THE AMERICAN ASSOCIATION OF

ENDOCRINE SURGEONS

Thirty-Fourth Annual Meeting

April 14-16, 2013

InterContinental Chicago

Chicago, IL

THANK YOU

The American Association of Endocrine Surgeons would like to thank the following companies for their generous support of our meeting through educational grants and in kind donations:

Covidien
Esoate
GE Healthcare Ultrasound
Intuitive
Medtronic
Sense Medical / Neurosign
Veracyte

The American Association of Endocrine Surgeons Foundation would like to thank the following company for their generous support of the Paul LoGerfo Educational Research Award through an annual grant:

Elsevier, Inc.

The American Association of Endocrine Surgeons gratefully acknowledges the support of the following exhibiting companies

Akrimax Pharmaceuticals
AMEND USA
American Multiple Endocrine Neoplasia Support
American Thyroid Association
ArborMetrix, Inc.
Asuragen
Covidien
Ethicon, Inc.
Future Diagnostics
GE Healthcare – Ultrasound
Genzyme Corporation
Graves' Disease & Thyroid Foundation
Hitachi Aloka Medical
Medtronic
Neurovision Medical Products (IOM Solutions)
Sense Medical/Neurosign
Stradis Healthcare
ThyCa: Thyroid Cancer Survivors' Association
Veracyte

Special thanks to the AAES 2013 Publication and Program Committee

Mark Cohen – *Chair*
Nancy Perrier – *Secretary-Treasurer*
Miguel Herrera – *President*
Herbert Chen – *Recorder*
Marybeth Hughes
Juan Pablo Pantoja
Kepal Patel
Jennifer Rosen
David Terris
Scott Wilhelm
Linwah Yip

Ad Hoc Review Committee Members
Sally E. Carty
Orlo Clark
John Hanks
Rebecca Sippel
Jeff Moley
Collin Weber

THE AMERICAN ASSOCIATION OF

ENDOCRINE SURGEONS

Thirty-Fourth Annual Meeting

Direct all correspondence to

American Association of Endocrine Surgeons
5019 W. 147th Street
Leawood, KS 66224
Telephone: 913-402-7102
Fax: 913-273-9940
Email: meetings@endocrinesurgery.org

AAES Secretary-Treasurer
Nancy D. Perrier, MD
MD Anderson Cancer Center
1400 Pressler Street
Unit 1484
Houston, TX 77030
Phone: 713-794-1345
Fax: 713-563-5727
Email: nperrier@mdanderson.org

American Association of Endocrine Surgeons
www.endocrinesurgery.org

AAES FUTURE MEETINGS

April 27–29, 2014
Boston, Massachusetts
Richard A. Hodin, MD

May 17–19, 2015
Nashville, Tennessee
Carmen C. Solorzano, MD

2016
Baltimore, Maryland
John A. Olson, Jr., MD, PhD

TABLE OF CONTENTS

FUTURE MEETINGS 2

OFFICERS AND COMMITTEES 4

PAST OFFICERS 5

OLIVER COPE AWARD RECIPIENTS 9

HONORARY MEMBERS 11

RESIDENT/FELLOW RESEARCH & POSTER COMPETITION AWARD RECIPIENTS 12

NEW MEMBERS 17

CONTRIBUTORS TO THE AAES FOUNDATION AND THE PAUL LoGERFO EDUCATIONAL RESEARCH FUND 19

PAST MEETINGS 20

SPECIAL SESSIONS 22

HISTORICAL LECTURERS 25

HISTORICAL LECTURERS AT RECENT MEETINGS 28

INVITED LECTURER 29

INVITED LECTURERS AT RECENT MEETINGS 30

CONFERENCE INFORMATION 33

AGENDA 37

SCIENTIFIC PROGRAM 47

ABSTRACTS 59

POSTER DISPLAYS 135

BYLAWS 145

MEMBERSHIP DIRECTORY 159

GEOGRAPHICAL MEMBERSHIP DIRECTORY 229

MEMBER CONTACT INFORMATION SHEET 243

IN MEMORIAM 244

NOTES 245

OFFICERS, COUNCIL & COMMITTEES

PRESIDENT
Miguel F. Herrera

PRESIDENT-ELECT
Sally E. Carty

VICE PRESIDENT
Allan Siperstein

SECRETARY-TREASURER
Nancy D. Perrier

RECORDER
Herbert Chen

COUNCIL
Douglas B. Evans
Douglas L. Fraker
Fiemu E. Nwariaku
John A. Olson, Jr.
Sareh Parangi
Janice L. Pasieka
Ashok R. Shaha
Carmen C. Solorzano
Michael W. Yeh

PUBLICATION AND PROGRAM COMMITTEE
Mark S. Cohen - *Chair*
Miguel F. Herrera
Nancy D. Perrier
Herbert Chen
Marybeth Hughes
Juan Pablo Pantoja
Kepal N. Patel
Jennifer E. Rosen
David J. Terris
Scott M. Wilhelm
Linwah Yip

MEMBERSHIP COMMITTEE
Carmen C. Solorzano - *Chair*
Fiemu E. Nwariaku
Michael W. Yeh

ABS SURGICAL ONCOLOGY BOARD REPRESENTATIVE
Gerard M. Doherty

DIRECTOR ESU
Martha A. Zeiger

COMMITTEE ON EDUCATION AND RESEARCH
Sareh Parangi - *Chair*
Amelia C. Grover
Mira M. Milas
Barbra S. Miller
John A. Olson, Jr.
Rebecca S. Sippel
Cord Sturgeon
David Velazquez

NOMINATING COMMITTEE
Janice L. Pasieka - *Chair*
Douglas B. Evans
Ashok R. Shaha
Miguel F. Herrera

AMA ENDOCRINE SECTION COUNCIL REPRESENTATIVE
Steven A. De Jong

NSQIP REPRESENTATIVEE
Julie Ann Sosa

AACE REPRESENTATIVES
Nancy D. Perrier
Mira M. Milas

FELLOWSHIP COMMITTEE
Tracy S. Wang - *Chair*
Shabir Abadin
Peter Angelos
Tobias Carling
Sally E. Carty
Paul G. Gauger
Clive S. Grant
Richard A. Hodin
William B. Inabnet, III
James Lee
John I. Lew
Jennifer Ogilvie
Janice L. Pasieka
Nancy D. Perrier
Richard A. Prinz
Greg W. Randolph
Sanziana A. Roman
Daniel Ruan
Wen T. Shen
Allan Siperstein
Rebecca S. Sippel
Samuel K. Snyder
Martha A. Zeiger

ACCREDITATION COMMITTEE
William B. Inabnet, III – *Chair*
Sally E. Carty
Orlo H. Clark
Christopher McHenry
Sonia L. Sugg
Gerard M. Doherty
Sanziana A. Roman
Tracy S. Wang
Nancy D. Perrier
Miguel F. Herrera

ACS BOARD OF GOVERNORS REPRESENTATIVE
Janice L. Pasieka

AAES FOUNDATION
Geoffrey B. Thompson - *Chair*
Jack M. Monchik - *Vice Chair*
Peter Angelos
John A. Chabot
William B. Inabnet, III
Janice L. Pasieka
Robert Udelsman

IT COMMITTEE
Nancy D. Perrier - *Co-Chair*
David R. Farley - *Co-Chair*
Alan P.B. Dackiw
Richard A. Hodin
James Lee
John Lew
Janice L. Pasieka

2013 LOCAL ARRANGEMENTS CHAIR
Peter Angelos

AD HOC ABSTRACT REVIEW COMMITTEE
Sally E. Carty
Orlo H. Clark
John B. Hanks
Jeffrey F. Moley
Rebecca S. Sippel
Collin J. Weber

PAST OFFICERS

1980-1981
Norman W. Thompson ..... President
Orlo H. Clark ..... Vice President
John M. Monchik ..... Secretary-Treasurer

1981-1982
Norman W. Thompson ..... President
Orlo H. Clark ..... Vice President
John M. Monchik ..... Secretary-Treasurer

1982-1983
Edwin L. Kaplan ..... President
Blake Cady ..... Vice President
John M. Monchik ..... Secretary-Treasurer

1983-1984
Stanley R. Friesen ..... President
John A. Palmer ..... Vice President
John M. Monchik ..... Secretary-Treasurer

1984-1985
Leonard Rosoff ..... President
John M. Monchik ..... Vice President
Stuart D. Wilson ..... Secretary-Treasurer

1985-1986
Chiu-An Wang ..... President
Edward Paloyan ..... Vice President
Stuart D. Wilson ..... Secretary-Treasurer

1986-1987
Oliver Beahrs ..... President
Robert C. Hickey ..... Vice President
Stuart D. Wilson ..... Secretary-Treasurer

1987-1988
Edward Paloyan ..... President
Caldwell B. Esselstyn ..... Vice President
Stuart D. Wilson ..... Secretary-Treasurer
Jon A. van Heerden ..... Recorder

1988-1989
John R. Brooks ..... President
Melvin A. Block ..... Vice President
Richard A. Prinz ..... Secretary-Treasurer
Jon A. van Heerden ..... Recorder

PAST OFFICERS CONT.

1989-1990
Colin G. Thomas, Jr ..... President
Carl R. Feind ..... Vice President
Richard A. Prinz ..... Secretary-Treasurer
Jon A. van Heerden ..... Recorder

1990-1991
Caldwell B. Esselstyn ..... President
Brown M. Dobyns ..... Vice President
Richard A. Prinz ..... Secretary-Treasurer
Robert D. Croom, III ..... Recorder

1991-1992
Stuart D. Wilson ..... President
Joseph N. Attie ..... Vice President
Blake Cady ..... Secretary-Treasurer
Robert D. Croom, III ..... Recorder

1992-1993
Robert C. Hickey ..... President
Patricia J. Numann ..... Vice President
Blake Cady ..... Secretary-Treasurer
Robert D. Croom, III ..... Recorder

1993-1994
Orlo H. Clark ..... President
Glen W. Geelhoed ..... Vice President
Blake Cady ..... Secretary-Treasurer
George L. Irvin, III ..... Recorder

1994-1995
John M. Monchik ..... President
Jon A. van Heerden ..... Vice President
Jay K. Harness ..... Secretary-Treasurer
George L. Irvin, III ..... Recorder

1995-1996
Richard A. Prinz ..... President
Jeffrey A. Norton ..... Vice President
Jay K. Harness ..... Secretary-Treasurer
George L. Irvin, III ..... Recorder

1996-1997
Jon A. van Heerden ..... President
George L. Irvin, III ..... Vice President
Jay K. Harness ..... Secretary-Treasurer
Quan-Yang Duh ..... Recorder

PAST OFFICERS CONT.

1997-1998
Blake Cady.....President
E. Christopher Ellison ..... Vice President
Paul LoGerfo .....Secretary-Treasurer
Quan-Yang Duh.....Recorder

1998-1999
George L. Irvin, III .....President
Barbara K. Kinder..... Vice President
Paul LoGerfo .....Secretary-Treasurer
Quan-Yang Duh.....Recorder

1999-2000
Jay K. Harness.....President
John S. Kukora .....Vice-President
Paul LoGerfo .....Secretary-Treasurer
Michael J. Demeure .....Recorder

2000-2001
Barbara K. Kinder.....President
Martha A. Zeiger .....Vice-President
Christopher R. McHenry.....Secretary-Treasurer
Michael J. Demeure .....Recorder

2001-2002
Clive S. Grant.....President
Miguel F. Herrera.....Vice-President
Christopher R. McHenry.....Secretary-Treasurer
Michael J. Demeure .....Recorder

2002-2003
Quan-Yang Duh.....President
Gary B. Talpos.....Vice-President
Christopher R. McHenry.....Secretary-Treasurer
Geoffrey B. Thompson .....Recorder

2003-2004
Paul LoGerfo .....President
Ashok R. Shaha .....Vice-President
Janice L. Pasieka.....Secretary-Treasurer
Geoffrey B. Thompson ..... Recorder

2004-2005
John A. Kukora .....President
Andrew W. Saxe .....Vice-President
Janice L. Pasieka.....Secretary-Treasurer
Geoffrey B. Thompson .....Recorder

PAST OFFICERS CONT.

2005-2006
Robert Udelsman.....President
Collin J. Weber.....Vice-President
Janice L. Pasieka.....Secretary-Treasurer
Douglas B. Evans.....Recorder

2006-2007
Christopher R. McHenry.....President
John B. Hanks.....Vice-President
Sally E. Carty.....Secretary-Treasurer
Douglas B. Evans.....Recorder

2007-2008
Geoffrey B. Thompson.....President
Terry C. Lairmore.....Vice-President
Sally E. Carty.....Secretary-Treasurer
Douglas B. Evans.....Recorder

2008-2009
Michael J. Demeure.....President
Jeffrey F. Moley.....Vice-President
Sally E. Carty.....Secretary-Treasurer
Steven K. Libutti.....Recorder

2009-2010
Janice L. Pasieka.....President
Jeffrey E. Lee.....Vice-President
Peter Angelos.....Secretary-Treasurer
Steven K. Libutti.....Recorder

2010-2011
Douglas B. Evans.....President
Gerard M. Doherty.....Vice-President
Peter Angelos.....Secretary-Treasurer
Steven K. Libutti.....Recorder

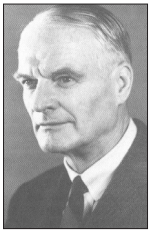
2011-2012
Ashok R. Shaha.....President
Thomas J. Fahey, III.....Vice-President
Peter Angelos.....Secretary-Treasurer
Herbert Chen.....Recorder

2012-2013
Miguel Herrera.....President
Allan Siperstein.....Vice-President
Nancy D. Perrier.....Secretary-Treasurer
Herbert Chen.....Recorder

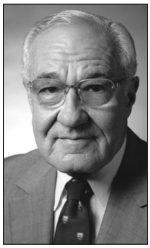
THE OLIVER COPE MERITORIOUS ACHIEVEMENT AWARD

In April of 1984 at the American Association of Endocrine Surgeons Meeting in Kansas City, Drs. Edward Kaplan, Jack Monchik, Leonard Rosoff, Norm Thompson and Stuart Wilson proposed to the Council a new achievement award. The award honors a member of the AAES in recognition for contributions in the field of endocrine surgery as an investigator, teacher and clinical surgeon. It is not an annual award but is to be given to members of our Association who truly aspire to the spirit of this award.

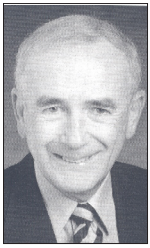
On April 15, 1985 at the annual meeting of the AAES in Toronto, our President, Leonard Rosoff announced the first member to receive this award, Dr. Oliver Cope. In giving this award to Dr. Cope the decision of the Council was that from this day forward the award would be known as the Oliver Cope Meritorious Achievement Award for the American Association of Endocrine Surgeons.



Oliver Cope, MD
Professor of Surgery,
Harvard University and the
Massachusetts General Hospital
Awarded in Ontario in April 1985.



Stanley R. Friesen, MD, PhD
Professor of Surgery, University of Kansas
Awarded in Detroit, MI in April 1994.
Dr. Friesen served as the President of our Association in 1983.



Norman W. Thompson, MD
Henry King Ransom Professor of Surgery, University of Michigan
Awarded in Atlanta, GA in April 2001.
Dr. Thompson served as our inaugural President in 1980 and also in 1981.

THE OLIVER COPE MERITORIOUS ACHIEVEMENT AWARD CONT.

Jon A. van Heerden, MD
Professor of Surgery Mayo Clinic
Awarded in Charlottesville, NC in April 2004.
Dr. van Heerden served as our Recorder from 1987-1989, as our Vice-President in 1994, and as President in 1996.

