the cerebellum and hippocampus. Clinical neurologic scores were also significantly improved in the HCA+diazoxide group versus HCA at all time points.

Conclusions: Neurologic injury remains a significant complication of cardiac surgery and is most severe after HCA. MRS assessment of NAA:Cho ratios offers an early, noninvasive means of evaluating neurologic injury and the effect of neuroprotective agents.

NOTES

4P. Pneumonectomy Following High Dose Radiotherapy And Concurrent Chemotherapy For The Treatment Of Advanced Non-small Cell Lung Cancer

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Benedict D.T. Daly¹, Hiran C Fernando¹, Ara Ketchedjian¹, Donna M Morelli¹, Curtis J. Hunter¹, Richard J. Shemin¹

¹*Boston Medical Center, Boston, MA, United States*

Objectives: To assess the mortality, morbidity and survival of pneumonectomy following high-dose radiotherapy (HDRT) and chemotherapy (Chemo). Most induction protocols limit radiation to 5000cGy or less given historically higher mortality and morbidity. The feasibility and safety of pneumonectomy following HDRT and chemotherapy is reviewed.

Methods: From 1990-2004, 31 patients with locally advanced NSCLC underwent HDRT/Chemo followed by pneumonectomy. HDRT/Chemo consisted of 5940 cGy with two cycles of VP-16 and Cisplatin. To minimize post-pneumonectomy pulmonary edema, patients were treated with a protocol of fluid restriction (50-75cc/hour) and 48 hours of mechanical ventilation. Morbidity, mortality and survival were examined.

Results: There were 18 right and 13 left pneumonectomies. Mortality occurred in 4 (12.9%) of patients but in only 1 (5.6%) of the right pneumonectomies. Cause of death included bronchopleural fistula (n=1), aspiration (n=1), pneumonia (n=2). Major morbidity (pneumonia in 2 and aspiration in 3) occurred in 5. Median hospital stay was 9 (2-45) days and ICU stay was 2 (2-35) days. Median overall survival (excluding operative deaths) was 30 months with a 5-year survival of 38%. Of the 15 late deaths, 5 were secondary to tumor and 5 were related to pulmonary disease. When comparing pulmonary related to non-pulmonary related late deaths there was no statistical difference in survival (p=.869).

Conclusions: Longterm outcome was directly related to the tumor in a minority of patients. No increased mortality was identified for right sided operations. Pneumonectomy after HDRT/Chemo appears to be a feasible operation for advanced non-small cell lung cancer.

NOTES

5P. Subclavian Flap Aortoplasty: Still A Safe, Reproducible, And Effective Treatment For Infant Coarctation

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Christopher J Barreiro¹, Trevor A Ellison¹, Jason A Williams¹, Megan L Durr¹, Raafeh A Waseem¹, *Duke E Cameron¹, *Luca A Vricella¹

¹The Johns Hopkins Medical Institutions, Baltimore, MD, United States

Objectives: Subclavian flap repair of infant coarctation has been criticized and in many centers abandoned in favor of resection with end-to-end anastomosis. The goal of this study was to examine intermediate and long-term results of infant subclavian flap aortoplasty, which has been the preferred technique at our institution over the last two decades.

Methods: Our cardiac surgery database identified all infants (<1 year of age) who underwent repair of isthmic coarctation via thoracotomy between January 1984 and December 2004. Procedure details and late results were collected by retrospective review of hospital and office data. Clinical follow-up was 95.8% complete at a mean of 6.7 years.

Results: Between January 1984 and December 2004, 118 infants underwent subclavian flap repair of coarctation. Mean age at operation was 22 days, mean weight was 3.5 kg (range 1.3-9.3 kg), and male:female ratio was 2:1. In-hospital mortality was 1.7% (2/118) and cumulative late mortality was 8.5% (10/118). Actuarial survival at 1, 5, and 10 years was 91.7, 86.4, and 86.4%, respectively. Concomitant pulmonary artery banding was performed in 19.5% (23/118). The reintervention rate for re-stenosis was 10.2% overall (12/118); 8 patients had successful balloon angioplasty and 4 patients required operative revision. All restenoses occurred in the descending aorta, a location favorable for catheter or operative reintervention, and all occurred in patients who had undergone neonatal repair. At late follow-up, there were no significant neurologic events (left recurrent laryngeal nerve injury, stellate ganglion dysfunction, or paralysis), no clinically significant ischemic arm complications, and no flap aneurysms.

Conclusions: Subclavian flap aortoplasty remains our procedure of choice for isthmic coarctation, as it is a simple, technically straightforward technique with a low incidence of restenosis and serious early and late morbidity. Furthermore, unlike extended resection and primary anastomosis, subclavian flap restenoses are easily treated by catheter dilatation or repeat surgical intervention via thoracotomy.

NOTES

6P. Lung Cancer Staging: A Case For A New T Definition

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*Charles Ray Mulligan¹

¹Walter Reed Army Medical Center, Washington, DC, United States

Objectives: To evaluate the clinical prognosticators of survival in lung cancer patients under a universal health care system and determine if a more refined definition of T status will better reflect lung cancer survival.

Methods: The Walter Reed Army Medical Center Tumor Registry and the Thoracic Surgery Tumor Clinic files were queried to find all lung cancers diagnosed from 1990 - 2000. Nine hundred and seven non-small cell lung cancer patients were identified and evaluated by chart review for age, gender, stage, and completeness of resection. Six hundred and sixty-one (73%) had size documentation. Cox regression analysis was then utilized to evaluate the relative risk of tumor size at one centimeter intervals up to five centimeters and greater than 5cm regardless of stage.

Results: Six hundred sixty-one (73%) cases were evaluable for size with 436 males and 225 females. There were 42 tumors 1 cm or less, 133 between 1.01 and 2.0, 133 between 2.01 and 3.0, 91 between 3.01 and 4.0, 96 between 4.01 and 5.0, and 166 greater than 5.01. A survival advantage regardless of stage was noted for smaller lesions with 5-year survival 55.8%, 53.6%, 29.8%, 29.9%, 33.3%, 17.7%, and 13.1%. Cox regression analysis reflected significant increase risk with increasing size with the break point at 2 centimeters with a hazards ratio of 2.014 (95% CI 1.244-3.261, p=0.004), greater than 4 centimeters with a hazards ratio 2.506 (95% CI: 1.534-4.094, p< 0.0001), and tumors greater than 5 centimeters had a ratio 3.136 (95% CI: 1.959-5.020, p<0.0001).

Conclusions: Lung cancer tumor size criteria should be changed to T1 tumors 2 centimeters and less; T2 tumors between 2 and 4 centimeters or pleural involvement of smaller lesions, and T3 tumors greater than 4 centimeters or invasion of structures that can be resected. T4 tumors will continue to reflect tumors that invade structures that cannot be resected.

NOTES

7P. Factors Affecting Survival After Pulmonary Metastasectomy For Gynecological Malignancies

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Jose M Clavero¹, Claude Deschamps¹, *Stephen D. Cassivi¹, Mark S. Allen¹, Francis C. Nichols¹, Brigitte A. Barrette¹, Peter C. Pairolero¹

¹Mayo Clinic College of Medicine, Rochester, Minnesota, United States

Objectives: A paucity of outcome data exists regarding results following pulmonary metastasectomy for gynecological malignancies. This is especially the case with regard to long-term survival rates and morbidity following surgery.

Methods: We reviewed all patients at our institution resected for pulmonary metastases from gynecological malignancies (January 1985-June 2001).

Results: Of 103 patients resected for pulmonary metastasis, 70 had disease limited to the lungs. Median age for all patients was 59 years (range, 31-80). Primary tumor origin was the uterine body in 37 patients, endometrium in 23, cervix in 7, ovaries in 2, and vagina in 1. Histopathology was leiomyosarcoma in 29 patients, adenocarcinoma in 23, other sarcoma in 8, squamous cell carcinoma in 5, and other in 5. The median interval between the first gynecological procedure and pulmonary resection was 24 months (range, 0-237). Wedge excision was performed in 44 patients, lobectomy in 14, bilobectomy in 2, pneumonectomy in 1, and a combination in 9. Five patients (7%) had incomplete resections due to unresectable disease. Eighteen patients (25.7%) developed at least one complication and one died (1.4%). Median follow-up was 26 months (range, 2-151). Five- and 10-year survival was 46.8% (34.2-63.0; 95%-confidence interval) and 34.3% (19.7-52.5; 95%-confidence interval), respectively. Factors adversely affecting survival included an interval between the first gynecological procedure and pulmonary resection of less than 24 months ($p=0.0035$), and cervical primary ($p=0.0018$).

Conclusions: Long-term survival after pulmonary metastasectomy for gynecological malignancies is possible in selected patients. A short disease-free interval and a primary cervical cancer were associated with poorer long-term survival.

NOTES

8P. Inhibition Of Retinoblastoma Tumor Suppressor Activity By RNA Interference In Lung Cancer Lines Deregulates Growth

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Michael F Reed¹, William A Zagorski¹, *John A Howington¹, Erik S Knudsen¹

¹University of Cincinnati College of Medicine, Cincinnati, OH, United States

Objectives: Inactivation of retinoblastoma (RB) tumor suppressor function occurs frequently in lung cancer. Short hairpin RNA (shRNA) can be constructed to target specific sequences and efficiently knockdown protein expression. We hypothesized that RB activity in lung cancer cells can be precisely targeted for inhibition using shRNA, thereby deregulating cell growth.

Methods: A small interfering RNA was delivered by the plasmid pMSCVpuro containing an insert for a human RB short hairpin targeted sequence (RB3C) in the A/B pocket. NCI-H520 human non-small cell lung cancer cells which carry wild-type RB were transfected with pMSCVpuro-RB3C, or the empty vector control, using the FuGene6 lipid-based reagent. Transfectants harboring the construct were selected with puromycin. Protein expression was determined by immunoblotting. Exponentially expanding cells were counted to establish growth curves. Tumors were grown as xenografts in nude mice by subcutaneous flank injection of 5 million cells in 50 μ l mixed with 50 μ l Matrigel. Tumor volume was calculated as $v=p(\text{width}^2 \times \text{length})/6$.

Results: Transfection with pMSCVpuro-RB3C dramatically diminished RB expression. The levels of certain targets of RB-mediated control, including topoisomerase II and thymidylate synthase, increased with knockdown of RB activity. The growth of cells harboring pMSCVpuro-RB3C was increased compared to empty vector controls: 10.2 \pm 2.0 vs 4.6 \pm 0.2 at 4 days, 82.6 \pm 9.9 vs 23.6 \pm 5.6 at 8 days, and 480.6 \pm 37.7 vs 159.4 \pm 36.2 at 12 days (fold increase in cell count). The tumor growth in nude mice was also increased with RB knockdown compared to control: 8.3 \pm 1.0 vs 4.6 \pm 2.4 (fold increase in tumor volume at euthanization).

Conclusions: Downregulation of RB is efficiently achieved in lung cancer cell lines by RNA interference. Targets of RB control are deregulated with RB knockdown. Depletion of RB increases growth in vitro and in a murine xenograft model. This will serve as an ideal system to further evaluate the role of RB activity on responses to chemotherapeutic agents.

NOTES

9P. Is Caspase-activation Always Bad During Ischemia/reperfusion? The Role Of Opioids

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Matthew A Romano¹, Elisabeth M Seymour¹, Shu-Yung James Wu¹,*Steven F Bolling¹

¹University of Michigan, Ann Arbor, MI, United States

Objectives: Opioids decrease injury from cardiac ischemia /reperfusion (IR). Although opioids decrease myocyte necrosis, their impact upon apoptotic mechanisms is unknown. This study examined the impact of the delta opioid agonist DADLE upon caspase-3 activity, DNA-repair enzyme poly ADP-ribose polymerase (PARP) activity, and the relation of these enzymes to delta-opioid cytoprotection against both necrosis and apoptosis.

Methods: HL-1 myocytes, which have delta-opioid receptors, were subjected to 10 minute pre-treatment with either basal media (as controls) or the delta-opioid agonist DADLE (10uM). Myocytes, then underwent continued normal oxygen/substrate conditions, or ischemic (<1% O₂) and substrate deficient (10uM 2-Deoxyglucose versus 10mM glucose) conditions for 60min, then reperfused with normal oxygen and glucose-containing media for 180min. Prior to ischemia, further subsets of cells were treated with the caspase-3 inhibitor Ac-DEVD-CHO (10uM) or the PARP inhibitor 3-AB(100nM),. Post-reperfusion supernatants and cell lysates were measured for caspase-3 activity, PARP activity, necrosis by lactate dehydrogenase release, and apoptosis by DNA fragmentation ELISA.

Results: DADLE protected myocytes from IR, demonstrated by reduced necrosis (-54%, p<0.01) and apoptosis (-21%, p<0.05). Unexpectedly, DADLE increased caspase-3 activity(+24%, p<0.05) and caspase-3 inhibition actually eliminated opioid cytoprotection. DADLE decreased PARP activity(-34%, p<0.05), which acts downstream to caspase-3 inhibition. PARP inhibition reduced necrosis(-66%, p<0.01), presumably by disallowing futile, energy-depleting DNA repair. Opioid and PARP inhibitor co-administration further reduced necrosis versus opioid alone (-25%, p<0.05). In contrast, opioid-decreased apoptosis was eliminated by total PARP inhibition.

Conclusions: Delta opioids appear to stimulate sub-lethal caspase-3 activation. Enhanced caspase activity did not lead to increased apoptosis Increased caspase-3 activity was correlated with decreased PARP activity through caspase-3 cleavage of PARP. Delta-opioids likely confer their anti-apoptotic effects downstream of caspase-3 activation, but upstream of DNA fragmentation, via PARP inhibition. Opioids limit both cardiomyocyte necrosis and apoptosis from IR in a complex, balanced caspase-3 and PARP dependent manner.

NOTES

2nd Scientific Session: Session B

23. Delayed Paraplegia Following Thoracoabdominal Aortic Aneurysm Repair

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*Joseph S Coselli¹, John Bozinovski¹, *Scott Anthony LeMaire¹

¹Texas Heart Institute at St Lukes Episcopal Hospital, Houston, Texas, United States

Objectives: Despite various strategies for preventing spinal cord ischemia, paraplegia continues to complicate thoracoabdominal aortic aneurysm (TAAA) repair. Current adjuncts, including left heart bypass (LHB) and cerebrospinal fluid (CSF) drainage, have proven to be effective in reducing acute paraplegia following TAAA repair; however, there is limited information available regarding delayed paraplegia.

Methods: Over an 18-year period, 2302 TAAA operations were carried out by a single surgeon. There were 1378 men (59.9%) and 924 women (40.1%). Ages range 18-88 years (mean 66.3 years, median 68.5 years). For each, data was entered into a prospectively maintained database. Extent of TAAA repair included 717 extent I, 763 extent II, 389 extent III, 433 extent IV. In the 1480 extensive TAAA repairs (Crawford extents I and II), segmental intercostal or lumbar arteries were reattached in 80% (1168 of 1480 patients); LHB was used in 824 patients (55.7%) and CSF drainage was used in 39.2% (580 patients). Paraplegia was defined as delayed if a new neurologic deficit developed after the patient awakened from operation with a normal examination.