Orlo H. Clark, MD
Professor of Surgery, UCSF Mount Zion Medical Center
Awarded in New York, NY in May 2006.
Dr. Clark served as our inaugural Vice President in 1980 and also in 1981, and as President in 1993.

Edwin L. Kaplan, MD
Professor of Surgery, University of Chicago
Awarded in Madison, WI in May 2009.
Dr. Kaplan served as our President in 1982.

George L. Irvin, III, MD
Professor Emeritus of Surgery, University of Miami
Awarded in Pittsburgh, PA in April 2010.
Dr. Irvin served as our Recorder from 1993-1996, as Vice President in 1996 and as President in 1998.

HONORARY MEMBERS

Individuals who have made outstanding contributions to the discipline of Endocrine Surgical Disease

J. Aidan Carney, Pathologist

Stuart D. Flynn, Pathologist

Ian D. Hay, Endocrinologist

Virginia A. LiVolsi, Pathologist

A. G. E. "Ace" Pearse, Endocrinologist

Thomas S. Reeve, Endocrine Surgeon

F. John Service, Endocrinologist

Britt Skogseid, Endocrinologist

R. Michael Tuttle, Endocrinologist

William F. Young, Endocrinologist

RESIDENT/FELLOW RESEARCH AWARD WINNERS & POSTER COMPETITION WINNERS

The AAES Resident/Fellow Research Award was established in 1990 to encourage interest in endocrine surgery by those training as students and residents in general surgery. Presented work may be honored in either the Clinical or Basic Research categories.

The AAES Poster Competition was established in 2007.

1990
Michael J. Demeure - San Francisco, California
"Actin Architecture of Cultured Human Thyroid Cancer Cells: Predictor of Differentiation?"

Gerard M. Doherty - Bethesda, Maryland
"Time to Recovery of the Hypothalamic-Pituitary-Adrenal Axis After Curative Resection of Adrenal Tumors in Patients with Cushing's Syndrome"

1996
Jennifer Meko - St. Louis, Missouri
"Evaluation of Somatostatin Receptor Scintigraphy in Detecting Neuroendocrine Tumors"

Beth A. Ditkoff - New York, New York
"Detection of Circulating Thyroid Cells in Peripheral Blood"

1997
Herbert Chen - Baltimore, Maryland
"Implanted Programmable Insulin Pumps: 153 Patient Years of Surgical Experience"

K. Michael Barry - Rochester, Minnesota
"Is Familial Hyperparathyroidism a Unique Disease"

1998
Julie Ann Sosa – Baltimore, Maryland
"Cost Implications of the Different Management Strategies for Primary Hyperparathyroidism in the US"

David Litvak - Galveston, Texas
"A Novel Cytotoxic Agent for Human Carcinoid"

RESIDENT/FELLOW RESEARCH AWARD WINNERS & POSTER COMPETITION WINNERS CONT.

1999

Andrew Feldman - Bethesda, Maryland
"Results of Heterotrophic Parathyroid Autotransplantation: A 13 Year Experience"

Alan Dackiw - Houston, Texas
"Screening for MENI Mutations in Patients with Atypical Multiple Endocrine Neoplasia"

2000

Electron Kebebew - San Francisco, California
"ID1 Proteins Expressed in Medullary Thyroid Cancer"

2001

Nestor F. Esnaola - Houston, Texas
"Optimal Treatment Strategy in Patients with Papillary Thyroid Cancer: A Decision Analysis"

Katherine T. Morris - Portland, Oregon
"High Dehydroepiandrosterone-Sulfate Predicts Breast Cancer Progression During New Aromatase Inhibitor Therapy and Stimulates Breast Cancer Cell Growth in Tissue Culture: A Renewed Role for Adrenalectomy"

2002

Rasa Zarnegar - San Francisco, California
"Increasing the Effectiveness of Radioactive Iodine Therapy in the Treatment of Thyroid Cancer Using Trichostatin A (TSA), A Histone Deacetylast (HDAC)"

Denise M. Carneiro - Miami, Florida
"Rapid Insulin Assay for Intraoperative Confirmation of Complete Resection of Insulinomas"

2003

Petra Musholt - Hanover, Germany
"*RET* Rearrangements in Archival Oxyphilic Thyroid Tumors: New Insights in Tumorigenesis and Classification of Hürthle Cell Carcinoma"

Tina W.F. Yen - Houston, Texas
"Medullary Thyroid Carcinoma: Results of a Standardized Surgical Approach in a Contemporary Series of 79 Consecutive Patients from The University of Texas, M. D. Anderson Cancer Center in Houston"

RESIDENT/FELLOW RESEARCH AWARD WINNERS & POSTER COMPETITION WINNERS CONT.

2004
Rebecca S. Sippel – Madison, Wisconsin
"Does Propofol Anesthesia Affect Intra-Operative Parathyroid Hormone Levels During Parathyroidectomy?: A Randomized Prospective Trial"

David Finley – New York, New York
"Molecular Analysis of Hürthle Cell Neoplasms by Gene Profiling"

2005
Mark Cohen – St. Louis, Missouri
"Long-Term Functionality of Cryopreserved Parathyroid Autografts: A 13-Year Prospective Analysis"

Kepal N. Patel – New York, New York
"MUC1 Plays a Role in Tumor Maintenance in Aggressive Thyroid Carcinomas"

2006
Kyle Zanocco – Chicago, Illinois
"Cost-Effectiveness Analysis of Minimally Invasive Parathyroidectomy for Asymptomatic Primary Hyperparathyroidism"

Ashley Kappes Cayo – Madison, Wisconsin
"Lithium Ions: a Novel Agent for the Treatment of Pheochromocytomas and Paragangliomas"

2007
Tracy S. Wang – New Haven, Connecticut
"How Many Endocrine Surgeons Do We Need?"

David Yu Greenblatt – Madison, Wisconsin
"Valproic Acid Activates Notch1 Signaling and Inhibits Growth in Medullary Thyroid Cancer Cells"

RESIDENT/FELLOW RESEARCH AWARD WINNERS & POSTER COMPETITION WINNERS CONT.

2008

Elizabeth G. Grubbs - Houston, Texas
"Preoperative Vitamin D (VITD) Replacement Therapy in Primary Hyperparathyroidism (PHPT): Safe But Beneficial?"

Linwah Yip - Pittsburgh, Pennsylvania
"Loss of Heterozygosity of Selected Tumor Suppressor Genes in Parathyroid Carcinoma"

Poster: Pierre Leyre - Poiters, France
"Does the Risk of Compressive Hematoma After Thyroidectomy Authorize One-Day Surgery?"

2009

Insoo Suh - San Francisco, California
"Candidate Germline Alterations Predisposing to Familial Nonmedullary Thyroid Cancer Map to Distinct Loci on Chromosomes 1 and 6"

Susan C. Pitt – Madison, Wisconsin
"Tertiary Hyperparathyroidism: Is Less Than a Subtotal Resection Ever Appropriate? A Study of Long-term Outcomes"

Poster: Matthew Nehs – Boston, Massachusetts
"Inhibition of B-RAFV600 Oncoprotein Prevents Cell Cycle Progression and Invasion In Vitro and Reduces Tumor Growth and Metastasis in an In Vivo Orthotopic Model of Thyroid Cancer"

Poster: Bian Wu – Los Angeles, California
"Utilization of Parathyroidectomy in the Elderly: A Population-Based Study"

2010

David T. Hughes – Ann Arbor, Michigan
"Routine Central Lymph Node Dissection For Papillary Thyroid Cancer"

Matthew A. Nehs – Boston, Massachusetts
"Thyroidectomy With Neoadjuvant Plx4720 Extends Survival And Decreases Tumor Burden In An Orthotopic Mouse Model Of Anaplastic Thyroid Cancer"

Poster: Aarti Mathur – Bethesda, Maryland
"Adrenal Venous Sampling in Primary Hyperaldosteronism: Standardizing A Gold Standard"

RESIDENT/FELLOW RESEARCH AWARD WINNERS & POSTER COMPETITION WINNERS CONT.

2011

Paxton V. Dickson – Houston, Texas
"Achieving Eugastrinemia in MEN1 Patients: Both Duodenal Inspection and Formal Lymph Node Dissection are Important"

Matthew Nehs – Boston, Massachusetts
"Necroptosis is a Novel Mechanism of Radiation-Induced Cell Death in Anaplastic Thyroid Cancer and Adrenocortical Cancer"

Poster: Luc G.T. Moris – New York, New York
"Rising Incidence of Second Primary Cancer in Low-Risk Patients Receiving Radioactive Iodine Therapy"

2012

Ashley K. Cayo – Milwaukee, Wisconsin
"Predicting the Need for Calcium and Calcitriol Supplementation After Total Thyroidectomy: Results of a Prospective, Randomized Study"

Thomas J. Quinn – Bronx, New York
"Pasireotide (Som230) Is Effective for the Treatment of Pancreatic Neuroendocrine Tumors in a Multiple Endocrine Neoplasia Type 1 Conditional Knockout Mouse Model"

Poster: Kevin Shepet – Madison, Wisconsin
"Parathyroid Cryopreservation Following Parathyroidectomy: A Worthwhile Practice?"

2012-2013 NEW MEMBERS

ACTIVE MEMBERS

Shalini Arora
Elmhurst, NY

Tobias Carling
New Haven, CT

Dina Elaraj
Chicago, IL

Elizabeth Grubbs
Houston, TX

Rachel Kelz
Philadelphia, PA

John Porterfield
Birmingham, AL

Alfredo Santillan-Gomez
San Antonio, TX

Wen Shen
San Francisco, CA

David Sloan
Lexington, KY

Mark Sneider
St. Paul, MN

Michael Stang
Pittsburgh, PA

Victoria van Fossen
Akron, OH

Kimberly Vanderveen
Denver, CO

Yi-Zarn Wang
New Orleans, LA

ALLIED SPECIALIST MEMBERS

Bruce Campbell
Milwaukee, WI

Snehal Patel
New York, NY

CORRESPONDING MEMBERS

Marcin Barczynski
Krakow, Poland

Manuel Poveda Duran
Madrid, Spain

Maria Kouvaraki
Athens, Greece

Kyu Eun Lee
Seoul, Korea

Dimitrios Moraitis
Athens, Greece

Ivan Paunovic
Belgrade, Serbia

Sam VanSlycke
Aalst, Belgium

2012-2013 NEW MEMBERS CONT.

CANDIDATE MEMBERS

Carrie Carsello
Albany, NY

Robin Cisco
San Francisco, CA

Karen Devon
Toronto, Canada

Teresa Kroeker
Austin, TX

Leon Kushnir
Vineland, NJ

Louis Lee
Santa Cruz, CA

Haggi Mazeh
Madison, WI

Rosemarie Metzger
Cleveland, OH

Anathea Powell
Phoenix, AZ

Jason Prescott
Baltimore, MD

Beth Ann Reimel
Seattle, WA

Benjamin Sigmond
Columbus, OH

Michael Singer
Detroit, MI

Insoo Suh
San Francisco, CA

Sarah Treter
New Haven, CT

Mark Versnick
Wilmington, NC

Stacey Woodruff
Dallas, TX

RESIDENT/FELLOW MEMBERS

Shabir Husain Abadin
Houston, TX

Scott Albert
Columbus, OH

Andrea Alexander
Dallas, TX

Michael Campbell
San Francisco, CA

Linda Dultz
New York, NY

Benzon Dy
Rochester, MN

Dale Han
Tampa, FL

Michael Johnston
New York, NY

Anna Kundel
Rochester, MN

Kristin Long
Lexington, KY

Vladimir Neychev
Danbury, CT

Sarah Oltmann
Madison, WI

Paul Park
Ann Arbor, MI

Dhaval Patel
Bethesda, MD

Danielle Press
Cleveland, OH

Courtney Quinn
Temple, TX

Samira Sadowski Veuthey
Bethesda, MD

Carolyn Seib
San Francisco, CA

Heather Wachtel
Philadelphia, PA

Sze Ling Wong
Melbourne, Australia

2012-13 Contributors to the AAES Foundation and the Paul LoGerfo Educational Research Fund

Dr. Paul LoGerfo passed away September 16, 2003 during his tenure as President of the AAES. Dr. LoGerfo was very interested in education and clinical research, and in his honor the AAES established the Educational Research Fund to support educational and research activities of the Membership. As of press time, the following members and organizations contributed in 2012-13:

Shabir Husain S. Abadin
Menelaos A. Aliapoulios
Peter Angelos
Thomas A. Broadie
L. Michael Brunt
Samuel P. Bugis
Blake Cady
Bruce H. Campbell
Denise Carneiro-Pla
Bradford Carter
Sally E. Carty
John A. Chabot
Herbert Chen
Nancy L. Cho
Orlo H. Clark
Gary C. Clark
Nicholas P. Coe
Mark S. Cohen
Herbert E. Cohn
John F. Cooper
Peter F. Czako
Steven A. De Jong
Michael Joseph Demeure
Shamly V. Dhiman
Gerard M. Doherty
Quan-Yang Duh
Douglas B. Evans
Thomas Joseph Fahey III
Rafael E. Fajardo-Cevallos
Youben Fan
David R. Farley
Gennaro Favia
Andrea Frilling
Paul G. Gauger
Randall D. Gaz
Melanie Goldfarb
Clive S. Grant
Elizabeth G. Grubbs
Bruce L. Hall
John B. Hanks
Richard James Harding
Jay K. Harness
Keith S. Heller
Miguel F. Herrera
Richard A. Hodin
William M. Hopkins
Marybeth S. Hughes
Masatoshi Iihara
Masayuki Imamura
William B. Inabnet
George L. Irvin
Philip H. G. Ituarte
Richard L. Jamison
Philippe R. Kauffmann
Barbara K. Kinder
Vikran D. Krishnaumurthy
John S. Kukora
Amanda Michelle Laird
James Lee
John I. Lew
Frank LoGerfo
Jonathan S. Lokey
Dougald Charles MacGillivray
Lloyd Mack
Christina Lynn Maser
Haggi Mazeh
Peter Joseph Mazzaglia
David McAneny
Kelly L. McCoy
Julie F. McGill
Christopher R. McHenry
Travis J. McKenzie
William Mendez
Stacey A. Milan
Barbra S. Miller
Bradford K. Mitchell
Elliot J. Mitmaker
Akira Miyauchi
Alberto Salgueiro Molinari
John M. Monchik
Vinod Narra
Jennifer B. Ogilvie
John A. Olson Jr
Randall P. Owen
Sareh Parangi
Janice L. Pasieka
Kepal N. Patel
Subhash Patel
Ivan R. Paunovic
Nancy D. Perrier
Roy Phitayako
Douglas E. Politz
John R. Porterfield
Jason David Prescott
Richard Allen Prinz
Gregory W. Randolph
Steven Rodgers
Kaye Roe
Sanziana A. Roman
Jonathan Romanowsky
Irving Bernard Rosen
Rashmi Roy
Nis Schmidt
Frederic N. Sebag
Melwyn John Sequeira
Ashok R Shaha
Alexander L. Shifrin
Mauricio Sierra Salazar
Dietmar Simon
Bhuvanesh Singh
Allan Siperstein
Rebecca S. Sippel
Samuel Kevin Snyder
Carmen C. Solorzano
Julie Ann A. Sosa
Antonia E. Stephen
Cord Sturgeon
Sonia L. Sugg
James W. Suliburk
David J. Terris
Serdar T. Tezelman
Colin G. Thomas, Jr.
Geoffrey B. Thompson
Norman W. Thompson
Doug R. Trostle
Joel A. Turner
Robert Udelsman
Jon A. van Heerden
James J. Vopal
Kristin E. Wagner
Tracy S. Wang
Collin J. Weber
Kaare J. Weber
Ronald J. Weigel
Ronald D. Wenger
Scott Michael Wilhelm
Robert Jeremy Wilmoth
Stuart D. Wilson
David James Winchester
Michael W. Yeh
Tina Wei-Fang Yen
Linwah Yip
Rasa Zarnegar
Martha A. Zeiger

Donations may be made online at www.endocrinesurgery.org

PAST MEETINGS

1980 - **Ann Arbor, Michigan**
Local Arrangements Chair: Norman W. Thompson

1981 - **Washington, DC**
Local Arrangements Chair: Glenn Geelhoed

1982 - **Houston, Texas**
Local Arrangements Chair: Robert C. Hickey

1983 - **San Francisco, California**
Local Arrangements Chair: Orlo Clark

1984 - **Kansas City, Kansas**
Local Arrangements Chair: Stanley R. Friesen

1985 - **Toronto, Ontario, Canada**
Local Arrangements Chair: Irving Rosen

1986 **- Rochester, Minnesota**
Local Arrangements Chair: Jon A. van Heerden

1987 - **Chicago, Illinois**
Local Arrangements Chair: Edwin L. Kaplan

1988 - **Boston, Massachusetts**
Local Arrangements Chair: Blake Cady

1989 - **Chapel Hill, North Carolina**
Local Arrangements Chair: Robert D. Croom

1990 - **Cleveland, Ohio**
Local Arrangements Chair: Caldwell B. Esselstyn

1991 - **San Jose, California**
Local Arrangements Chair: Maria Allo

1992 - **Miami, Florida**
Local Arrangements Chair: George L. Irvin, III

1993 - **Williamsburg, Virginia**
Local Arrangements Chair: H. Heber Newsome

1994 - **Detroit, Michigan**
Local Arrangements Chair: Gary B. Talpos

1995 - **Philadelphia, Pennsylvania**
Local Arrangements Chair: John Kukora

1996 - **Napa, California**
Local Arrangements Chair: Quan-Yang Duh

PAST MEETINGS CONT.