Results: There were 7 (0.3%) intraoperative deaths; operative mortality rate was 6.6% (152 patients). The incidence of paraplegia/paraparesis was 3.8% (87 patients). Of the 87 patients with deficits, 25 (28.7%) patients experienced a delay in onset. Of the patients with delayed spinal cord deficits, 8 presented with dissection (2 acute, 6 chronic); Crawford extents I through IV were 6, 14, 3, 2, respectively. Intercostal artery reattachment was carried out in 15 patients (60.0%); LHB in 44.0% (11 of 25 patients); CSF drainage in 6 patients (24.0%) and an additional 11 patients after onset. Delayed paraplegia/paraparesis occurred between 16 hours and 8 days postoperatively and was associated with hypotension in 32.0% (8 patients).

Conclusions: Delayed paraplegia remains a challenge. Treatment measures should include CSF drainage, LHB, avoidance of perioperative hypotension and arrhythmias.

NOTES

24. Coronary Insufficiency After Aortic Root Replacement: Risk Factors And Solutions

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*Edward H. Kincaid¹, *A. Robert Cordell¹, *John W. Hammon¹, Sandy M. Adair¹, *Neal D. Kon¹

¹Wake Forest University School of Medicine, Winston-Salem, NC, United States

Objectives: Coronary insufficiency is a dreaded complication of total aortic root replacement with few defined risk factors. This study describes the incidence, risk factors, management, and outcomes of this condition.

Methods: Retrospective analysis of 470 patients (mean age 70±9 yrs) undergoing stentless porcine total aortic root replacement (Freestyle and St. Jude) between the years 1994-2004 at a single institution. Coronary insufficiency was defined as the need for unplanned bypass grafting during or after removal from CPB to correct wall motion abnormalities, arrhythmias, EKG changes, or right ventricular failure in the absence of known obstructive coronary disease.

Results: A total of 13 cases of right coronary artery (RCA) and 0 cases of left coronary insufficiency were identified (overall incidence 13/470, 2.8%). All were treated with aortocoronary bypass to the RCA using saphenous vein. Compared to the group as whole, patients with this complication were more likely to be female (11/13, 85% vs 195/470, 42%, $p<0.05$) and had higher mean body mass indices (BMI, 35±12 vs 29±4, $p<0.05$). Mean age, ejection fraction and implant size (24.0±2.0 vs 24.5±2.7 mm) were similar. Despite longer CPB times (228±51 vs 160±37 min, $p<0.05$), operative mortality was not significantly different (1/13, 7.7% vs 25/470, 5.5%, $p=ns$).

Conclusions: Coronary artery insufficiency is uncommon after stentless aortic root replacement and more often affects the RCA. Risk factors appear to be female gender and higher BMI. Preventive measures include recognition of coronary orientation, routine valve rotation, and adequate coronary button mobilization. When this complication occurs, good outcomes can still be obtained with early recognition and prompt bypass grafting.

NOTES

25. Ethical Process In Publication Of Human Research

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*Mark I. Block², Lev M Khitin¹, *Robert M. Sade¹

¹Medical University of South Carolina, Charleston, South Carolina, United States; ²Medical Regional Cancer Center, Hollywood, Florida, United States

Objectives: Media reports of ethical problems in research with human subjects have served to undermine public confidence in medical research and have increasingly focused attention on clinical investigators. A series of editorials in *The Annals of Thoracic Surgery* and *The Journal of Thoracic and Cardiovascular Surgery* in 2002 and 2003 emphasized integrity in research publication. We have investigated the extent to which ethical process was mentioned in reports of thoracic surgical research with human subjects since 2002.

Methods: We reviewed all reports of research involving human subjects published in *The Annals of Thoracic Surgery* and *The Journal of Thoracic and Cardiovascular Surgery* during the first 6 months of 2002, the first 6 months of 2003, and the last 6 months of 2004 (n = 852: 273, 291, and 288 for each time period, respectively).

Results: Ethical process was mentioned in 346/852 (41%) of investigations. Comparing U.S. and non-U.S. studies, the rates of ethical process for prospective studies were 76/83 (92%) and 178/216 (82%), respectively, and for retrospective studies were 75/220 (34%) and 18/334 (5%) respectively. Between 2002 and 2004, the rates of ethical process for prospective studies increased from 79/101 (78%) to 80/89 (90%) and for retrospective studies from 17/172 (10%) to 59/199 (30%).

Conclusions: Although improvements can be seen from early 2002 to late 2004, these findings indicate persistent widespread inattention to appropriate ethical process in human research in this country and abroad. Journal editors could help to rectify this problem, thereby increasing public confidence in human research, by requiring adherence to national and international standards before publishing research using human subjects.

NOTES

26. Outcomes Of Delayed Chest Closure Follow Bilateral Lung Transplantation

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*Seth Daniel Force¹, *Daniel L Miller¹, Allan Ramirez¹, David Vega¹, Clint Lawrence¹

¹Emory University, Atlanta, GA, United States

Objectives: Primary chest closure (PCC) following bilateral lung transplantation (BLT) in patients with significant coagulopathy or severe pulmonary edema can lead to cardiopulmonary instability. Delayed chest closure (DCC) may be used in these patients to improve cardiopulmonary hemodynamics. The purpose of this study is to determine factors and outcomes associated with DCC.

Methods: We performed a retrospective review of patients undergoing BLT between September 2003 and March 2005. Statistical analysis was performed by two-tailed T-test or Fisher exact test.

Results: Twenty-eight BLTs were performed. Indication for transplant was COPD (13), pulmonary fibrosis (5), cystic fibrosis (5), sarcoidosis (3) and pulmonary hypertension (1). Seven patients (25%) required DCC. Mean time to DCC was 5 days (range 3 - 7 days). DCC was associated with cardiopulmonary bypass (CPB) use ($p = .006$), CPB time $>$ mean CPB time (mean = 224 min, $p = .04$), evidence of moderate/severe reperfusion injury on chest radiograph ($p = .0002$) and $\text{PaO}_2/\text{FiO}_2 <$ mean plus moderate/severe reperfusion injury on chest radiograph ($p = .002$). Tracheostomy was performed in 6 patients (86%) after DCC and in 4 (20%) after PCC ($p = .003$). Mean days to discharge was 44 in the DCC group and 21 in the PCC group ($p = .03$). Thirty-day survival was 100% in the DCC group and 95% in the PCC group ($p = 1.0$). There were no wound infections in either group and one patient, in the PCC group, developed sternal nonunion.

Conclusions: CPB, prolonged CPB time and significant reperfusion injury, as determined by chest radiograph and a low $\text{PaO}_2/\text{FiO}_2$ ratio were all associated with an increased incidence of DCC in our BLT patients. These patients had no wound infections or sternal complications. DCC patients had longer hospital stays than PCC patients, but equivalent operative survival. DCC can be employed safely after BLT with outcomes similar to PCC.

NOTES

2nd Scientific Session: Session C

27. Thoracoscopic Lobectomy: a Safe And Effective Strategy For Patients Receiving Induction Therapy For Non-small Cell Lung Cancer

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Rebecca P. Petersen¹, Eric M. Toloza¹, William R. Burfeind¹,
*David H. Harpole¹, Steven I. Hanish¹, *Thomas A. D'Amico¹

¹Duke University Medical Center, Durham, NC, United States

Objectives: Thoracoscopic lobectomy is an accepted oncologic approach for early stage non-small cell lung cancer (NSCLC). We conducted a study in 90 patients who underwent lobectomy after induction therapy to determine the feasibility of thoracoscopic lobectomy as compared to conventional lobectomy by thoracotomy.