1997 - **Baltimore, Maryland**
Local Arrangements Chair: Robert Udelsman

1998 - **Orlando, Florida**
Local Arrangements Chair: Peter J. Fabri

1999 - **New Haven, Connecticut**
Local Arrangements Chair: Barbara Kinder

2000 - **Joint Meeting: London, United Kingdom/Lille, France**
Local Arrangements Chair: Jack Monchik

2001 - **Atlanta, Georgia**
Local Arrangements Chair: Collin Weber

2002 - **Banff, Alberta, Canada**
Local Arrangements Chair: Janice L. Pasieka

2003 - **San Diego, California**
Local Arrangements Chair: Jay K. Harness and John Kukora

2004 **- Charlottesville, Virginia**
Local Arrangements Chair: John B. Hanks

2005 - **Cancun, Mexico**
Local Arrangements Chair: Miguel F. Herrera

2006 - **New York, New York**
Local Arrangements Chair: Ashok R. Shaha

2007 - **Tucson, Arizona**
Local Arrangements Chair: Michael J. Demeure

2008 - **Monterey, California**
Local Arrangements Chair: Quan-Yang Duh

2009 - **Madison, Wisconsin**
Local Arrangements Chair: Herbert Chen

2010 - **Pittsburgh, Pennsylvania**
Local Arrangements Chair: Sally E. Carty

2011 - **Houston, Texas**
Local Arrangements Chair: Nancy D. Perrier

2012 – **Iowa City, Iowa**
Local Arrangements Chair: Ronald Weigel

American College of Surgeons Thyroid and Parathyroid Ultrasound Skills-Oriented Course

Saturday, April 13
7:30am – 5:00pm
Northwestern University

COURSE CHAIRS
Cord Sturgeon, MD
Northwestern University

Mira M. Milas, MD
Oregon Health & Sciences University

COURSE FACULTY
Denise Carneiro-Pla, MD
Medical University of South Carolina

Dan Duick, MD
Endocrinology Associates, PA

Dina Elaraj, MD
Northwestern University

Lawrence Kim, MD
University of Arkansas for Medical Studies

Brian Lang, MD
University of Hong Kong

John Lew, MD
University of Miami Miller School of Medicine

Peter Mazzaglia, MD
Brown University

Barbara S. Miller, MD
University of Michigan

Jamie Mitchell, MD
The Cleveland Clinic

Sareh Parangi, MD
Massachusetts General Hospital

Rebecca S. Sippel, MD
University of Wisconsin

Carmen C. Solorzano, MD
Vanderbilt University

Antonia E. Stephen, MD
Massachusetts General Hospital

Scott M. Wilhelm, MD
University Hospitals/ Case Medical Center

Linwah Yip, MD
University of Pittsburgh

American College of Surgeons
Inspiring Quality: Highest Standards, Better Outcomes

NOTE: Please note that the American College of Surgeons Thyroid and Parathyroid Ultrasound Skills Course and CME is being offered separately from the AAES Annual Meeting program.

AMA PRA Category 1 Credits™
The American College of Surgeons designates this live activity for a maximum of 7 *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

ACCREDITATION
The American College of Surgeons is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

DISCLOSURE INFORMATION
In compliance with ACCME Accreditation Criteria, the American College of Surgeons, as the accredited provider of this activity, must ensure that anyone in a position to control the content of the educational activity has disclosed all relevant financial relationships with any commercial interest. All reported conflicts are managed by a designated official to ensure a bias-free presentation. Please see the insert to this program for the complete disclosure list.

IT for Endocrine Surgeons

Sunday, April 14
9:45am – 10:15am
Grand Ballroom

David R. Farley, MD
Mayo Clinic – Rochester

James Lee, MD
Columbia University

Tracy Wang, MD
Medical College of Wisconsin

Michael W. Yeh, MD
University of California Los Angeles

Jennifer Marti, MD
Beth Israel Medical Center

Collaborative Endocrine Surgery Quality Improvement Program (CESQIP) and Outcomes in Endocrine Surgery

Sunday, April 14
10:15am – 11:15am
Grand Ballroom

Anders O.J. Bergenfelz, MD, PhD
Lund University Hospital

William B. Inabnet, III, MD
Mount Sinai Medical Center

Justin Dimick, MD
ArborMetrix

Nancy D. Perrier, MD
MD Anderson Cancer Center

AAES Panel Session: The Patient's Voice – Is There More to be Heard?

Tuesday, April 16
12Noon – 1:00pm
Grand Ballroom

MODERATOR
Sally E. Carty, MD
University of Pittsburgh

PANELISTS
Michael J. Bove, MD
Northwestern University

Quan-Yang Duh, MD
University of California, San Francisco

Clive S. Grant, MD
Mayo Clinic

Thomas J. Fahey, III, MD
Weill Cornell Medical Center

Keith S. Heller, MD
NYU Langone Medical Center

Richard A. Hodin, MD
Massachusetts General Hospital

Richard A. Prinz, MD
NorthShore University HealthSystem

David J. Terris, MD
Georgia Health Sciences University

Endocrine Surgery Mock Oral Boards: Preparing Our Fellows for the Future – How will it be Done?

Tuesday, April 16
1:00pm – 3:00pm
Valencia Room

MODERATOR
Quan-Yang Duh, MD
University of California San Francisco

GUEST
Anders C.J. Bergenfelz, MD, PhD
Lund University Hospital

EXAMINERS
Peter F. Czako, MD
Beaumont Health System

Steven De Jong, MD
Loyola University

Sonia Sugg, MD
University of Iowa

Recognition of Endocrine Glands and Abnormalities by Artists and Surgeon

Orlo H.Clark, MD
University of California San Francisco

Sunday, April 14
12:35pm – 12:55pm
Grand Ballroom

Dr. Orlo Clark is a member of the Endocrine Surgical Oncology Program at UCSF. He was trained at Cornell University Medical School and UCSF. Dr. Clark did an Endocrine Surgical Fellowship at the Royal Postgraduate Medical Center in London. He has held many leadership positions in the Department of Surgery at UCSF including Vice-Chairman of the Department of Surgery and Chief of Surgery at UCSF/Mt. Zion Medical Center. He has been President of the American Association of Endocrine Surgeons, the American Thyroid Association, the International Association of Endocrine Surgeons, and the Pacific Coast Surgical Association. He has also been listed among the top surgeons in America in numerous publications. Dr. Clark has received teaching awards at UCSF. His research focuses primarily on what makes thyroid and parathyroid cancers grow and spread to other areas of the body. He is also interested in understanding the genetic basis of familial thyroid cancer.

Thyroid Disease in XVI Century Mexico

Carlos Viesca, MD
Universidad Nacional Autonoma de Mexico

Sunday, April 14
12:55pm – 1:15pm
Grand Ballroom

MD, Faculty of Medicine, National Autonomous of Mexico (UNAM), 1966; General Surgery at General Hospital, Mexico City, 1967-68; PhD in History of Science, UAM, Mexico, 2011

Former Head of Department of History and Philosophy of Medicine, UNAM, (1983-2012). Professor of History and Philosophy of Medicine from 1967 in pre and postgraduate programs. Actually Vice-president of the International Society on the History of Medicine and member of the Academia Nacional de Medicina (México), Academia Mexicana de Cirugía, Academia Mexicana de Ciencias.

Author or editor of 40 books and nearly 100 chapters and 200 papers on different themes related with medical history and medical humanities.

Kindred Spirits to The Social Network

Wen T. Shen MD
University of California San Francisco

Sunday, April 14
1:15pm – 1:35pm
Grand Ballroom

Wen T. Shen received his BA in history and science from Harvard University, MD and MA in History of Medicine from UCSF, and also completed his surgical residency at UCSF. He is currently an Assistant Professor of Surgery and attending surgeon at UCSF/Mt. Zion Medical Center, where he also serves as Fellowship Program Director of Endocrine Surgery. He has a research interest in medical history, and co-edited with Martha Zeiger and Erin Felger a recently published book on the history of endocrine surgery, entitled "'The Supreme Triumph of the Surgeon's Art': A Narrative History of Endocrine Surgery", which will make its debut at this years' AAES meeting.

Historical Lecturers at Recent Meetings

2009 **Edwin L. Kaplan, MD**
University of Chicago
Radically Induced Thyroid Cancer – A Chicago Experience

2010 **Norman W. Thompson, MD**
University of Michigan
The Time Was Right

2011 **Jon A. van Heerden, MD**
Medical University of South Carolina
Pheochromocytoma Resection: Now and Then

2012 **Murray F. Brennan, MD**
Memorial Sloan-Kettering Cancer Center
Re-Operative Parathyroid Surgery Circa 1975

Quality Control in Clinical Practice and Postgraduate Education in Endocrine Surgery

Anders O.J. Bergenfelz, MD, PhD
Lund University Hospital

Monday, April 15, 2013
11:45am – 12:20pm
Grand Ballroom

Consultant Surgeon in Endocrine - and Sarcoma Surgery, and Professor at Lund University
100 original articles, 6 book chapters
27 invited lectures at International Meetings
65 oral presentations based on published abstracts

Member of:
International Surgical Group
European Surgical Association
European Society of Endocrine Surgeons
International Association of Endocrine Surgery

Research areas:
Primary hyperparathyroidism, thyroid surgery, adrenal tumours

Appointments:
British Journal of Surgery: ***Editor***

European Society of Endocrine Surgeons: ***Executive council***

Scandinavian Quality Register for Thyroid- and Parathyroid Surgery: ***Chairman***

Practicum Clinical Skills Centre (Lund University): ***Director***

UEMS (European Association of Medical Specialties), Section of Surgery, Division of Endocrine Surgery: ***Chairman***

INVITED LECTURERS AT RECENT MEETINGS

1991 **Gregory B. Bulkley, MD**
Johns Hopkins University, Baltimore, Maryland
Endothelial Xanthine Oxidase: a Radical Transducer of Signals and Injury

1992 **Donald Coffey, PhD**
Bethesda, Maryland
New Concepts Concerning Cancer

1993 **John L. Doppman, MD**
National Institutes of Health, Bethesda, Maryland
Recent Advances in Endocrinologic Imaging

1994 **Gordon J. Strewler, MD**
San Francisco, California
The Parathyroid Hormone Related Protein: Clinical and Basic Studies of a Polyfunctional Protein

1995 **Ivor M.D. Jackson, MD**
Providence, Rhode Island
Regulation of TSH Secretion: Implications for Disorders of the Thyroid Function

1996 **Victor E. Gould, MD**
Rush-Presbyterian-Medical Center, Chicago, Illinois
The Diffuse Neuroendocrine System: Evolution of the Concept and Impact on Surgery

1997 **Bertil Hamberger, MD, PhD**
Karolinska Institute, Stockholm, Sweden
The Nobel Prize

1998 **Susan Leeman, PhD**
Boston University, Boston, Massachusetts
The NeuroPeptides: Substance P and Neurotensin

1999 **James Hurley, MD**
Cornell University, New York, New York
Post-Operative Management of Differentiated Thyroid Cancer

INVITED LECTURERS AT RECENT MEETINGS CONT.

2000 **James Shapiro, MD**
University of Alberta, Edmonton, Alberta
Pancreatic Islet Cell Transplantation

2001 **Andrew F. Stewart, MD**
University of Pittsburgh, Pittsburgh, Pennsylvania
Parathyroid Hormone-Related Protein: From Hypercalcemia of Malignancy to Gene Therapy from Diabetes

2002 **William F. Young Jr., MD**
Mayo Clinic, Rochester, Minnesota
Adrenal-Dependent Hypertension: Diagnostic Testing Insights

2003 **Sissy M. Jhiang, MD**
The Ohio State University, Columbus, Ohio
Lessons From Thyroid Cancer: Genetics and Gene Therapy

2004 **Edward R. Laws Jr, MD**
University of Virginia, Charlottesville, Virginia
The Diagnosis and Management of Cushing's Disease

2005 **David Duick, MD**
Phoenix, Arizona
Thyroid Nodules and Mild Primary Hyperparathyroidism: Examples of Clinical Perplexities or Unresolvable Conundrums

2006 **Michael Bliss, PhD**
University of Toronto, Ontario, Canada
Harvey Cushing and Endo-Criminology

2007 **Virginia A. Livolsi, MD**
University of Pennsylvania, Philadelphia, Pennsylvania
Thyroid Nodule FNA and Frozen Section: Partners or Adversaries

2008 **F. John Service, MD, PhD**
Mayo Clinic, Rochester, Minnesota
Hypoglycemia in Adults – 80th Anniversary of Hyperinsulinism

INVITED LECTURERS AT RECENT MEETINGS CONT.

2009 **Jeffrey M. Trent, PhD**
Translation Genomics Research Institute, Phoenix, Arizona
Integrating Genetics, Genomics, and Biology Towards a More Personalized Medicine

2010 **Alexander J.B. McEwan, MB**
University of Alberta, Edmonton, Alberta, Canada
The State of the Art of Radionucleotide Imaging and Therapy in Patients with Neuroendocrine Tumors

2011 **Allan H. (Bud) Selig**
9th Commissioner of Major League Baseball
Major League Baseball – 2011 Economic and Health Related Issues

2012 **Atul A. Gawande, MD, MPH**
Brigham and Women's Hospital
Strategies for Improving Surgical Performance

Conference Information

LEARNING OBJECTIVES

This program is designed for all endocrine surgeons seeking the latest developments in endocrine surgical technique and its related research. The intent of the program is to improve the quality of patient care and improve overall patient safety. Audience participation and interaction will be encouraged. The content and format of the program have been determined based on evaluations and suggestions of attendees of previous programs.