Methods: The outcomes of 90 consecutive patients with NSCLC who received induction therapy followed by lobectomy from 1996 to 2005 were reviewed with IRB approval. The following outcome variables were analyzed to determine feasibility: complete resection rate, chest tube duration, length of hospitalization, 30-day mortality, post-operative hemorrhage, pneumonia, respiratory failure, and other major complications. The Fisher exact test was used to compare dichotomous variables and the two-tailed t-test was used to compare continuous variables.

Results: Lobectomy was performed by thoracotomy in 80 patients and thoracoscopically in 10 patients (1 conversion), with complete resection in all patients. All patients received induction chemotherapy, and 66 (73%) received induction radiotherapy as well: 62/80 (78%) in the thoracotomy group and 4/10 (40%) in the thoracoscopy group. The overall median survival was 2.8 years. Patients undergoing a thoracoscopic lobectomy had shorter median hospital stay (5 days vs 3.5 days, $p=0.0029$) and chest tube duration (2 days vs 4 days, $p<0.0001$). There were no significant differences in 30-day mortality, post-operative hemorrhage, pneumonia, respiratory failure, or other major complications.

Conclusions: Thoracoscopic lobectomy is a feasible approach for patients undergoing surgical resection following induction therapy, and it is associated with shorter hospital stay and chest tube duration. Long-term follow-up and analysis of survival will determine the role of thoracoscopic lobectomy in the management of patients after induction therapy.

NOTES

28. Safety Of Left Ventricular Apical Cannulation For Left Ventricular Assist Device In Massive Acute Anteroapical Myocardial Infarction

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Bradley Graham Leshnower¹, Thomas G Gleason², Mary Lou O'Hara¹, Alberto Pochettino¹, Y Joseph Woo¹, Rohinton J Morris¹, *Timothy J. Gardner¹, Michael Andrew Acker¹

¹University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania, United States; ²Northwestern University Feinberg School of Medicine, Chicago, Illinois, United States

Objectives: Success in bridging patients with massive acute anteroapical myocardial infarction (AMI) in cardiogenic shock has been reportedly limited due to complications arising from apical cannulation. Left atrial cannulation provides limited efficiency of LVAD inflow for adequate LV decompression and LVAD output, and has been associated with increased risk of LV thrombus and stroke. There is concern that LV apical cannulation is insecure when placed in friable, acutely infarcted myocardium. We sought to prove that LV apical cannulation is as safe and effective in acute AMI as it is in chronic ischemic cardiomyopathy.

Methods: From 4/1995 to 12/2004 50 LVADs were placed for bridge to transplantation in patients with massive acute AMI (group A) in a single institution. All patients presented in cardiogenic shock. Group A was compared to a concurrent cohort of LVADs placed in chronic ischemic cardiomyopathics (60 patients, group B). LV apical cannulation was performed in all cases using the same intermediate-term LVAD (Thoratec or TCI) implant technique.

Results: Demographics including age, sex, and comorbidities were equivalent. Cardiopulmonary bypass time, perioperative transfusions, reoperation rate, incidence of renal insufficiency, infection, stroke, bleeding, right ventricular failure, and length of LVAD support were equivalent. Thirty-seven (74%) and 35 (58%) patients in groups A and B, respectively, were transplanted ($p=0.085$). Thirty-day post-VAD death rates and overall survival to discharge rates were 12% and 64% (Group A) and 15% and 60% (Group B) ($p=0.65$ and 0.67), respectively.

Conclusions: LV apical VAD inflow cannulation is as safe and effective for massive acute MI involving the LV apex as it is for chronic ischemic cardiomyopathics.

NOTES

29. The Maxsuv On FDG-PET Of Mediastinal Lymph Nodes Predicts Metastatic Non-small Cell Lung Cancer

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*Robert J. Cerfolio¹, Ayesha S. Bryant¹, Buddhiwardan Ojha¹

¹University of Alabama at Birmingham, Birmingham, Alabama, United States

Objectives: PET scans often help direct biopsies of mediastinal lymph nodes in patients with non-small cell lung cancer. The objective of this study was to evaluate the maxSUV values of individual nodes.

Methods: A prospective study of patients with non-small cell lung cancer who underwent integrated FDG-PET/CT and lymph node biopsy and/or complete resection.

Results: There were 397 patients, 143 had N2 disease and 1252 N2 nodes were pathologically examined. The incidence of N2 disease at each station was: 2R (20/246), 4R (31/254), 5(20/191), 6 (14/184), 7 (24/193) and 8, 9 (9/184). The median maxSUV of the pathologically positive 2R was 10.4 (range, 0-18.6) compared to 0 (range, 0-16.1) for those that were negative (p=0.03); for the pathologically positive 4R node it was 8.6 (range, 0-18.3) compared to 0 (range, 0-18.8) (p=0.02); for the pathologically positive 5 it was 8.9 (range, 0-26.3) compared to 0 (range, 0-9.6) (p=0.031), 6 it was 7.6 (range, 0-19.6) compared to 0 (range, 0-5.6) (p=0.042); for the pathologically positive 7 it was 7.7 (range, 0-14) compared to 0 (range, 2.8-8.1) (p=0.01); for the pathologically positive 8, 9 it was 5.4 (range, 0-8.9) compared to 0 (range, 0-4.8)(p=0.89). Adenocarcinoma had greater maxSUV than squamous (p=0.01).

Conclusions: The maxSUV of individual mediastinal lymph nodes is a predictor of malignancy; however, there is considerable overlap between false and true positives. Lower maxSUV values are seen in the posterior mediastinal lymph nodes and there is less overlap between false and true positives. Lymph nodes can have a maxSUV of 18.8 and still be benign. Definite biopsies are required to prove cancer irrespective of the maxSUV value.

NOTES

30. Robotic Assisted Coronary Artery Bypass On A Beating Heart: Initial Experience And Implications For The Future

Unless identified below, authors/speakers have no material financial or other relationship to disclose that may pose a conflict of interest. Unless listed below, authors/speakers will not discuss the use of a device, product, or drug that is not FDA-approved, or an off-label use of approved devices, products or drugs.

*William F. Turner, Jr.¹

¹*Center For Advanced Surgery And Technology At Trinity Mother Frances Health System, Tyler, Texas, United States*

Objectives: Although totally endoscopic coronary artery bypass using facilitated anastomotic devices is still in development, practical, less invasive surgical strategies using sophisticated robotic micro-surgical systems have been applied to facilitate the journey to a completely endoscopic procedure. This report summarizes initial clinical experience with Off-Pump Coronary Artery Bypass Grafting using the Intuitive da Vinci Surgical Robotic System.

Methods: Robotic assisted coronary artery bypass grafting performed through a small thoracotomy on a beating heart without the use of cardiopulmonary bypass (ROBOCAB) was performed on 60 patients 2/16/04 to 3/16/05. Postoperative morbidity, mortality, and length of stay were recorded.

Results: Operative mortality was 0%. The average operative time per case over the entire series was 4 hours 48 minutes. The average operative time per case for the first ten cases was 6 hours 6 minutes and decreased to 3 hours 50 minutes for the last ten cases of the series. The incidents of postoperative complications were as follows: re-op for bleeding 0%; transfused patients 6 (10%); atrial fibrillation 6 (10%); infections 2 (3.3%); neurologic 0%; renal failure 0%, ventilation greater than one day 0%. The average postoperative length of stay was 5 days.

Conclusions: Early results suggest ROBOCAB is a safe and effective means of myocardial revascularization and justify its continued clinical use. Operative time is decreased with experience. ROBOCAB may pave the way to a completely endoscopic, closed chest procedure for coronary artery bypass grafting.

NOTES

3rd Scientific Session: Session A

31. Improved Neurologic Outcomes With A Beating Heart Coronary Artery Bypass Program

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*Timothy Howard Trotter¹, Michael Gibson¹, Mary Lane¹

¹University of Oklahoma College of Medicine, Oklahoma City, OK, United States

Objectives: Comparisons between traditional Arrested Coronary Artery Bypass Grafting (ACABG) and Off-Pump CABG (OPCAB) have concentrated on evaluations of the contribution of the cardiopulmonary bypass machine (CPB) to the potential adverse outcomes. There have been no real comparisons between ACABG, Beating Heart on CPB CABG (BHCAB), and OPCAB to evaluate the effect of placing an aortic clamp on the clinical neurologic outcomes.

Methods: A conscious decision was made to perform all CABG procedures without placement of an aortic clamp. All CABG procedures were started in an OPCAB fashion and converted to BHCAB as required by the clinical situation. No aortic clamps were applied in the OPCAB or BHCAB patients. Proximal anastomosis was accomplished utilizing a variety of techniques. All patient information was maintained in a database that was regularly updated. OPCAB, BHCAB, and ACABG patients were evaluated and each group compared for clinical CVA.

Results: There were 424 patients (213 ACABG, 134 OPCAB, 77BHCAB) from 7/2000 to 4/2004 reviewed in the study. 6/213 (2.8%) of the ACABG patients experienced clinically obvious CVA in the immediate postoperative period and 0/211 (0%) of the BHCAB/OPCAB patients experienced CVA ($p < 0.02$). No BHCAB/OPCAB were converted to ACABG during the period of the study.

Conclusions: There have been no immediate postoperative CVA's in the OPCAB and BHCAB patients. This observation implies that the application of the aortic clamp is the more important culprit in CABG surgery rather than the use of CPB. This study shows that routine "clamp-less" surgery minimizes the risk of CVA and may be the most important improvement that is easily obtainable with the use of OPCAB/BHCAB surgery techniques.

NOTES

32. Resection Of The Descending Thoracic Aorta: Outcomes Following Use Of Hypothermic Circulatory Arrest

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Himanshu J. Patel¹, Michael S. Shillingford¹, Scott Mihalik¹,
*Steven F. Bolling¹, *Richard L. Prager¹, Mary C. Proctor¹, G.
Michael Deeb¹

¹University of Michigan Hospitals, Ann Arbor, MI, United States

Objectives: The use of hypothermic circulatory arrest (HCA) for operations on the descending thoracic aorta is controversial. While deep hypothermia may provide better end-organ and spinal cord protection, prolonged cardiopulmonary bypass and circulatory arrest may increase morbidity. This study assessed outcomes following use of HCA for descending thoracic aortic resection (DTAR) in a large cohort of consecutive patients. HCA was utilized if arch resection or extensive descending thoracic aortic resection was required, or if aortic pathology precluded cross-clamping.

Methods: All patients undergoing DTAR with HCA (112, mean age 60 yrs) from 1999-2004 were identified. Diagnosis included aneurysm (59 patients) and dissection (39 patients). Fifteen patients presented with rupture. Distal arch resection was required in 88 patients, while 11 patients underwent total arch resection. Extent of descending thoracic aortic resection included proximal third in 24, proximal 2/3rds in 19, and complete thoracic aorta in 61. The proximal anastomosis was performed with total body HCA, while the distal anastomosis was constructed with lower body HCA only (duration upper body HCA 33.4 ± 8.6 mins; total duration lower body HCA 68 ± 18.8 mins). Lumbar drain use was routine for DTAR involving more than the proximal third of the aorta.

Results: Operative mortality was 7.1%. Stroke occurred in 7 patients (6.4%). Permanent lower extremity paralysis/paresis was seen in 5.6%. Temporary dialysis was needed in 8 (7.2%), though only 2 patients required permanent dialysis (1.9%). Independent predictors of a composite end-point of death, stroke, permanent paralysis or dialysis included duration of lower body HCA, major postoperative infection, or the need for intraoperative or first 24 hour postoperative red cell transfusion (all p<0.05).

Conclusions: Adjunctive use of deep hypothermic circulatory arrest for descending thoracic aortic resection affords excellent preservation of end-organ and spinal cord function with low rates of mortality and significant morbidity.

NOTES

33. Left Atrial Reduction Enhances Outcomes Of Maze Procedure For Chronic Atrial Fibrillation During Concomitant Mitral Surgery

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*Vinay Badhwar¹, Gail Davenport¹, J. Crayton Pruitt, Jr.¹, Robert R. Lazzara¹, George Ebra¹, *Gary H Dworkin¹

¹*Cardiac Surgical Associates MAZE Investigators, Tampa-St. Petersburg, Florida, United States*

Objectives: Success of the MAZE procedure after mitral operations in patients with very large left atria (LA) and chronic continuous atrial fibrillation (cAF) remains sub-optimal. Moreover, current technique variations tend to obscure the decision-making algorithm in this cohort of patients. A simplified, single energy-source approach for the surgical management of patients with large left atria and cAF is presented.

Methods: From January 2003 to March 2005, 51 consecutive drug-resistant patients with cAF, left atrial enlargement and mitral valve disease underwent aggressive left atrial reduction (LAR) combined with left-sided only irrigated radiofrequency (RF) unipolar MAZE. LA dimensions were measured by TEE anterior-posterior leading edge-to-edge standardized protocol. There were 24 males (47.1%) and 27 females (52.9%), mean age 71.1 yrs (range, 45-86 yrs). Forty-nine patients (96.1%) had mitral regurgitation and 2 patients (3.9%) stenosis. Mean duration of cAF was 52.1 mos (range, 3-300 mos). Mitral repair was performed in 41 patients (80.4%) and replacement in 10 (19.6%). All patients underwent LAR with identical RF pulmonary vein box isolation with mitral annular connection, followed by linear suture closure of the left atrial appendage.

Results: LA size was reduced from 6.6 cm to 4.3 cm ($p=0.001$). The 30-day mortality was 5.9% (3/51). Mean length of stay was 8.4 days with 44 patients (91.7%) discharged in normal sinus rhythm (NSR). Cardioversions were performed in 20 patients (39.2%), all within the first month postoperatively. Perioperative morbidity was minimal. At follow-up, P-wave drug-free NSR was 92.9% in patients with at least 6 months of follow-up and 83.3% for those with 12-24 months.

Conclusions: LAR combined with a simplified left atrial only radiofrequency MAZE procedure with a single energy source is an effective and reproducible treatment for patients with cAF during concomitant mitral operations. Continued clinical evaluation and further follow-up is essential to confirm long-term outcomes.

NOTES

34. Stereotactic Radio Surgery (SRS) For The Treatment Of Lung Neoplasm

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*Arjun Pennathur¹, Steven Burton¹, James D Luketich¹, Ghulam Abbas¹, Hiran C Fernando¹, Dwight Heron¹, Jill Ireland¹, Rodney J Landreneau¹, Neil A Christie¹

¹University of Pittsburgh Medical Center, Pittsburgh, PA, United States

Objectives: Surgical resection is the standard of care for patients with non-small cell lung cancer (NSCLC) or limited pulmonary metastases (LPM). However, for high risk patients who are not surgical candidates, stereotactic radio surgery (SRS), may offer an alternative option. Our objective is to report our initial experience with SRS in the treatment of both NSCLC and LPM by a combined team of thoracic surgeons and radiation oncologists.