At the end of this activity, attendees will:

1. Participate in discussions, and explain current developments in the science and clinical practice of endocrine surgery
2. Be able to explain practical new approaches and solutions to relevant concepts and problems in endocrine surgical care.
3. Have additional working knowledge to assist them with their existing and growing endocrine practice
4. Possess additional information and recent developments as they relate to recently established guidelines and procedures
5. Select appropriate equipment for head/neck ultrasound; summarize general physics and principles of head/neck ultrasound and adjust ultrasound settings for head/neck ultrasound.

CME CERTIFICATES AND EVALUATION FORMS

You may complete your attendance verification, meeting evaluation and self-assessment online. Your final CME hours will be submitted to the ACS and will then be posted within approximately 3 months following the event.

ACCREDITATION STATEMENT

This activity has been planned and implemented in accordance with the Essential Areas and Policies of the Accreditation Council for Continuing Medical Education through the joint sponsorship of the American College of Surgeons and the American Association of Endocrine Surgeons. The American College Surgeons is accredited by the ACCME to provide continuing medical education for physicians.

AMA PRA CATEGORY 1 CREDITS™

The American College of Surgeons designates this live activity for a maximum of 16 *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Division of Education
American College of Surgeons

DISCLOSURE INFORMATION

In compliance with ACCME Accreditation Criteria, the American College of Surgeons, as the accredited provider of this activity, must ensure that anyone in a position to control the content of the educational activity has disclosed all relevant financial relationships with any commercial interest. All reported conflicts are managed by a designated official to ensure a bias-free presentation. Please see the insert to this program for the complete disclosure list.

HOTEL INFORMATION

InterContinental Chicago
505 North Michigan Avenue
Chicago, IL 60611
General Inquiries: 312-944-4100
Reservations: 1-800-628-2112
www.icchicagohotel.com

GROUND TRANSPORTATION

Taxi Services

The best form of group transportation in Chicago is taxi cab service. A taxi from O'Hare Airport will run approximately $45 one way and from Midway Airport $35 one way.

Chicago Transit Authority

The Chicago Transit Authority (CTA) operates the nation's second largest public transportation system. Chicago is one of the few cities in the world that has rail service to two major airports. CTA's Blue Line 'L' can take customers to O'Hare International Airport. Orange Line trains, which operate clockwise on the Loop 'L' structure, travel to Midway Airport. For more information regarding maps, schedules and rates, please visit www.transitchicago.com

WEATHER

Temperatures in mid-April range from an average low of 40s to 60s. A more accurate weather forecast can be found closer to the date of the meeting at www.weather.com

CONTACTS

Peter Angelos, MD, PhD
Local Arrangements Chair
pangelos@surgery.bsd.uchicago.edu

American Association of Endocrine Surgeons
5019 W. 147th Street
Leawood, KS 66224
Telephone: 913-402-7102
Fax: 913-273-9940
Email: meetings@endocrinesurgery.org
Web: www.endocrinesurgery.org

Agenda

Saturday, April 13, 2013

7:30am – 5:00pm

***American College of Surgeons Thyroid and Parathyroid Ultrasound Skills-Oriented Course*, Northwestern University**

Course Directors: Cord Sturgeon, MD - *Northwestern University*
Mira M. Milas, MD - *Oregon Health & Sciences University*

Course Faculty: Denise Carneiro - Pla, MD - *Medical University of South Carolina*
Dan Duick, MD **–** *Endocrinology Associates, PA*
Dina Elaraj, MD - *Northwestern University*
Lawrence Kim, MD - *University of Arkansas for Medical Studies*
Brian Lang, MD - *University of Hong Kong*
John Lew, MD - *University of Miami Miller School of Medicine*
Peter Mazzaglia, MD - *Brown University*
Barbara S. Miller, MD - *University of Michigan*
Jamie Mitchell, MD - *The Cleveland Clinic*
Sareh Parangi, MD - *Massachusetts General Hospital*
Rebecca S. Sippel, MD - *University of Wisconsin*
Carmen C. Solorzano, MD - *Vanderbilt University*
Antonia E. Stephen, MD - *Massachusetts General Hospital*
Scott M. Wilhelm, MD - *University Hospitals/ Case Medical Center*
Linwah Yip, MD - *University of Pittsburgh*

12:05pm
Chicago Cubs vs. San Francisco Giants Baseball Game, Wrigley Field
(transportation on own)

2:00pm – 6:00pm
AAES Council Meeting, Burnham Room

6:30pm – 7:30pm
Information Technology Committee Meeting, Sullivan Room

9:00pm – 10:30pm
Young Endocrine Surgeons Social, Bin 36 Restaurant, 339 North Dearborn
(within walking distance of hotel)

Sunday, April 14, 2013

7:00am - 5:30pm
Registration Open, Grand Ballroom Foyer

7:30am – 8:30am
CESQIP Committee Meeting, Michigan Room

7:30am – 8:30am
Yoga, Yoga Loft Chicago, 15 W. Hubbard Street
(within walking distance of hotel)

8:45am – 9:45am
Poster Walk Arounds, Toledo Room

9:45am – 10:15am
IT for Endocrine Surgeons, Grand Ballroom
Speakers: David R. Farley, MD - *Mayo Clinic Rochester*
Michael W. Yeh, MD - *University of California Los Angeles*
James Lee, MD - *Columbia University*
Jennifer Marti, MD - *Beth Israel Medical Center*
Tracy Wang, MD - *Medical College of Wisconsin*

10:15am – 11:15am
Collaborative Endocrine Surgery Quality Improvement Program (CESQIP) and Outcomes in Endocrine Surgery, Grand Ballroom
Speakers: Anders O.J. Bergenfelz, MD, PhD - *Lund University Hospital*
Justin Dimick, MD - *ArborMetrix*
William B. Inabnet, III, MD - *Mount Sinai Medical Center*
Nancy D. Perrier, MD - *MD Anderson Cancer Center*

11:15am – 12noon
Lunch On Own

12noon – 12:35pm
Opening Session, Grand Ballroom
- New Member Introductions
- Paul LoGerfo Educational Research Presentation

12:35pm – 1:35pm
Historical Lectures
Speakers: Orlo H.Clark, MD - *University of California San Francisco*
Recognition of Endocrine Glands and Abnormalities by Artists and Surgeon

Carlos Viesca, MD - *Universidad Nacional Autonoma de Mexico*
Thyroid Disease in XVI Century Mexico

Wen T. Shen MD - *University of California San Francisco*
Kindred Spirits to The Social Network

1:35pm – 2:50pm
Scientific Session I: Papers 1-5, Grand Ballroom
Moderators: John A. Olson, Jr., MD & Amelia Grover, MD

2:50pm – 5:30pm
Exhibits & Poster Viewing, Empire Ballroom & Toledo Room

2:50pm – 3:15pm
Afternoon Break & Exhibits & Poster Viewing, Empire Ballroom & Toledo Room

3:15pm - 3:45pm
Scientific Session II: Papers 6 & 8, Grand Ballroom
Moderators: Christopher R. McHenry, MD & James T. Broome, MD

3:45pm –4:00pm
Break

4:00pm – 5:30pm
Interesting Cases, Grand Ballroom
Moderator: Allan Siperstein, MD

6:00pm – 7:00pm
Twilight Walk/Run, Chicago Lakefront
(meet in hotel lobby)

7:00pm – 9:00pm
AAES Welcome Reception, Renaissance Ballroom, Intercontinental Hotel

Monday, April 15, 2013

6:30am – 7:30am
Accreditation Committee Meeting, Cordova Room

7:00am - 6:00pm
Registration Open, Grand Ballroom Foyer

7:00am – 8:00am
AAES New Member Breakfast (2013 Inductees), Valencia Room
(invitation only - Active, Allied and Corresponding members receiving certificates at this year's meeting)

7:00am – 8:00am
AAES Advanced Practice Practioner/Nurse Breakfast, Yolk Restaurant, 355 E. Ohio St.
(within walking distance of hotel)

7:00am – 3:45pm
Exhibits & Poster Viewing, Empire Ballroom & Toledo Room

8:00am - 9:00am
Scientific Session III: Papers 10-13, Grand Ballroom
Moderators: Gerard M. Doherty, MD & Philip W. Smith, MD

9:00am – 9:15am
Introduction of President, Grand Ballroom
Allan Siperstein, MD – Cleveland Clinic

9:15am – 10:00am
Presidential Address: A New Face for Endocrine Surgery, Grand Ballroom
Miguel Herrera, MD, PhD - Instituto Nacional de la Nutrición Salvador Zubiran

10:00am – 10:30am
Morning Break, Exhibits & Poster Viewing, Empire Ballroom & Toledo Room

10:30am – 11:45am
Scientific Session IV: Papers 14-18, Grand Ballroom
Moderators: Jeff F. Moley, MD & Mauricio Sierra Salazar, MD

11:45am – 12:20pm
Invited Lecturer: Quality Control in Clinical Practice and Postgraduate Education in Endocrine Surgery, Grand Ballroom
Speaker: Anders O.J. Bergenfelz, MD, PhD - Lund University Hospital

12:20pm – 1:00pm
Education & Research Committee Meeting, Cordova Room

12:20pm – 2:00pm
Lunch On Own

1:00pm – 2:00pm
Masters in Endocrine Surgery Meeting, Sullivan Room

2:00pm - 3:30pm
Scientific Session V: Papers 19-24, Grand Ballroom
Moderators: Steven K. Libutti, MD & John I. Lew, MD

3:30pm – 4:00pm
Afternoon Break & Exhibits & Poster Viewing, Empire Ballroom & Toledo Room

4:00pm - 5:15pm
Scientific Session VI: Papers 25-29, Grand Ballroom
Moderators: Carmen C. Solorzano, MD & Rebecca S. Sippel, MD

5:15pm - 5:30pm
Break

5:30pm – 6:00pm
AAES Business Meeting, Grand Ballroom
(Voting members only)

7:30pm – 10:30pm
Gala Reception & Dinner Banquet, Grand Ballroom

10:30pm – 12midnight
AAES Talent Show: We've Got Talent, King Arthur Court
Hosted by Sally E. Carty, MD – *Incoming President*
Emcee: Scott Wilhelm, MD

Tuesday, April 16, 2013

6:30am
AAES Foundation Meeting, Sullivan Room

7:00am – 8:00am
Fellowship Committee Meeting, Exchange Room, 11th Floor

7:00am – 3:00pm
Registration Open, Grand Ballroom Foyer

7:00am - 8:00am
Continental Breakfast, Empire Ballroom

7:00am – 11:00am
Exhibits & Poster Viewing, Empire Ballroom & Toledo Room

8:00am – 9:15am
Scientific Session VII: Papers 31-35, Grand Ballroom
Moderators: Paul G. Gauger, MD & James Lee, MD

9:15am - 9:45am
Morning Break & Exhibits & Poster Viewing, Empire Ballroom & Toledo Room

9:45am – 11:00am
Scientific Session VIII: Papers 36-40, Grand Ballroom
Moderators: Jack M. Monchik, MD & Elizabeth G. Grubbs, MD

11:00am – 12noon
Poster Presentations, Grand Ballroom
Moderators: Lawrence T. Kim, MD & Shelby A. Holt, MD

12noon – 1:00pm
AAES Panel Session: The Patient's Voice – Is There More to be Heard?, Grand Ballroom

Moderator: Sally E. Carty, MD – *University of Pittsburgh*

Panelists:
Michael J. Bove, MD - *Northwestern University*
Quan-Yang Duh, MD - *University of California, San Francisco*
Clive S. Grant, MD - *Mayo Clinic Rochester*
Thomas J. Fahey, III, MD - *Weill Cornell Medical Center*
Keith S. Heller, MD – *NYU Langone Medical Center*
Richard A. Hodin, MD - *Massachusetts General Hospital*
Richard A. Prinz, MD - *NorthShore University HealthSystem*
David J. Terris, MD - *Georgia Health Sciences University*

1:00pm – 3:00pm
Endocrine Surgery Mock Oral Boards: Preparing Our Fellows for the Future – How will it be Done?, Valencia Room

Moderator:	Quan-Yang Duh, MD – *University of California San Francisco*
Guest:	Anders C.J. Bergenfelz, MD, PhD – *Lund University Hospital*
Examiners:	Peter F. Czako, MD – *Beaumont Health System* Steven De Jong, MD – *Loyola University* Sonia Sugg, MD – *University of Iowa*

3:15pm – 4:00pm
Wrap Up Meeting *(New Officers and Local Arrangements Chairs)*, Michael Jordan's Lounge

Scientific Program

** Denotes Resident/Fellow Research Award Competition Paper*

NOTE: Author listed in **BOLD** *is the presenting author*

Sunday, April 29, 2012

8:45am - 9:45am
Poster Walk Arounds, Empire Ballroom

9:45am – 10:15am
IT for Endocrine Surgeons, Grand Ballroom
Speakers: David R. Farley, MD - *Mayo Clinic Rochester*
Michael W. Yeh, MD - *University of California Los Angeles*
James Lee, MD - Columbia University
Jennifer Marti, MD - Beth Israel Medical Center
Tracy Wang, MD -Medical College of Wisconsin

10:15am - 11:15am
Collaborative Endocrine Surgery Quality Improvement Program (CESQIP) and Outcomes in Endocrine Surgery, Exchange Room
Speakers: Anders O.J. Bergenfelz, MD, PhD - *Lund University Hospital*
Justin Dimick, MD - *ArborMetrix*
William B. Inabnet, III, MD - *Mount Sinai Medical Center*
Nancy D. Perrier, MD - *MD Anderson Cancer Center*

11:15am – 12noon
Lunch On Own

12noon – 12:35pm
Opening Session, Grand Ballroom
- New Member Introductions
- Paul LoGerfo Educational Research Presentation

12:35pm – 1:35pm
Historical Lectures
Speakers: Orlo H.Clark, MD - *University of California San Francisco*
Recognition of Endocrine Glands and Abnormalities by Artists and Surgeon

Carlos Viesca, MD - *Universidad Nacional Autonoma de Mexico*
Thyroid Disease in XVI Century Mexico

Wen T. Shen MD - *University of California San Francisco*
Kindred Spirits to The Social Network

Sunday, April 29, 2012 CONT.