Methods: Patients who were medically inoperable were offered SRS. Thoracic surgeons evaluated all patients, placed the fiducials and performed treatment planning in corroboration with radiation oncologists. A median dose of 20 Gy to the 80% isodose line was administered in a single fraction. Initial response rate was assessed by CT scan and PET scan at 3 months. Time to progression (TTP) and Survival were monitored every 3 months.

Results: A total of 32 patients, 27 with NSCLC and 5 with LPM underwent SRS over a two-year period. There were 19 men and 13 women with a median age of 68 years (range 38-82). Percutaneous CT-guided fiducial placement resulted in pneumothorax requiring a pigtail catheter in 9 (28%) patients. An initial complete response (CR) was observed in 6 patients (19%), partial response (PR) in 11 (34%), and stable disease in 6 (19%). Early progression occurred in 9 patients (28%). Twelve patients (38%) remain progression free at a median follow-up of 5 months. The median TTP in the remaining 20 patients was 6 months (CI 4-11). There were no procedure related toxicity or mortalities, 4 deaths occurred from disease progression. The median survival was not yet reached.

Conclusions: Our preliminary experience indicates SRS is safe in this high risk group of patients with reasonable results. Surgery continues to offer the best chance of cure for resectable patients. However, SRS offers an alternative to high-risk patients.

NOTES

35. Thoracic Aorta False Aneurysm. What Surgical Strategy Should Be Recommended?

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Mauricio A. Villavicencio¹, Thomas A. Orszulak¹, Richard C. Daly¹, Joseph A. Dearani¹, Christopher G.A. McGregor¹, Charles J. Mullany¹, Francisco J. Puga¹, *Thoralf M. Sundt¹, Kenton James Zehr¹, *Hartzell V. Schaff¹

¹Mayo Clinic, Rochester, MN, United States

Objectives: Thoracic aorta false aneurysms (TAFE) are a surgical challenge and the best strategy to approach them remains uncertain.

Methods: Between 1981 and 2004, 57 patients were operated on for TAFE. Mean age was 57+/-18 years and 43 (75%) were male. 25(44%) had dyspnea, 22(39%) chest pain, 18(32%) fever and 12(21%) no symptoms. 27(47%) had hypertension, 15(26%) evidence of active infection and 37(65%) previous operation. Mean time interval between operations: 80+/-90 months. During the primary surgery the graft was wrapped in 12 out of 25(48%) cases. At TAFE surgery the location was root 10(18%), ascending 28(49%), arch 6(11%) and descending 13(32%). 21(37%) had femoro-femoral cannulation and 28(49%) circulatory arrest. Surgical technique include graft replacement in 27(47%), composite replacement 10(18%), patch 10(18%) and suture in 10(18%).

Results: Four patients died (7%). 5 out of 44(11%) had hemorrhage during sternotomy, but no one died, all had extra-mediastinal cannulation. 4(7%) had re-exploration for bleeding. Follow-up was complete totaling 349 patient-years. Survival: 77+/-6%, 63+/-8% and freedom from TAFE: 87+/-5%, 83+/-7%, at 5 and 10 years, respectively. Univariate analysis identified TAFE > 55mm as predictor of hemorrhage during sternotomy. Age > 60 years, renal failure and TAFE > 55mm were predictors of re-exploration for bleeding.

Conclusions: TAFE symptoms may be minimal and consequently a high degree of suspicion is warranted. Routine imaging screening is recommended whenever risk factors are present. Extra-mediastinal cannulation, deep hypothermia and circulatory arrest are required for large mediastinal TAFE. Despite serious risks, TAFE elimination is possible with good long-term results.

NOTES

3rd Scientific Session: Session B

36. Impact Of Radial Artery Use On Midterm Symptom Recurrence And Adverse Cardiac Events Following Off Pump Coronary Artery Bypass Graft Surgery

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Ahmet Tayfun Gurbuz¹, Ali Can Vuran², Ayhan A. Zia¹, Haiyan Cui¹, Aydin Aytac²

¹Tucson Heart Hospital, Tucson, Arizona, United States; ²Anadolu Saglik Merkezi, Gebze, Kocaeli, Turkey

Objectives: Radial artery is being used as an alternative conduit for surgical revascularization. There are mixed data on the incidence of radial artery graft spasm/closure and long-term patency following surgical revascularization. There is scarce data regarding radial artery use on symptom recurrence and adverse cardiac events following off pump coronary artery bypass graft surgery (OPCAB).

Methods: We prospectively evaluated 591 OPCAB patients over a four-year period. Radial artery grafts were used in 398 patients (mean age 67.6 ± 10.4 years, mean follow-up 37.7 ± 13.4 months). Symptom recurrence (angina, congestive heart failure), adverse cardiac events (myocardial infarction, coronary reintervention, sudden cardiac death) and overall mortality were recorded. Multivariate Cox Regression Analysis was used to evaluate predictors of end points.

Results: There was no difference with respect to preoperative risk factors between patients with and without radial artery grafts. Radial arteries were only used to bypass coronary arteries with $>75\%$ stenosis. 29 Patients developed recurrent angina, 5 had congestive heart failure and 9 had myocardial infarction. Coronary arteriogram was performed in 27 patients and 23 underwent reintervention. There were 32 occluded grafts of which 21 were radial arteries and 50 patent grafts of which 8 were radial arteries ($p < 0.001$). In the multivariate analysis, radial artery graft use was an independent predictor of increased symptom recurrence ($p 0.02$, OR 3.92 [1.64-9.39] 95% CI) and combined adverse cardiac events ($p 0.005$, OR 2.96 [1.37-6.36] 95% CI). Radial artery recipients had a tendency to develop more angina recurrence ($p 0.06$), coronary reintervention ($p 0.08$) and sudden cardiac death ($p 0.17$) although this did not reach statistical significance (small number of total adverse events).

Conclusions: Radial artery use was independently associated with increased symptom recurrence and adverse cardiac events during mid-term follow-up after OPCAB. Radial artery grafts had a higher incidence of closure compared to vein grafts.

NOTES

37. Heart Transplantation In Infants Ten Years Ago- Where Are They Now?

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*Charles B. Huddleston¹, Sanjiv Gandhi¹, Charles E Canter¹

¹Washington University School of Medicine/St Louis Childrens Hospital, St. Louis, Missouri, United States

Objectives: What has happened to the infants transplanted more than 10 years ago? When this therapy was offered to infants initially in the late 1980's the long-term results were unknown. We reviewed our group of infants transplanted more than 10 years ago to assess survival and quality of life as they approach their teenage years.

Methods: The medical records of these patients were reviewed to ascertain survival statistics, incidence of complications and their current health status.

Results: The average age at transplant was 44 ± 44 days (range 4 - 143 days). Over the course of the past 16 years, 10 of these infants have died for an actual survival of 76% (32/42) at 10 years. Four deaths occurred early and were due to graft failure (3), and sepsis (1). The late deaths were due to pulmonary veno-occlusive disease (1), post-transplant coronary vasculopathy (1), rejection (1), post-transplant lymphoproliferative disorder (1) and infection (2). In the group of 10-year survivors, five patients are being treated for attention deficit hyperactivity disorder. Five have at least moderate renal dysfunction and one of these has had a renal transplant. Three patients developed malignancies and was the cause of death in one. Three patients developed transplant coronary vasculopathy which was the cause of death in one and resulted in retransplantation in another; the third has stable mild disease. One patient required reoperation for supravalvar aortic stenosis. Four other patients have minor health problems-sleep apnea (1), recurrent pneumonias (1), hypertension (2). 30 patients attend regular school with otherwise normal children.

Conclusions: Although these children require intensive medical care including daily medications and followup, most have a satisfactory quality of life and behave much like normal children.

NOTES

38. Pexelizumab Reduced Mortality In Multiple Risk Factor Patients With Extended Aortic Cross Clamp Time: A Subanalysis Of The Primo CABG Trial

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*Peter K. Smith¹, Michel Carrier², John C. Chen³, *Axel Haverich⁴, Jerrold H. Levy⁵, Phillippe Menache⁹, Stanton K. Shernan⁶, Frans Van De Werf⁷, Peter X. Adams⁸, Thomas G. Todaro¹⁰, Edward D. Verrier¹¹

²Montreal Heart Institute, Montreal, Quebec, Canada; ³University of Hawaii Kaiser, Honolulu, Hawaii, United States; ⁴Hannover Medical School, Hannover, Germany; ⁵Emory Medical School, Atlanta, Georgia, United States; ⁶Brigham and Womens Hospital, Boston, Massachusetts, United States; ⁷Leuven Coordinating Center, Leuven, Belgium; ⁸Alexion Pharmaceuticals, Cheshire, Connecticut, United States; ⁹Hosp European George Pompidou, Paris, France; ¹⁰Procter and Gamble Pharmaceuticals, Mason, Ohio, United States; ¹¹University of Washington School of Medicine, Seattle, Washington, United States; ¹Duke University Medical Center, Durham, North Carolina, United States

Objectives: Extended aortic cross-clamp time is associated with significant mortality and morbidity in coronary artery bypass grafting (CABG). The investigational drug Pexelizumab (PEX), a C5 complement inhibitor, was shown to reduce mortality or myocardial infarction (MI) in the PRIMO-CABG trial of patients undergoing CABG with or without valve surgery. The objective of this analysis was to determine: 1) the interaction between patient risk factors and aortic cross-clamp time; and 2) whether these impact clinical outcomes of PEX treated patients as compared to placebo.

Methods: We examined the incidence of death or MI (Death/MI) in patients who had extended (=90 min) of aortic cross-clamping compared with those having clamp durations of <90 minutes in this randomized, double-blind, placebo-controlled trial. Patients (n=3088) were required to have 1 or more prospectively identified risk factors: diabetes mellitus, prior CABG, urgent intervention, female gender, history of neurological event, congestive heart failure, 2 or more MIs or recent MI (>48hrs but <4weeks).

Results: Baseline characteristics, risk factors, and aortic cross-clamp duration were similar between placebo and PEX treated patients. Multivariate regression analysis showed that an increased number of risk factors (n=2014) and extended cross-clamp time (n=646) were significantly associated with Death/MI for both placebo and PEX treated patients (p<0.0001). The incidence of Death/MI, but not death alone, was significantly reduced by PEX for patients with multiple risk factors. In a subset of these patients who also had extended clamp time (n=428), PEX significantly reduced both mortality (4.2% vs 9.4%, p=0.036) and Death/MI (20.4% vs 29.2%, p=0.037) compared with patients receiving placebo.

Conclusions: This subgroup analysis of the PRIMO-CABG study showed that PEX reduced mortality, and Death/MI in multiple-risk factor CABG patients when cross-clamp times exceeded 90 minutes. PEX remained effective regardless of the duration of surgically-induced ischemia or the presence of multiple risk factors.

NOTES

Relationship Disclosure (Peter Smith): Consultant
Alexion Pharmaceuticals; Proctor & Gamble
Pharmaceuticals

Relationship Disclosure (Michel Carrier): Consultant
Alexion Pharmaceuticals; Proctor & Gamble
Pharmaceuticals

Relationship Disclosure (John Chen): Consultant Alexion
Pharmaceuticals; Proctor & Gamble Pharmaceuticals

Relationship Disclosure (Axel Haverich): Consultant
Alexion Pharmaceuticals; Proctor & Gamble
Pharmaceuticals

Relationship Disclosure (Jerrold Levy): Consultant
Alexion Pharmaceuticals; Proctor & Gamble
Pharmaceuticals

Relationship Disclosure (Phillippe Menache): Consultant
Alexion Pharmaceuticals; Proctor & Gamble
Pharmaceuticals

Relationship Disclosure (Stanton Shernan): Consultant
Alexion Pharmaceuticals; Proctor & Gamble
Pharmaceuticals

Relationship Disclosure (Frans Van De Werf): Consultant
Alexion Pharmaceuticals; Proctor & Gamble
Pharmaceuticals

Relationship Disclosure (Peter Adams): Employee
Alexion Pharmaceuticals

Relationship Disclosure (Thomas Todaro): Employee
Procter & Gamble Pharmaceuticals

Relationship Disclosure (Edward Verrier): Consultant
Alexion Pharmaceuticals; Proctor & Gamble
Pharmaceuticals

39. Radioguided Detection Of Lymph Node Metastasis In Non-small Cell Lung Cancer

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Chumy Nwogu¹, Gabor Fischer¹, Michal Glinianski¹, DongFeng Tan¹, Dominick Lamonica¹, *Todd Demmy¹

¹Roswell Park Cancer Institute State University of New York, Buffalo, NY, United States

Objectives: Lymph node metastasis is the most important prognostic factor in locoregional lung cancer. Positron emission tomography (PET) has become a valuable clinical staging tool. The feasibility of using a handheld gamma probe capable of detecting F18-Fluorodeoxyglucose (FDG) intra-operatively, to improve the lymph node staging of non-small cell lung cancer was evaluated.

Methods: Ten patients with resectable loco-regional lung cancers were enrolled in this pilot study. Every patient had pre-operative PET and mediastinoscopy. These patients were injected with 10 to 15 mCi of F18-Fluorodeoxyglucose (FDG) on the day of surgery, 1 - 4 hours before the planned surgical procedure.

Mapping of increased FDG uptake in the regional lymph nodes was performed during video-assisted thoracic surgery (VATS) or open thoracic procedures, using a handheld gamma probe (Gammed VI surgical probe)

The lymph nodes that demonstrated increased FDG uptake, but were non-malignant by routine hematoxylin & eosin (H & E) evaluation, were further assessed by serial sectioning and immunohistochemistry (IHC).

Results: The handheld probe detected all FDG-PET image positive lesions. In one case, the probe detected a group of FDG avid lymph nodes not seen on PET. In another case, the probe correctly identified the one pathologically significant lymph node out of a group of hilar nodes that were FDG avid on PET. These two patients harbored micrometastases in their lymph nodes and were upstaged (20% of the study cases).

Conclusions: It is feasible to detect occult metastases in lymph nodes by using an intra-operative gamma probe, resulting in upstaging of patients. Evaluation of the sensitivity and specificity of such a device will require a larger study.

Relationship Disclosure (Chumy Nwogu): Research Funding from Capintec, Inc maker of Gammed VI surgical probe).

NOTES

40. Early Steroid Withdrawal Improves Late Survival After Heart Transplantation: 14 Year Results

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David Rosenbaum¹, Rehal Bhojani¹, Patricia Kaiser¹, Dan Meyer¹, Michael Jessen¹, *Michael Wait¹, Clyde Yancy¹, *W. Steves Ring¹, *J. Michael DiMaio¹

¹UT Southwestern Medical Center, Dallas, TX, United States

Objectives: Chronic immunosuppression with steroids after heart transplantation leads to many well known adverse effects. Several groups have attempted to withdraw patients from steroids at various time points post transplantation; however, few have demonstrated any survival benefit. Our transplant program began in 1988 with an initial immunosuppressive regimen of Cyclosporine, Azathioprine, and Prednisone (CAP) without cytolytic induction therapy. In 1990, we began a trial of rapid (within 6 months) steroid taper on patients capable of prolonged follow-up and without renal dysfunction (CAP-T).