1:35pm – 2:50pm
Scientific Session I: Papers 1-5, Grand Ballroom
Moderators: John A. Olson, Jr., MD & Amelia Grover, MD

1:35pm - 1:50pm
***1.** ROUTINE PROPHYLACTIC CENTRAL LYMPH NODE DISSECTION FOR LOW-RISK PAPILLARY THYROID CANCER: A COST-EFFECTIVENESS ANALYSIS
Kyle Zanocco, MD, Dina Elaraj, MD, Cord Sturgeon, MD
Northwestern University Feinberg School of Medicine

1:50pm - 2:05pm
***2.** A PROSPECTIVE EVALUATION OF SURGEON-PERFORMED TRANSCUTANEOUS LARYNGEAL ULTRASONOGRAPHY IN ASSESSING VOCAL CORD FUNCTION BEFORE AND AFTER THYROIDECTOMY
Kai-Pun Wong, **MBBS**, Brian H. Lang, MS, Sze-How Ng, MS, Chung-Yeung Cheung, MBBS, Christina T. Chan, MBBS, Chung-Yau Lo, MS
University of Hong Kong

2:05pm - 2:20pm
***3.** OBSERVATION OF THE CLINICALLY NEGATIVE CENTRAL COMPARTMENT LYMPH NODES IN PAPILLARY THYROID CARCINOMA
Iain J. Nixon MBChB, Ian Ganly PhD, Snehal G. Patel MD, Luc G. Morris MD, Frank L. Palmer BA, Dorothy Thomas BA, R. Michael Tuttle MD, Jatin P. Shah MD, Ashok R. Shaha MD
Memorial Sloan Kettering Cancer Center

2:20pm - 2:35pm
***4.** IMPACT AND TIMING OF BILATERAL ADRENALECTOMY FOR UNCONTROLLABLE ACTH-DEPENDENT CUSHING'S SYNDROME
Lilah F. Morris, MD, Rachel S. Harris, MD, Denái R. Milton, MS, Steven G. Waguespack, MD, Mouhammed A. Habra, MD, Camilo Jimenez, MD, Rena Vassilopoulou-Sellin, MD, Jeffrey E. Lee, MD, Nancy D. Perrier, MD, Elizabeth G. Grubbs, MD
University of Texas MD Anderson Cancer Center

2:35pm - 2:50pm
***5.** METABOLIC PHENOTYPING OF NEUROENDOCRINE TUMORS
James Kinross, MD PhD, Panagiotis Drymousis, MD PhD, Jia Li, Beatrice Jaminez , Helen Miller, Jeremy K. Nicholson, PhD, Andrea Frilling, MD PhD
Imperial College London

2:50pm – 5:30pm
Exhibits & Posters Viewing, Empire Ballroom & Toledo Room

2:50pm – 3:15pm
Afternoon Break & Exhibits & Poster Viewing, Empire Ballroom & Toledo Room

3:15pm - 3:45pm
Scientific Session II: Papers 6 & 8, Grand Ballroom
Moderators: Christopher R. McHenry, MD & James T. Broome, MD

3:15pm - 3:30pm
***6.** PROSPECTIVE SCREENING AND WHOLE EXOME-SEQUENCING RESULTS IN FAMILIAL NON-MEDULLARY THYROID CANCER
Samira M. Sadowski, MD, Mei He, MD, Krisana Gesuwan,MS, Neelam Gulati, BS, Naris Nilubol, MD, Li Jia, PhD, Eric Stahlberg, PhD, Ming Yi, PhD, Robert Stephens, PhD, Electron Kebebew, MD
National Institutes of Health, National Cancer Institute

3:30pm – 3:45pm
***8.** CLINICAL UTILITY OF IMMUNOHISTOCHEMISTRY FOR THE DETECTION OF THE BRAF V600E MUTATION IN PAPILLARY THYROID CARCINOMA
Aron Pollack, MD, **Jonathan Zagzag, MD**, Linda Dultz, MD, Shumon Dhar, BS, Jennifer B. Ogilvie, MD, Keith S. Heller, MD, Fang-Ming Deng, MD, Kepal N. Patel, MD
NYU Langone Medical Center

3:45pm – 4:00pm
Break

4:00pm – 5:30pm
Interesting Cases, Empire Ballroom
Moderator: Allan Siperstein, MD

** Denotes Resident/Fellow Research Award Competition Paper*

Monday, April 15, 2013

8:00am - 9:00am
Scientific Session III: Papers 10-13, Grand Ballroom
Moderators: Gerard M. Doherty, MD & Philip W. Smith, MD

8:00am - 8:15am
***10.** GASTRIC INHIBITORY POLYPEPTIDE RECEPTOR: A FUTURE ALTERNATIVE TO SOMATOSTATIN TYPE 2 RECEPTOR IMAGING AND TREATMENT IN NEUROENDOCRINE TUMORS?
Scott K. Sherman, MD, Jennifer C. Carr, MD, Donghong Wang, MS, M. Sue O'Dorisio, MD, PhD, Thomas M. O'Dorisio, MD, James R. Howe, MD
The University of Iowa

8:15am - 8:30am
11. ADRENALECTOMY FOR SOLID TUMOR METASTASES: RESULTS OF A MULTI-CENTER EUROPEAN STUDY
Pablo Moreno, MD, PhD, Aitor de la Quintana Basarrate, MD, Thomas J. Musholt, MD, Ivan Paunovic, MD, PhD, Marco Puccini, MD, Óscar Vidal, MD, PhD, Joaquín Ortega, MD, PhD, Jean-Louis Kraimps, MD, Elisabet Bollo Arocena, MD, José M. Rodríguez, MD, PhD, Óscar González López, MD, PhD, Carlos D. del Pozo, MD, PhD, Maurizio Iacobone, MD, PhD, Enrique Veloso, MD, PhD, José M. del Pino, MD, Iñigo García Sanz, MD, David Scott-Coombes, MD, Jesús Villar-del-Moral, MD, PhD, José I. Rodríguez, MD, Jaime Vázquez Echarri, MD, PhD, Carmen González Sánchez, MD, María-Teresa Gutiérrez Rodríguez, MD, Ignacio Escoresca, MD, José Nuño Vázquez-Garza, MD, Ernesto Tobalina Aguirrezábal, MD, Jesús Martín, MD, PhD, Mari Fe Candel Arenas, MD, PhD, Kerstin Lorenz, MD, Juan Manuel Martos, MD, and José M. Ramia, MD, PhD
Hospital Universitari de Bellvitge, IDIBELL

8:30am - 8:45am
***12.** MIR-34A AND MIR-483-5P ARE CANDIDATE SERUM BIOMARKERS FOR ADRENOCORTICAL TUMORS
Dhaval Patel, MD, Myriem Boufraqech, PhD, Meenu Jain, PhD, Lisa Zhang, PhD, Mei He, MD, Krisana Gesuwan, CRNP, Neelam Gulati, BS, Naris Nilubol, MD, Erinn E. Patterson, PhD, Tito Fojo, MD, PhD and Electron Kebebew, MD
National Institute of Health

8:45am - 9:00am
***13.** THE INCIDENCE OF UNDIAGNOSED AND UNRECOGNIZED PRIMARY HYPERPARATHYROIDISM: A POPULATION BASED ANALYSIS FROM THE ELECTRONIC MEDICAL RECORD
Danielle M. Press, MD, Allan E. Siperstein, MD, Eren Berber, MD, Joyce J. Shin, MD, Rosemarie Metzger, MD, Judy Jin, MD, Warren Swagel, BS, Jamie C. Mitchell, MD
Cleveland Clinic

9:00am – 9:15am
Introduction of President, Grand Ballroom

9:15am – 10:00am
Presidential Address: A New Face for Endocrine Surgery, Grand Ballroom
Miguel Herrera, MD, PhD - Instituto Nacional de la Nutrición Salvador Zubiran

10:00am – 10:30am
Morning Break, Exhibits & Poster Viewing, Empire Ballroom & Toledo Room

10:30am – 11:45am
Scientific Session IV: Papers 14-18, Grand Ballroom
Moderators: Jeff F. Moley, MD & Mauricio Sierra Salazar, MD

10:30am - 10:45am
***14.** CLINICAL AND THERAPEUTIC IMPLICATIONS OF SPROUTY2 FEEDBACK DYSREGULATION IN BRAF V600E PAPILLARY THYROID CANCER
Linda Dultz, MD, Shumon Dhar, BS, Jennifer B. Ogilvie, MD, Keith S. Heller, MD, Dafna Bar-Sagi, PhD, Kepal N. Patel, MD
NYU Langone Medical Center

10:45am - 11:00am
***15.** PATIENTS WITH FOLLICULAR AND HURTHLE CELL MICROCARCINOMAS HAVE COMPROMISED SURVIVAL: A POPULATION LEVEL STUDY OF 22,738 PATIENTS
Eric J. Kuo, BS, Sanziana A. Roman, MD, Julie A. Sosa, MD
Yale University School of Medicine

11:00am - 11:15am
***16.** RASSF1A HYPERMETHYLATION AS A PUTATIVE MOLECULAR PROGNOSTIC MARKER IN PAPILLARY THYROID CARCINOMA
John W. Kunstman, MD, James M. Healy, MD, Reju Korah, PhD, Tobias Carling, MD, PhD
Yale University School of Medicine

** Denotes Resident/Fellow Research Award Competition Paper*

Monday, April 15, 2013 CONT.

11:15am - 11:30am
***17.** HURTHLE CELL CARCINOMA: AN UPDATE ON SURVIVAL OVER THE LAST 35 YEARS
Sapna Nagar, MD, Briseis Aschebrook-Kilfoy, PhD, Edwin L. Kaplan, MD, Peter Angelos, MD, PhD, Raymon H. Grogan, MD
University of Chicago

11:30am - 11:45am
***18.** THE RELATIONSHIP BETWEEN CHRONIC LYMPHOCYTIC THYROIDITIS AND CENTRAL NECK LYMPH NODE METASTASIS IN PATIENTS WITH PAPILLARY THYROID CARCINOMA
Sebastian M. Jara, BS, Kathryn A. Carson, ScM, Justin A. Bishop, MD, Ralph P. Tufano, MD
Johns Hopkins University School of Medicine

11:45am – 12:20pm
Invited Lecturer: Quality Control in Clinical Practice and Postgraduate Education in Endocrine Surgery, Grand Ballroom
Speaker: Anders O.J. Bergenfelz, MD, PhD - Lund University Hospital

12:20pm – 2:00pm
Lunch On Own

2:00pm - 3:30pm
Scientific Session V: Papers 19-24, Grand Ballroom
Moderators: Steven K. Libutti, MD & John I. Lew, MD

2:00pm - 2:15pm
***19.** A MULTI-INSTITUTIONAL INTERNATIONAL STUDY OF RISK FACTORS FOR HEMATOMA AFTER THYROIDECTOMY
Michael Campbell, MD, Kelly L. McCoy, MD, Jacob Moalem, MD, Carrie C. Lubitz, MD, Sarah Oltmann, MD, Lutske Lodewijk, MD, Wen Shen, MD, Sally E. Carty, MD, Meno Vriens, MD, Herb Chen, MD, Rebecca S. Sippel, MD, David Greenblatt, MD, Rachel Henegan, MD
Brigham and Women's Hospital

2:15pm - 2:30pm
***20.** THE ROLE OF SURGERY FOR RECURRENT AND METASTATIC ADRENOCORTICAL CANCER
Benzon M. Dy, MD, Geoffrey B. Thompson, MD, Kevin B. Wise, MD, William F. Young, MD, Clive S. Grant, MD, David R. Farley, MD, Jordan K. Rosedahl, BA, William S. Harmsen, MS, Melanie L. Richards, MD
Mayo Clinic Rochester

2:30pm - 2:45pm
***21.** RECALCITRANT HYPOCALCEMIA AFTER THYROIDECTOMY IN PATIENTS WITH PREVIOUS ROUX-EN-Y GASTRIC BYPASS
Travis J. McKenzie, MD, Yufei Chen, MD, Richard A. Hodin, MD, Scott A. Shikora, MD, Matthew M. Hutter, MD, Randall D. Gaz, MD, Francis D. Moore Jr., MD, Carrie C. Lubitz, MD, MPH
Massachusetts General Hospital

2:45pm - 3:00pm
***22.** COST-ANALYSIS OF THYROID LOBECTOMY AND INTRAOPERATIVE FROZEN SECTION VS. TOTAL THYROIDECTOMY IN PATIENTS WITH A CYTOLOGICAL DIAGNOSIS OF 'SUSPICIOUS FOR PAPILLARY THYROID CANCER'
Andrew Leiker, BS, Tina W.F. Yen, MD, Kevin Cheung, MD, Douglas B. Evans, MD, Tracy S. Wang, MD
Medical College of Wisconsin

3:00pm - 3:15pm
***23.** PROSPECTIVE ANALYSIS OF CORONARY CALCIUM IN PATIENTS ON DIALYSIS UNDERGOING A NEAR-TOTAL PARATHYROIDECTOMY .
William T. Daniel, BS, Paolo Raggi, MD, James A. Bailey, MD, Collin J. Weber, MD, and Jyotirmay Sharma, MD
Emory University School of Medicine

3:15pm - 3:30pm
***24.** ONCOLYTIC VESICULAR STOMATITIS VIRUS AS A TREATMENT FOR NEUROENDOCRINE TUMORS
Reese W. Randle, MD, Scott A. Northrup, BS, Douglas S. Lyles, PhD, John H. Stewart, IV, MD
Wake Forest University School of Medicine

3:30pm – 4:00pm
Afternoon Break & Exhibits & Poster Viewing, Empire Ballroom & Toledo Room

** Denotes Resident/Fellow Research Award Competition Paper*

Monday, April 15, 2013 CONT.

4:00pm - 5:15pm
Scientific Session VI: Papers 25-29, Grand Ballroom
Moderators: Carmen C. Solorzano, MD, & Rebecca S. Sippel, MD

4:00pm - 4:15pm
***25.** MINORITY RULES: 10% TALL CELLS CONFER THE AGGRESSIVE FEATURES OF THE TALL CELL VARIANT OF PAPILLARY THYROID CARCINOMA
Toni Beninato, MD, David A. Kleiman, MD, Alessia Uccelli, MD, Daniela Vaca, MD, Theresa Scognamiglio, MD, Thomas J. Fahey, III, MD, Rasa Zarnegar, MD
New York Presbyterian Hospital - Weill Cornell Medical Center

4:15pm - 4:30pm
***26.** LOWERING DOSES OF RADIOIODINE FOR REMNANT ABLATION DOES NOT INCREASE STRUCTURAL RECURRENCE RATES IN PAPILLARY THYROID CARCINOMA
Mark Sywak, MMedSci, **Schelto Kruijff PhD,** Paul Chen MBBS, Ahmad M Aniss PhD, Stan B Sidhu PhD, Leigh W Delbridge MD, Paul Roach PhD, Roderick J Clifton-Bligh MBBS PhD, Diane L Learoyd PhD
University of Sydney

4:30pm - 4:45pm
***27.** THE IMPACT OF SURGICAL VOLUME ON OUTCOMES OF PATIENTS UNDERGOING THYROID SURGERY FOR BENIGN AND MALIGNANT CONDITIONS
Salem I. Noureldine, MD, Ali Abbas, MD Ralph P. Tufano, MD, Emad Kandil, MD
Tulane University School of Medicine

4:45pm - 5:00pm
***28.** EFFECT OF RE-OPERATION ON OUTCOMES IN PAPILLARY THYROID CANCER
Stephanie Young, MPH, Avital Harari, MD, Stephanie Smooke-Praw, MD, MA, Philip H.G. Ituarte, PhD, MPH, Noah E. Silverman, MS, Michael W. Yeh, MD
UCLA David Geffen School of Medicine

5:00pm - 5:15pm
***29.** ATTRIBUTABLE COSTS OF DIFFERENTIATED THYROID CANCER IN THE ELDERLY MEDICARE POPULATION
Melissa M. Boltz, DO, Christopher S. Hollenbeak, PhD, Brian D. Saunders, MD, Eric Schaefer, MS, David Goldenberg, MD
Penn State Milton S. Hershey Medical Center

5:15pm – 5:30pm
Break

5:30pm – 6:00pm
AAES Business Meeting, Grand Ballroom *(Voting members only)*

Tuesday, April 16, 2013

8:00am – 9:15am
Scientific Session VII: Papers 31-35, Grand Ballroom
Moderators: Paul G. Gauger, MD & James Lee, MD

8:00am - 8:15am
31. A NOVEL OPTICAL APPROACH TO INTRAOPERATIVE DETECTION OF PARATHYROID GLANDS
Constantine A. Paras, PhD, Melanie A Gault, MS, Lisa White, MD, John Phay, MD, Anita Mahadevan-Jansen, PhD, **James Broome, MD**
Vanderbilt University

8:15am - 8:30am
32. DEVELOPMENT OF A CALCIUM-SENSING RECEPTOR MOLECULAR IMAGING AGENT
Adlina Mohd Yusof, PhD, Shankaran Kothandaraman, PhD, Haiming Ding, BS, Moto Saji MD, PhD, Michael Tweedle, PhD**, John Phay, MD**
Ohio State University

8:30am - 8:45am
33. EXPRESSION OF FUNCTIONAL FOLATE RECEPTORS BY HUMAN PARATHYROID TUMOR CELLS
Collin J. Weber, MD, DMSci, Rahuveer K. Halkar, MD, Susan Muller, DMD, Kereen B. Gordon, MS, Praveen Amancha, PhD, Francois Villinger, DVM, PhD, Vernon M. Camp,VMC, CNMT(ASCP), Malgorzata Lipowska, PhD, Jyotirmay Sharma, MD, Mark Goodman, PhD, Cristina M
Emory University

8:45am - 9:00am
34. MYOCARDIAL AND ENDOTHELIAL DYSFUNCTION IN SYMPTOMATIC PRIMARY HYPERPARATHYROIDISM PATIENTS AND ITS REVERSAL FOLLOWING PARATHYROIDECTOMY: A PROSPECTIVE CASE-CONTROL STUDY
Gaurav Agarwal, MS, Gitika Nanda, MS, Aditya Kapoor, MD, DM, Sanjeev Kumar Syal, MD, DM, Gyan Chand, MS, Anjali Mishra, MS, Amit Agarwal, MS, Ashok K Verma, MS, Saroj K Mishra, MS
Sanjay Gandhi Postgraduate Institute of Medical Sciences

** Denotes Resident/Fellow Research Award Competition Paper*

Tuesday, April 16, 2013 CONT.

9:00am - 9:15am
35. PTTG1 OVER-EXPRESSION IN ADRENOCORTICAL CANCER IS ASSOCIATED WITH POOR SURVIVAL AND REPRESENTS A POTENTIAL THERAPEUTIC TARGET
Michael J. Demeure MD, MBA, Kathryn E. Coan MD, Clive S. Grant MD, Richard A. Komorowski MD, Elizabeth Stephan PhD, Shripad Sinari MS, David Mount PhD, Kimberly J. Bussey PhD
Translational Genomics Research Institute

9:15am - 9:45am
Morning Break & Exhibits & Poster Viewing, Empire Ballroom & Toledo Room

9:45am – 11:00am
Scientific Session VIII: Papers 36-40, Grand Ballroom
Moderators: Jack M. Monchik, MD & Elizabeth G. Grubbs, MD

9:45am - 10:00am
36. INCREASES IN THYROID NODULE FINE NEEDLE ASPIRATIONS, SURGERIES, AND DIAGNOSES OF THYROID CANCER IN THE UNITED STATES
Julie A. Sosa, MD, John Hanna, MBA, Richard B. Lanman, MD, Karen A. Robinson, PhD, Paul W. Ladenson, MD
Duke University, Veracyte, Inc., Johns Hopkins Medical Institutions

10:00am - 10:15am
37. FACTORS IN CONVERSION FROM MINIMALLY INVASIVE PARATHYROIDECOMY TO BILATERAL PARATHYROID EXPLORATION FOR PRIMARY HYPERPARATHYROIDISM
David T. Hughes MD, Paul B. Park MD, Mark S. Cohen MD, Barbara S. Miller MD, Paul G. Gauger MD
University of Michigan

10:15am - 10:30am
38. A 27 YEAR FOLLOW-UP OF PATIENTS WITH PAPILLARY THYROID CANCER: THE IMPORTANCE OF A LONG-TERM STUDY
Raymon H. Grogan MD, Sharone P. Kaplan MSW, Hongyuan Cao PhD, Omran Embia MD, Roy E. Weiss MD PhD, Cassie Simon, CRT, Leslie Degroot MD, Peter Angelos MD PhD, Edwin L. Kaplan MD, Rebecca L. Brown MD
University of Chicago

10:30am - 10:45am
39. LONG-TERM OUTCOME OF ULTRASOUND-GUIDED PERCUTANEOUS ETHANOL ABLATION OF SELECTED "RECURRENT" NECK NODAL METASTASES IN 25 PATIENTS WITH TNM STAGES III OR IVA PAPILLARY THYROID CARCINOMA PREVIOUSLY TREATED BY SURGERY AND I-131 THERAPY
Ian D Hay, MD, PhD, Robert A Lee, MD, Caroline Davidge-Pitts, MB, BCh, Jennifer R Geske, MS, Carl C. Reading, MD, J William Charboneau, MD
Mayo Clinic Rochester

10:45am - 11:00am
40. POTENTIAL ROLE OF 5- AZA-2'-DEOXYCYTIDINE INDUCED MAGEA4 EXPRESSION IN IMMUNOTHERAPY FOR ANAPLASTIC THYROID CANCER.
Viswanath Gunda, PhD, Alexandria P. Cogdill, BS, Jennifer A. Wargo, MD, **Sareh Parangi, MD**
Harvard Medical School/Massachusetts General Hospital

11:00am – 12noon
Poster Presentations, Grand Ballroom
Moderators: Lawrence T. Kim, MD & Shelby A. Holt, MD

12noon – 1:00pm
AAES Panel Session: The Patient's Voice – Is There More to be Heard?, Grand Ballroom

Moderator: Sally E. Carty, MD – University of Pittsburgh

Panelists:
Michael J. Bove, MD - *Northwestern University*
Quan-Yang Duh, MD - *University of California, San Francisco*
Thomas J. Fahey, III, MD - *Weill Cornell Medical Center*
Clive S. Grant, MD - *Mayo Clinic Rochester*
Keith S. Heller, MD- *NYU Langone Medical Center*
Richard A. Hodin, MD - *Massachusetts General Hospital*
Richard A. Prinz, MD - *NorthShore University HealthSystem*
David J. Terris, MD - *Georgia Health Sciences University*

1:00pm – 3:00pm
Endocrine Surgery Mock Oral Boards: Preparing Our Fellows for the Future – How will it be Done?, Valencia Room

Moderator: Quan-Yang Duh, MD – *University of California San Francisco*

Guest: Anders C.J. Bergenfelz, MD, PhD – *Lund University Hospital*

Examiners:
Peter F. Czako, MD – *Beaumont Health System*
Steven De Jong, MD – *Loyola University*
Sonia Sugg, MD – *University of Iowa*

** Denotes Resident/Fellow Research Award Competition Paper*

Abstracts

** Denotes Resident/Fellow Research Award Competition Paper*

NOTE: Author listed in **BOLD** *is the presenting author*

NOTES

***1.** ROUTINE PROPHYLACTIC CENTRAL LYMPH NODE DISSECTION FOR LOW-RISK PAPILLARY THYROID CANCER: A COST-EFFECTIVENESS ANALYSIS

Kyle Zanocco, MD, Dina Elaraj, MD, Cord Sturgeon, MD
Northwestern University Feinberg School of Medicine

Background: Routine prophylactic central lymph node dissection (PCLND) following total thyroidectomy (TTX) for low-risk papillary thyroid cancer (PTC) offers the potential to decrease disease recurrence but may increase the rate of surgical complications. We hypothesized that routine PCLND is not cost-effective in low risk PTC.

Methods: A Markov transition-state decision model was used to compare the cost-effectiveness of TTX with and without PCLND from the societal perspective. Treatment outcome probabilities and their corresponding utilities were estimated based on literature review. Effectiveness was measured in quality-adjusted life years (QALYs). Costs were estimated using Medicare reimbursement data and the Nationwide Inpatient Sample. A 3% annual discount rate was applied to all future costs and QALYs. The threshold for cost-effectiveness was defined as an incremental cost-effectiveness ratio of less than $100,000/QALY. Sensitivity analysis and a 1,000 iteration Monte Carlo simulation were used to examine the uncertainty of cost, probability, and utility estimates in the model.

Results: The expected cost of the TTX with PCLND strategy was $10,291 with an effectiveness of 23.786 QALY. This strategy was more costly and less effective than TTX without PCLND, making TTX without PCLND the dominant strategy. PCLND became cost-effective during one-way sensitivity analysis when the lifetime probability of recurrence increased from 6% to 11.6% or the cost of reoperation for recurrence increased from $8,900 to $37,200. PCLND became cost-effective during two-way sensitivity analysis when the added probabilities of RLN injury and hypoparathyroidism due to PCLND were less than 0.04% and 0.05% respectively. The model was not sensitive to life expectancy, the quality adjustment utility factors for RLN injury or hypoparathyroidism, the additional cost of PCLND, or the relative risk reduction of PCLND on recurrence. During Monte Carlo simulation, TTX without PCLND was cost effective in 99.0% of the iterations and the dominant strategy in 83.4% of the iterations whereas TTX with PCLND was cost-effective in 1.0% of iterations and dominant in 0.1% of the iterations.

Conclusion: Routine PCLND for low risk PTC is not cost-effective unless the recurrence rate is greater than 11.6%. Selective application of PCLND should be individualized based on risk of recurrence, RLN injury, and hypoparathyroidism.

NOTES

***2.** A PROSPECTIVE EVALUATION OF SURGEON-PERFORMED TRANSCUTANEOUS LARYNGEAL ULTRASONOGRAPHY IN ASSESSING VOCAL CORD FUNCTION BEFORE AND AFTER THYROIDECTOMY

Kai-Pun Wong, MBBS, Brian H. Lang, MS, Sze-How Ng, MS, Chung-Yeung Cheung, MBBS, Christina T. Chan, MBBS, Chung-Yau Lo, MS
University of Hong Kong

Introduction: Although direct laryngoscopic examination of the vocal cords (VCs) is important before and after thyroidectomy, it generally causes patient discomfort and adds medical cost. Recent studies have suggested transcutaneous laryngeal ultrasound (TLUSG) could be an alternative to direct laryngoscopy (DL) in assessing preoperative and postoperative VC function. A prospective study was conducted to examine the accuracy of TLUSG in VC function before and after thyroidectomy and to evaluate the value of TLUSG as a screening tool for selective DL.

Methods: After appropriate consent, 204 consecutive patients underwent TLUSG the day before and a week after elective thyroidectomy. To reduce assessment bias, before examination, the surgeon performing the TLUSG was unaware of the patient's voice quality. During examination, passive and active movements of the true and false VC were recorded. All TLUSG was performed by one endocrine surgeon using standardized technique. Immediately afterwards, patients underwent DL by an independent endoscopist unaware of the TLUSG finding. Both TLUSG and DL findings were graded according to the extent of VC movement (Grade I = "both VCs with full or normal movement", Grade II = "at least 1 VC with reduced movement" and Grade III = "at least 1 VC with no movement"). Patients with grade II or III on DL were defined as having VC paresis or palsy (VCP). To calculate the accuracy of TLUSG, the TLUSG findings were correlated with DL findings.

Results: On DL, no patient had preoperative VCP while 17 patients had unilateral postoperative VCP. Altogether 331 nerves were at-risk and the overall postoperative VCP rate was 5.1%. TLUSG was unable to clearly visualize and assess VCs in 11 (5.4%) patients. Of these, 2 had VCP while 9 had no VCP on DL. Compared to DL, TLUSG had a test sensitivity, specificity, positive predictive value and negative predictive value of 14/15 (93.3%), 174/178 (97.8%), 14/18 (77.8%) and 174/175 (99.4%), respectively. Of the 175 patients with grade I on TLUSG, only 1(0.6%) patient turned out having a grade II VCP while the rest (99.4%) had grade I on DL.

Conclusion

TLUSG clearly assessed VC function in 193/204 (94.6%) patients undergoing thyroidectomy. Hypothetically, if we use TLUSG as a screening tool and select DL only for patients with grade II / III or unassessable VCs on TLUSG, the total number of perioperative DL could potentially be reduced by 85.8% with 1 (0.6%) asymptomatic / grade II VCP missed.

NOTES

***3.** OBSERVATION OF THE CLINICALLY NEGATIVE CENTRAL COMPARTMENT LYMPH NODES IN PAPILLARY THYROID CARCINOMA

Iain J. Nixon, MBChB, Ian Ganly, PhD, Snehal G. Patel, MD, Luc G. Morris, MD, Frank L. Palmer, BA, Dorothy Thomas, BA, R. Michael Tuttle, MD, Jatin P. Shah, MD, Ashok R. Shaha, MD
Memorial Sloan Kettering Cancer Center

Introduction: The role of elective central neck dissection (CND) in the management of papillary thyroid cancer (PTC) is controversial. Proponents highlight high rates of occult nodal metastasis with implications for both post-surgical staging and adjuvant therapy. Our institutional approach has been to perform CND only when disease is suspected based on pre- or intra-operative evaluation of the central neck. The aim of this study is to report our experience of an observational approach to the clinically N0 neck in PTC.

Methods: Following IRB approval, the records of 1129 consecutive patients presenting with M0 PTC, who had total thyroidectomy for resectable disease between 1986-2005 were identified from our institutional database. The group was stratified by nodal status. 470 patients (42%) had pathological nodal metastases (pN1), 384 (34%) had nodes removed without metastases (pN0) and the remaining 275 patients (24%) had no nodal tissue removed (Nx). The Nx group formed our study cohort.
Patient, tumor and treatment characteristics were recorded and compared by Chi squared test. Local, regional or distant recurrences were counted if identified on clinical, ultrasonographic, radioiodine scan, or biochemical assay, with or without cytopathologic confirmation.

Results: With a median follow up of 70 months (range 1-275 months), the 10 year DSS in the Nx group was 100%, and no patients required further surgery on the central neck.

Four patients had suspicion of local recurrence on subsequent RAI scan. All were treated with RAI and are currently considered free of disease. Five patients were considered to have regional recurrence. Three had biopsy proven lateral neck disease and underwent neck dissection, one of who also recurred in the lung. Of the remaining 2 patients 1 had a low level detectable thyroglobulin and 1 had a sub-centimetre level VI neck node suspicious for recurrence which has been observed. Two further patients developed pulmonary metastases.

The 10 year local, regional and distant recurrence rates were 2%, 3% and 2% respectively.

Conclusion: Our results suggest that properly selected patients, without pre- or intra-operative evidence of nodal disease, who are observed, have low rates of recurrence and excellent survival. Despite the fact that these patients are likely to have a significant rate of occult micrometastasis, such patients can safely be managed with observation of the central neck rather than CND.

NOTES

***4.** IMPACT AND TIMING OF BILATERAL ADRENALECTOMY FOR UNCONTROLLABLE ACTH-DEPENDENT CUSHING'S SYNDROME

Lilah F. Morris, MD, Rachel S. Harris, MD, Denái R. Milton, MS, Steven G. Waguespack, MD, Mouhammed A. Habra, MD, Camilo Jimenez, MD, Rena Vassilopoulou-Sellin, MD, Jeffrey E. Lee, MD, Nancy D. Perrier, MD, Elizabeth G. Grubbs, MD
University of Texas MD Anderson Cancer Center

Background: Reluctance to perform bilateral adrenalectomy(BA) for ACTH-dependent Cushing's syndrome(CS) from an untreatable primary source may result in worsening metabolic derangements and increased adverse events(AE). We hypothesized that post-BA patients(pts) would have better metabolic parameters and fewer deaths due to steroid excess than pts treated with steroidogenesis inhibition(SI) alone.