Methods: We performed a retrospective analysis of these patients comparing the CAP-T (N=87, 1990-1996) group to the CAP group (N=63, 1988-1996). Nine patients were excluded secondary to postoperative mortality less than 30 days (7), pediatric transplant (1), and retransplant (1). The two groups were comparable with respect to donor and recipient age, gender, CMV status, and preoperative renal function. They were analyzed by intention to treat.

Results: In the CAP-T group, 30/87 (34%) patients failed to taper off steroids by six months. These patients failed the Prednisone taper because of multiple episodes of acute rejection or acute vascular rejection (23), leukopenia (4), renal insufficiency (2), and reactive airway disease (1). Results demonstrated improved 10-year survival in the CAP-T group (79% vs. 57%; p=.0083). However, an increased 1, 3, and 5-year incidence of acute rejection was noted in the CAP-T vs. CAP groups (8%, 9%, and 11% vs. 5%, 5%, and 7%; p=.0357).

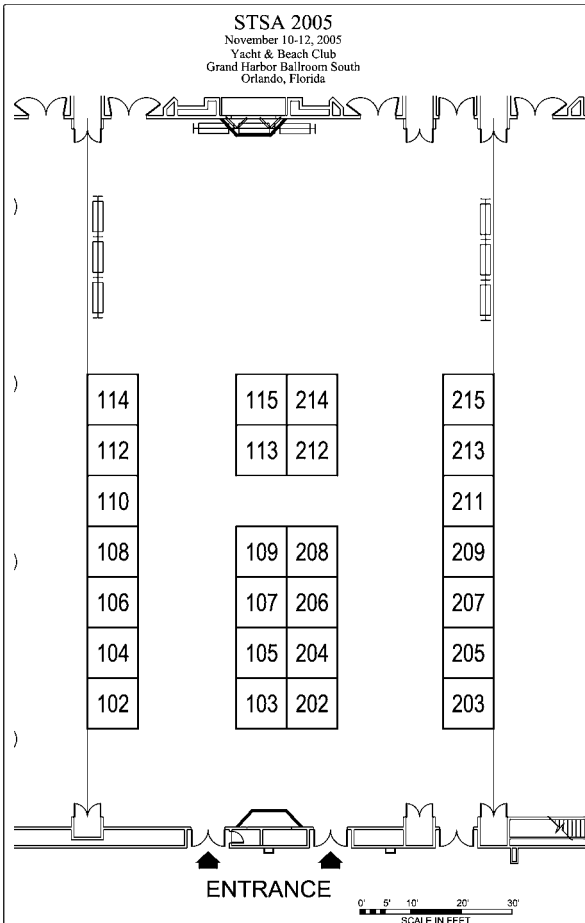
Conclusions: These results demonstrate that 66% of patients may tolerate weaning from steroids within six months of cardiac transplantation. Although, this leads to increased acute rejection, survival is improved with this protocol.

NOTES

EXHIBITORS*

*Confirmed as of August 25, 2005

- The Exhibit Hall is located in the Grand Harbor Ballroom South in the Convention Center at the Disney Yacht and Beach Club.
- All coffee breaks are scheduled in the exhibit area during show hours.
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Saint Louis, MO 63110

CTSNet is the premier electronic community and information portal for cardiothoracic surgery, providing the most comprehensive, most heavily trafficked, and most reliable online source of information about cardiothoracic surgery available worldwide.

Edwards Lifesciences.....109

One Edwards Way
Irvine, CA 92614

Edwards Lifesciences, the number one heart valve company in the world, is focused on applying innovative technologies to four cardiovascular areas: heart valve disease, coronary artery disease, peripheral vascular disease and congestive heart failure.

Fehling Surgical Instruments, Inc.....206

509 Broadstone Lane
Acworth, GA 30101

FEHLING SURGICAL INSTRUMENTS` exhibit features the "Fehling CERAMO® Instrument Line" and "SUPERPLAST Coronary Probes". Black CERAMO® surface means high efficiency through enhanced performance, increased endurance and minimal maintenance. See and feel the difference.

Guidant204

3200 Lakeside Drive
Santa Clara, CA 95054

Guidant Cardiac Surgery delivers on the promise of minimally-invasive options for you and your patients by offering clampless off-pump bypass, endoscopic vessel harvesting, and microwave ablation technologies. Guidant Cardiac Surgery. Expanding your options for better patient outcomes.

Medical Carbon Research Inst. LLC.....107

8200 Cameron Road
Suite A-196
Austin, TX 78754

The On-X® Prosthetic Heart Valve design advances and patented pure On-X® carbon material produce superior hemodynamics with reduced turbulence and decreased morbid events. The On-X® valve was designed to benefit patients for life. Please ask MCRI about the clinical data.

Medtronic, Inc.213 - 215

7601 Northland Drive
Brooklyn Park, MN 55428

Beating/Arrested Heart Cardiac Surgery Products: Tissue Stabilization Systems, Heart Positioners, Anastomotic Devices, Blower/Mister Tool, Irrigated Radio Frequency Products for Surgical Ablation, Stented/Stentless Tissue Valves, Mechanical Valves, Annuloplasty Systems, Temporary Pacing Wires, Cardiopulmonary Perfusion System and Products, Cannulae.

Scanlan International, Inc.....202

One Scanlan Plaza
St. Paul, MN 55107

Specialty instrumentation designed and manufactured by the Scanlan family since 1921 including stainless steel and titanium instruments, Premier™ Spring Style Micro Scissors, and single-use aorta/vein punches, and Vasco-Statt™ bulldog clamps.

Sorin Group.....208

14401 West 65th Way
Arvada, CO 80004

The Sorin Group offers innovative solutions for endovascular therapies, cardiac rhythm dysfunctions, and the treatment of chronic kidney diseases. The Sorin Group has over 4,700 employees working at facilities in more than 80 countries, serving over 5,000 public and private healthcare centers.

St. Jude Medical, Inc.110 - 112

One Lillehei Plaza
St. Paul, MN 55117

St. Jude Medical will feature solutions for Cardiac Surgery, including mechanical and bioprosthetic heart valves, repair products, and the Epicor™ Cardiac Ablation System, which uses High Intensity Focused Ultrasound (HIFU) to ablate cardiac tissue, off-pump and epicardially.

Terumo Cardiovascular Systems.....106

6200 Jackson Rd
Ann Arbor, MI 48103

Terumo Cardiovascular Systems develops and manufactures precision-focused products for the specialized needs of the cardiac surgical team with an emphasis on cardiopulmonary bypass and intraoperative monitoring.

Vascutek USA Inc, A Terumo Company104

6200 Jackson Rd
Ann Arbor, MI 48103

Vascutek, a TERUMO Company, specializes in technical excellence, stringent quality control, and total customer service. We offer a full range of innovative polyester and ePTFE products. Gelsoft™ Plus features a Köper knitted structure that minimizes graft dilatation. Unity™ Construction is a new type of external reinforcement for ePTFE grafts available with both the SEALPTFE™ and MAXIFLO™ range.

Vitalcor, Inc.203

100 E. Chestnut Ave. Westmont, IL 60559

Introducing the dingo clamp. Replaces the bulldog. Titanium specialty instruments. Reuseable stabilizer for beating heart surgery. Latex free coronary artery balloon cannulae with balloon. Applied fiberoptics gemini headlight & sunbeam light source.



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Phone: 800.685.STSA (7872)
Fax: 312.202.5801
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