Methods: Data from pts with ACTH-dependent CS from an uncontrollable source treated between 1970-2012 were retrospectively reviewed by treatment group(SI or SI+BA). Validated severity scales were used to calculate a metabolic(M) score(hypokalemia, hyperglycemia, hypertension, proximal muscle weakness) and an AE score(thrombosis, fracture, infection, treatment-related AEs).

Results: 65 pts were included(16 pituitary, 49 ectopic); 21(32%) were treated with SI+BA and 44(68%) with SI alone. Presenting M scores and source of ACTH excess(ectopic vs. pituitary) were similar, but SI+BA pts had lower initial AE scores($p=0.04$), likely due to selection bias. Both groups improved metabolically after treatment. However, post-SI+BA pts with resolution of CS had significantly lower M and AE scores than post-treatment scores in SI pts($p=0.02$, $p=0.01$). SI+BA pts received SI pre-BA for a median of 7.8 mos(range 0.8-46.4). Of the SI+BA pts who had AE between presentation and BA, 39% occurred within 12 mos after presentation. 24(55%) of SI pts died with a median survival of 24.0 mos; steroid excess contributed to 71%. 6 deaths(29%) occurred in the SI+BA group; 3 of the 18 pts(17%) with sustained resolution of CS died of cancer-related causes(median 7.1 mos after BA). The others were alive at median follow up of 32.4 mos. Three pts had recurrent CS after BA(14%); all 3 died(2 related to steroid excess) at a median of 33.0 mos follow up. Minor perioperative complications occurred in 7 pts.

Conclusions: Post-treatment M and AE scores improved for SI, and to a greater extent, SI+BA pts. More than a third of AEs occurred in SI+BA pts preoperatively within 12 mos of presentation, emphasizing the importance of early surgical intervention. In addition, BA was associated with minimal complications. The majority of deaths in the SI group were related to steroid excess. Most SI+BA pts experienced sustained resolution of CS after BA; the few deaths in this group were related to primary disease. These data argue for the safety and efficacy of early BA in selected pts with uncontrollable CS.

NOTES

***5.** METABOLIC PHENOTYPING OF NEUROENDOCRINE TUMORS
James Kinross, MD, PhD, Panagiotis Drymousis, MD PhD, Jia Li, Beatrice Jaminez, Helen Miller, Jeremy K. Nicholson, PhD, Andrea Frilling, MD, PhD
Imperial College London

Background: Identification of novel tissue-based diagnostic biomarkers is one of the priorities for improving the management of neuroendocrine tumors (NET). We applied a personalised metabonomic phenotyping strategy as part of a pilot study to define metabonomic signatures that not only allow to discriminate malignant from non-malignant condition, but also to distinguish subgroups of NET.

Methods: Twenty six patients with NET (10 small bowel, 11 pancreas and 5 others) and 6 healthy individuals as controls were prospectively recruited (M:F = 19:7, mean age 52 years, range 27-80). Urine samples were subjected to 1H Nuclear Magnetic Resonance (NMR) profiling using a Bruker Avance 600MHz spectrometer (Bruker, Rheinstetten, Germany). Acquired spectral data were imported into SIMCA (v.13.0.1, Umetrics AB, Sweden) and MATLAB (v.7.12.0.635, MathWorks, USA) statistical software packages for supervised and unsupervised multivariate analysis using principal component analysis (PCA) and partial least squares discriminant analysis (PLS-DA) respectively. Univariate analysis was performed by ANOVA.

Results: PLS-DA of small bowel NET demonstrated clear metabolic class separation from non-small bowel NET and from healthy controls (R2Y = 0.90, Q2Y = 0.58) with 100% sensitivity and specificity. Orthogonal PLS-DA of urine from small bowel NET and other NET also predicted class separation (R2Y = 0.92 , Q2Y = 0.15), with a high specificity (85.7%) and low sensitivity (20%). The gut microbial co-metabolite hipurate strongly correlated with the healthy control group ($P<0.0001$). Metabolites such as creatinine, methylhistidine and homocysteine and unknown metabolites (ppm 2.27 (m)) correlated with small bowel NET vs other NET.

Conclusions: Metabonomic analysis suggests that subgroups of NET may possess an individualised metabolic phenotype. Moreover, this approach represents a novel diagnostic strategy that may provide valuable insights into the aetiology and biological behaviour of NET. Our results suggest that metabonomic profiling could provide novel biomarkers for NET.

NOTES

***6.** PROSPECTIVE SCREENING AND WHOLE EXOME-SEQUENCING RESULTS IN FAMILIAL NON-MEDULLARY THYROID CANCER

Samira M. Sadowski, MD, Mei He, MD, Krisana Gesuwan,MS, Neelam Gulati, BS, Naris Nilubol, MD, Li Jia, PhD, Eric Stahlberg, PhD, Ming Yi, PhD, Robert Stephens, PhD, Electron Kebebew, MD
National Institutes of Health, National Cancer Institute

Background: Approximately 8% of non-medullary thyroid cancers are familial when two or more first-degree relatives are affected. It is unknown who and at what age individuals at risk of familial non-medullary thyroid cancer (FNMTC) should undergo screening. The aim of this study was to determine the first age of onset of thyroid cancer and nodule in at risk family members and to determine the inheritance pattern for FNMTC.

Method: Kindreds with FNMTC, defined as two or more first-degree relatives affected, were enrolled in a prospective study. Every family member at risk was screened by thyroid ultrasound and in two families whole-exome sequencing was performed. The whole-exome sequencing data was analyzed in affected parent-child pairs using the unaffected parent-child pairs to identify candidate susceptibility gene(s) and altered pathways.

Results: Thirteen kindreds with FNTMC underwent screening across three generations. The overall prevalence of a thyroid nodule(s) >5mm was 42% at screening; with nodules present in 31% of the second generation and in 75% of the anterior generation (anterior to index case generation). The youngest age a thyroid nodule was detected was 10 years old, and the youngest age at diagnosis of thyroid cancer was 18 years old. On screening ultrasound, presence of thyroid nodule microcalcification was associated with a significantly higher risk of cancer ($p<0.05$). Compared to index cases, subsequent family members diagnosed with thyroid cancer by ultrasound screening were diagnosed at a younger age (35 vs 47 years, $p<0.05$) and had lower rates of extrathyroidal invasion ($p<0.05$).

Whole exome sequencing of germline DNA in two families identified 31 nonsynonymous single-nucleotide polymorphisms (SNPs) in common in affected members and which could result in protein damage. Parent-offspring analysis of these SNPs showed alterations in genes involved in the p53 and bladder cancer pathway.

Conclusion: In FNMTC, at risk first-degree relatives should be screened with a thyroid ultrasound at the age of 10 years or older and this should include the anterior generation to the index case. The use of such a screening strategy may result in earlier diagnosis. Multiple SNPs in genes in carcinogenesis may be involved in FNMTC.

NOTES

***8.** CLINICAL UTILITY OF IMMUNOHISTOCHEMISTRY FOR THE DETECTION OF THE BRAF V600E MUTATION IN PAPILLARY THYROID CARCINOMA

Aron Pollack, MD, **Jonathan Zagzag, MD,** Linda Dultz, MD, Shumon Dhar, BS, Jennifer B. Ogilvie, MD, Keith S. Heller, MD, Fang-Ming Deng, MD, Kepal N. Patel, MD
NYU Langone Medical Center

Background: BRAF V600E mutation is the most common genetic alteration in papillary thyroid cancer (PTC). This mutation is sometimes associated with an aggressive phenotype. We utilized a novel mutation-specific antibody for immunohistochemical (IHC) detection of the BRAF V600E mutation and correlated this with clinicopathological features. The study was designed to validate the accuracy of IHC detection of the BRAF V600E mutation and determine the clinical significance of the extent of staining.

Methods: A single-center prospective study analyzing 793 patients who underwent thyroid surgery for PTC from 2008-2011 was performed. 52 consecutive patients who underwent thyroid surgery for PTC were selected for DNA mutation testing for BRAF V600E. 40 were BRAF V600E positive and 12 were BRAF mutation negative. The same paraffin-embedded, formalin-fixed PTC samples were used to create tissue microarrays (TMA), with 3 cores from each sample. TMAs were analyzed using a novel BRAF V600E mutant-specific antibody for IHC. TMAs were scored on a standard intensity (0-3), proportion (0-100%) scale by a single pathologist who was blinded to the BRAF status of each sample. Tumors with intensity <1 and staining proportion <20% or non-specific staining were considered negative. Positively staining tumors (majority displayed >80% proportion) were then stratified into 3 intensity categories: <1, 1-2, >2. The 3 categories were assessed for clinicopathologic variables including age, extrathyroidal extension, lymphovascular invasion, and regional lymph node metastases.

Results: The BRAF V600E mutation-specific antibody showed a sensitivity of 90% and specificity of 100% for detecting the presence of the BRAF V600E mutation. With respect to the intensity of IHC staining, tumors with IHC intensity>2 were significantly more likely to have extrathyroidal extension ($p<0.05$). There was no difference in incidence for any of the other clinicopathologic variables.

Conclusions: IHC is a specific and sensitive method for the detection of the BRAF V600E mutation in thyroid cancer and may be an accurate, rapid, easily applicable and potentially cost effective alternative to standard molecular techniques. Furthermore, it may serve as a better predictor of tumor behavior. Findings from the current study support the potential use of IHC as a diagnostic and prognostic tool for thyroid cancer.

NOTES

***10.** GASTRIC INHIBITORY POLYPEPTIDE RECEPTOR: A FUTURE ALTERNATIVE TO SOMATOSTATIN TYPE 2 RECEPTOR IMAGING AND TREATMENT IN NEUROENDOCRINE TUMORS?

Scott K. Sherman, MD, Jennifer C. Carr, MD, Donghong Wang, MS, M. Sue O'Dorisio, MD, PhD, Thomas M. O'Dorisio, MD, James R. Howe, MD
The University of Iowa

Background: Somatostatin type 2 receptors (SSTR2) are expressed in 80-90% of neuroendocrine tumors (NETs). Ligands binding SSTR2 are effective for imaging, symptom control, and radioreceptor therapy of these tumors. However, SSTR-directed imaging is negative in 25% of cases, and not all patients respond to octreotide injections or radiotherapy. The aim of this study was to evaluate the expression of new NET target genes relative to SSTR2.

Method: RNA was extracted from primary tumors, matched normal tissue, and lymph node and liver metastases collected at surgery from NET patients at one center. Relative expression was assessed by quantitative PCR for SSTR2 and 12 genes previously found to be overexpressed in NETs (GIPR, BRS3, OPRK1, DRD1, GPR98, GRM1, SCTR, ADORA1, GPR113, OXTR, MUC13, MEP1B). Mean threshold cycles were normalized to GAPDH and POLR2A internal controls to determine expression levels (dCT). Results were compared by Welch two-sample t-test.

Results: Small bowel (SBNETs; 53 primaries, 30 liver, 43 nodal mets) and pancreas (PNETs; 38 primaries, 9 liver, 11 nodal mets) NETs were tested. Expression of SSTR2 in tumors was high (dCT=2.4, sd=2.2), and was 3-fold greater in tumor compared to normal tissue. Relative to normal tissue, tumor expression was increased for GIPR, BRS3, OPRK1, GRM1, GPR113, and OXTR by 14, 11, 21, 20, 5, and 44-fold, respectively. These fold-increases were significantly greater than those of SSTR2 ($p<0.01$). Yet compared to SSTR2, absolute expression in primaries was significantly lower for all of these genes except GIPR ($p<0.001$). GIPR expression was comparable to SSTR2 in tumors (dCT 3.1, sd=2.7 vs. 2.4, p=0.2), but had 8-fold lower expression in normal tissue than SSTR2 (dCT 7.2, sd=4.3 vs. 4.2, sd=1.9, $p<0.001$). Expression of SSTR2 and GIPR was similar in both PNET and SBNET primaries (p=0.8 and 0.6), and was not significantly higher in metastases than in primary tumors (p=0.1 and 0.5).

Conclusions: Compared to SSTR2, the genes BRS3, OPRK1, GRM1, GPR113, and OXTR show a greater difference in expression between normal and NET tissue, but have significantly lower absolute expression. GIPR, however, shows expression levels similar to SSTR2 in both primaries and metastases, with greater differential expression vs. normal tissue than SSTR2. Based on these favorable expression characteristics, we conclude that GIPR warrants study as an alternative or synergistic target for imaging and therapeutic strategies in NET patients.

NOTES

11. ADRENALECTOMY FOR SOLID TUMOR METASTASES: RESULTS OF A MULTI-CENTER EUROPEAN STUDY.

Pablo Moreno, MD, PhD, Aitor de la Quintana Basarrate, MD, Thomas J. Musholt, MD, Ivan Paunovic, MD, PhD, Marco Puccini, MD, Óscar Vidal, MD, PhD, Joaquín Ortega, MD, PhD, Jean-Louis Kraimps, MD, Elisabet Bollo Arocena, MD, José M. Rodríguez, MD, PhD, Óscar González López, MD, PhD, Carlos D. del Pozo, MD, PhD, Maurizio Iacobone, MD, PhD, Enrique Veloso, MD, PhD, José M. del Pino, MD, Iñigo García Sanz, MD, David Scott-Coombes, MD, Jesús Villar-del-Moral, MD, PhD, José I. Rodríguez, MD, Jaime Vázquez Echarri, MD, PhD, Carmen González Sánchez, MD, María-Teresa Gutiérrez Rodríguez, MD, Ignacio Escoresca, MD, José Nuño Vázquez-Garza, MD, Ernesto Tobalina Aguirrezábal, MD, Jesús Martín, MD, PhD, Mari Fe Candel Arenas, MD, PhD, Kerstin Lorenz, MD, Juan Manuel Martos, MD, and José M. Ramia, MD, PhD
Hospital Universitari de Bellvitge, IDIBELL

Background: The adrenal glands are common sites of metastases and their removal may improve survival. However, most of the reported data are based on small and heterogeneous patient cohorts. We have evaluated the results of metastatic adrenalectomy based on a multi-center European survey.

Method: Multi-center retrospective study based on data from 30 European institutions. All consecutive patients registered at each participating institution were considered eligible provided the existence of pathological report confirming metastatic disease and the adrenal gland was completely removed.

Results: Data from 317 patients who underwent metastatic adrenalectomy since 1999 to 2011 were evaluated. The mean age was 58,9410.6 yr, and 223 (70.3%) were male. Primary tumor was lung (NSCLC) in 148, colorectal in 60, renal in 37, and Other in 72 patients. Adrenal metastases were synchronous (≤ 6 months) in 73 patients (23%), and isolated in 213 patients (67.2%). Laparoscopic resection was used in 161 patients (50.8%). Surgery was limited to adrenal gland in 231 cases (72.9%) and according to resection R0 was achieved in 274 (86.4%), R1 in 25 (7.9%) and R2 in 5.7%.

With a median follow-up of 20 months (0-190), 97 (30.6%) patients are alive w/o disease, 56 (17.7%) alive with disease and 164 (51,7%) have died.
The median DFI was 29 mo. (95%CI: 25-35), and for the whole cohort overall survival (OS) rates at 2, 5 and 10 years were 54.9 %, 35.4 % and 24.2% respectively. Patients with kidney primaries had a better OS (median 84 months, 95%CI: 32-136) as compared to those with NSCLC (median: 26 months, 95%CI: 22-30), colorectal tumors (median: 27 months, 95%CI:15-39) or other tumors (median: 24 months, 95%CI: 16-32) (p=0.015). OS was also improved for patients with metachronic disease (median: 30 months (95%CI: 19-41) compared to those with synchronic metastases (median: 23 months, 95%CI:15-31),(p=0.038). Patients with isolated metastases also had more prolonged survival compared to those with more disseminated disease, (p=0.030).

Conclusion: Surgical removal of adrenal metastases is associated to long-term survival in eligible patients. Patients with renal primary, metachronic disease and isolated adrenal metastases seems to have more favorable outcomes.
Based on these premises we believe adrenalectomy may be offered to all patients eligible in which a multidisciplinary intention-to-treat approach is possible.

NOTES

***12.** MIR-34A AND MIR-483-5P ARE CANDIDATE SERUM BIOMARKERS FOR ADRENOCORTICAL TUMORS

Dhaval Patel, MD, Myriem Boufraqech, PhD, Meenu Jain, PhD, Lisa Zhang, PhD, Mei He, MD, Krisana Gesuwan, CRNP, Neelam Gulati, BS, Naris Nilubol, MD, Erinn E. Patterson, PhD, Tito Fojo, MD, PhD and Electron Kebebew, MD
National Institute of Health

Background: Adrenal incidentalomas are common and many patients with nonfunctioning tumors undergo an adrenalectomy to exclude an adrenocortical carcinoma (ACC) diagnosis. Recent molecular characterization studies have identified consistently altered microRNAs in ACC as compared to benign adrenocortical tumors but their applications to diagnose ACC is limited as most do not recommend that these tumors should be biopsied. Circulating microRNAs are emerging as novel and noninvasive biomarkers for a variety of human cancers. The objective of this study was to determine the feasibility and diagnostic accuracy of measuring serum circulating microRNAs dysregulated in ACC.

Method: Five microRNAs were selected from microRNA profiling studies in ACC (mir-let-7d, -34a, -195, -214, and 483-5p). A microRNA enriched column purification system was used to extract total microRNA from serum samples in patients with adrenal neoplasms. The levels of microRNAs in serum were measured by quantitative RT-PCR. A diagnosis of benign or malignant adrenocortical tumors was confirmed by pathology. A Mann-Whitney test ($p<0.05$) was used to compare microRNA expression level normalized to mir-16. The area under the ROC curve (AUC) was used to measure the diagnostic accuracy for the circulating microRNAs.

Results: Serum samples from 22 patients with cortical adenomas (n=22) and 17 patients with ACC (n=17) were analyzed. We found high mir-16 levels in all serum samples, a microRNA ubiquitously present in serum. All 5 microRNAs were also detected in all the serum samples. We found significantly higher levels of miR-34a ($p=0.001$) and miR-483-5p ($p=0.011$) in patients with ACC. The AUC for miR-34a was 0.81 and for miR-483-5p was 0.74.

Conclusion: For the first time, we show microRNAs which are altered in adrenocortical tumors are detectable in human serum samples from patients with adrenocortical tumors. Moreover, miR-34a and miR-483-5p are candidate serum biomarkers for distinguishing between benign and malignant adrenocortical tumors.

NOTES

***13.** THE INCIDENCE OF UNDIAGNOSED AND UNRECOGNIZED PRIMARY HYPERPARATHYROIDISM: A POPULATION BASED ANALYSIS FROM THE ELECTRONIC MEDICAL RECORD

Danielle M. Press, MD, Allan E. Siperstein, MD, Eren Berber, MD, Joyce J. Shin, MD, Rosemarie Metzger, MD, Judy Jin, MD, Warren Swagel, BS, Jamie C. Mitchell, MD
Cleveland Clinic

Background: When primary hyperparathyroidism (PHPT) is recognized, a review of the medical record typically reveals elevated calcium and/or parathyroid hormone (PTH) values have been present for long periods of time. The purpose of this study is to examine the electronic medical record (EMR) of a large health system to gain insight into the incidence of undiagnosed and unrecognized PHPT.

Methods: A health system EMR containing 6.5 million patients was queried. To exclude referral bias, only patients with a primary care physician in the hospital system were examined, reducing our population to 2.7 million patients. This group was queried for all patients with outpatient serum calcium values greater than 10.5 mg/dL. A 2 year sample was selected as a study group for further analysis.

Results: Of 2.7 million patients with primary care physicians located within the health system, 54,198 patients (2%) were found to have hypercalcemia (>10.5 mg/dL). In our 2 year sample of 7,269 hypercalcemic patients, only 1.3% had a recorded diagnosis of PHPT. Of the remaining patients, the EMR search revealed PTH was measured in 2,808 patients (39%), while PTH was not measured in 4,366 patients (60%). Of those patients with PTH measured, 1,786 patients (64%) had PHPT (PTH >30 pg/mL). For those patients without PTH obtained, a detailed chart review was done on 200 randomly selected patients to determine if hypercalcemia was most likely due to PHPT. Eighty-eight percent of these patients had calcium levels of 10.6-11 mg/dL, 9% had calcium levels of 11.1-11.5 mg/dL, and 2% had calcium levels of 11.6-12 mg/dL with 27-36% of each group estimated to have PHPT. Only 1% of patients had calcium greater than 12 mg/dL with just 11% estimated to have PHPT. The overall incidence of PHPT in the study population was 46%.

Conclusions: In our study population, the incidence of documented and estimated PHPT was higher than commonly reported (approximately 1%). In hypercalcemic patients, only 40% had PTH levels checked and 60% never had a PTH obtained, 26% of whom were likely to have PHPT. This study underscores the importance of evaluation of even mild hypercalcemia, as 1/3 of these patients have PHPT.

NOTES

***14.** CLINICAL AND THERAPEUTIC IMPLICATIONS OF SPROUTY2 FEEDBACK DYSREGULATION IN BRAF V600E PAPILLARY THYROID CANCER

Linda Dultz, MD, Shumon Dhar, BS, Jennifer B. Ogilvie, MD, Keith S. Heller, MD, Dafna Bar-Sagi, PhD, Kepal N. Patel, MD
NYU Langone Medical Center

Background: BRAF V600E (BRAF+) is the most common genetic aberration in papillary thyroid cancer (PTC). This mutation activates the MAPK/ERK pathway and is thought to confer an aggressive phenotype. However, the clinical presentation of BRAF+ PTC varies from indolent to aggressive. Thus other phenotype determining factors are involved. We have shown that expression of Sprouty2 (SPRY2), a negative feedback regulator of the MAPK/ERK pathway, is increased in BRAF+ PTCs and that the feedback mechanism is intact. We also demonstrated that the expression of SPRY2 varies in BRAF+ PTCs. We hypothesize that the level of SPRY2 expression contributes to MAPK/ERK pathway output and accounts for the clinical heterogeneity in BRAF+ PTCs. The level of SPRY2 expression in the context of MAPK/ERK pathway output may be more predictive of the clinical behavior of BRAF+ PTC.

Methods: We developed a tissue microarray (TMA) with 30 BRAF+ PTCs with control thyroid tissue. The TMA was analyzed for SPRY2 expression and MAPK/ERK output (pMEK, pERK). These data were studied in the context of clinicopathologic factors (size, extrathyroidal extension, lymphovascular invasion etc.) to develop a risk stratification system more predictive of the biology of the tumor. To establish a functional role for SPRY2 we developed a stable recombinant lentiviral SPRY2-shRNA, silencing SPRY2 and increasing MAPK/ERK pathway output in BRAF+ PTC cells. We then treated these SPRY2 silenced cells with MAPK/ERK pathway inhibitors and assessed for growth effects.

Results: BRAF+ PTCs with intact feedback pathway, increased SPRY2 expression resulting in decreased MAPK/ERK output (n=4), do not exhibit lymph node metastases. Whereas, all BRAF+ PTCs with decreased SPRY2 expression and decreased MAPK/ERK output (n=8) have nodal metastasis. When SPRY2 is silenced the BRAF+ PTC cells are significantly more sensitive (10x) to MAPK/ERK inhibition. This provides a potential therapeutic and predictive role of SPRY2 in BRAF+ PTC.

Conclusions: Our model suggests that PTC behavior is dependent on both the driver of the MAPK/ERK pathway and its regulatory feedback. When the feedback pathway is intact the tumor phenotype seems to be less aggressive. This model offers novel explanations for the observed heterogeneity and has the potential to identify an unrecognized role of feedback regulation in PTC behavior and progression. This has a direct and important clinical implication and may alter our treatment strategies.

NOTES

***15.** PATIENTS WITH FOLLICULAR AND HURTHLE CELL MICROCARCINOMAS HAVE COMPROMISED SURVIVAL: A POPULATION LEVEL STUDY OF 22,738 PATIENTS
Eric J. Kuo, BS, Sanziana A. Roman, MD, Julie A. Sosa, MD
Yale University School of Medicine

Background: Patients with papillary thyroid microcarcinoma (mPTC, <1cm) usually have excellent outcomes. There is a scarcity of evidence outside of small single institution series regarding outcomes of patients with follicular thyroid microcarcinoma (mFTC) and Hurthle cell microcarcinoma (mHCC) (<1cm); optimal treatment for these tumors remains unclear.

Methods: Demographic, clinical and pathologic characteristics of patients with follicular and Hurthle cell microcarcinomas, together (mFHCC), were compared with mPTC in the SEER database, 1988-2009, using 2 tests and ANOVA. Disease-specific survival was calculated with the Kaplan Meier method, and its association with predictors using log-rank tests and Cox proportional hazards.

Results: 564 cases of mFHCC (371 mFTC and 193 mHCC) and 22,174 cases of mPTC were identified. The annual incidence rate of mFHCC increased from 4.0 per 10 million in 1988 to 7.5 per 10 million in 2009, representing an annual percentage change of +0.29% (Ptrend=0.289). mFHCC tumors were larger than mPTC on average (6.3 mm vs. 5.3 mm, P<0.001). They had lower rates of nodal metastases (9.6% vs. 33.4% mPTC, P<0.001), but mFHCC was more than eight times more likely to present with distant (extracervical) metastases than mPTC (4.1% vs. 0.5%, P<0.001). Disease-specific survival was decreased in mFHCC compared to mPTC (10-year survival 95.4% vs. 99.3%, respectively, P<0.001). There was no difference in survival for patients who underwent total thyroidectomy vs. thyroid lobectomy. After adjustment, follicular or Hurthle cell histology was independently associated with increased mortality (hazard ratio [HR] 5.3, P<0.001), as were age ≥ 65 years (HR 9.1, P=0.011), extrathyroidal extension (HR 9.5, P<0.001), and necessitating external beam radiation (HR 35.6, P<0.001). Five-year disease-specific survival in patients who have 0, 1, or 2 risk factors with mFHCC stratified by age ≥ 65 years and extrathyroidal extension was 99.2%, 95.1%, and 83.3%, respectively.

Conclusions: mFHCC is rare but presents more often with distant metastases, and patients have compromised survival compared to mPTC. This is most marked for older patients and those who have tumors with extrathyroidal extension. Patients with thyroid nodules ≤ 1cm in size and a cytologic diagnosis of follicular or Hurthle cell neoplasm should undergo thyroid lobectomy, which may be therapeutic if there are no other indications for total thyroidectomy.

NOTES

***16.** RASSF1A HYPERMETHYLATION AS A PUTATIVE MOLECULAR PROGNOSTIC MARKER IN PAPILLARY THYROID CARCINOMA

John W. Kunstman, MD, James M. Healy, MD, Reju Korah, Ph.D., Tobias Carling, MD, PhD
Yale University School of Medicine

Background: The role of epigenetic alterations in the genesis and prognosis of papillary thyroid carcinoma (PTC) is unclear and their potential to direct medical and surgical management remains unknown. Epigenetic silencing of the tumor suppressor RASSF1A via DNA methylation has previously been demonstrated in PTC. However, a quantitative assessment of RASSF1A promoter hypermethylation, the histopathologic implications of RASSF1A downregulation, and the utility of RASSF1A DNA methylation as a molecular prognostic predictor remain unexplored.

Methods: Analysis of RASSF1A gene expression in PTC (n=26) and normal (n=6) thyroid tissue was performed using quantitative PCR (qPCR) following methylation-dependent and –sensitive restriction enzyme digestion to generate a Hypermethylation Index (HMI). HMI was then evaluated for correlation with tumor histology, size, AJCC stage, focality, lymphovascular invasion, extracapsular extension, and lymph node metastases.

Results: RASSF1A promoter hypermethylation demonstrated an HMI 5.3x greater in PTC versus normal thyroid tissue (p=0.014). HMI was significantly higher in multifocal versus unifocal PTC (p=0.022). Furthermore, elevated HMI correlated with lymphovascular invasion and tumor size, especially in follicular variant PTC; however, these differences did not reach statistical significance (p=0.111 & p=0.166, respectively).

Conclusions: RASSF1A promoter hypermethylation is significantly elevated in PTC and seems to associate with multifocality, lymphovascular invasion, and larger tumor size. Thus, RASSF1A may serve as a prognostic marker of more aggressive PTC. The ease of evaluating single gene DNA methylation status with small amounts of DNA (i.e. – the amount obtained during routine fine-needle biopsy) suggests a potential role for RASSF1A as a future molecular prognostic marker in PTC.

NOTES

***17.** HURTHLE CELL CARCINOMA: AN UPDATE ON SURVIVAL OVER THE LAST 35 YEARS

Sapna Nagar, MD, Briseis Aschebrook-Kilfoy, PhD, Edwin L. Kaplan, MD, Peter Angelos, MD, PhD, Raymon H. Grogan, MD
University of Chicago

Background: Hurthle Cell Carcinoma (HCC) of the thyroid is thought to be a variant of Follicular Thyroid Carcinoma (FTC). A low incidence and lack of long-term follow-up data have caused controversy regarding the survival characteristics of HCC. While some believe HCC has a worse prognosis than FTC, there are also data showing similar survival rates between the two cancers. In this study we aimed to clarify this controversy by analyzing HCC survival over a 35-year period using the Surveillance, Epidemiology, and End Results (SEER) database.

Method: We extracted 35 years of HCC and FTC cases from the SEER 9 database (from 1/1/75 to 12/31/09) and stratified the data by gender, age (≤45 and >45), stage, and race. We determined 5 and 10-year survival rates by constructing life tables using actuarial methods. Kaplan-Meier survival curves were compared with the log-rank test. We compared changes in survival over time by grouping cases into 5-year intervals. We used the Z-test to compare the equivalence of relative survival of these 5-year intervals.

Results: We identified 1416 cases of HCC and 4973 cases of FTC in the SEER 9 database. For cases diagnosed from 1975-1980, HCC showed a significantly worse survival profile compared to FTC [5-year: 75%(95%CI(60.2-85)) vs. 88.7%(95%CI(86-90.8)); 10-year: 66.7%(95%CI(51.5-78.1)) vs. 79.7%(95%CI(76.5-82.6))]. For cases diagnosed from 2004-2009 we found no difference in 5 or 10-year survival between HCC and FTC [5-year: 91.1%(95%CI(87.6-93.7)) vs. 89.1%(95%CI(86.5-91.2)); 10-year: 80.9%(95%CI(75.6-85.2)) vs. 83.9%(95%CI(80.8-86.6))]. Correspondingly, over the course of the entire 35-year period, HCC showed a steady improvement in survival [Change in 5-year survival: +16.1%; 10-year: +14.2%]. Conversely, FTC survival rates remained stable over the entire study period [Change in 5-year survival: +0.4%; 10-year: +4.2%]. The improvement in HCC survival was observed for both males and females, in age ≥45 years, for all stages, and among whites specifically.

Conclusion: We found that 35 years ago survival of HCC was worse than FTC survival. However, HCC survival has improved dramatically over time such that today HCC and FTC survival rates are now statistically the same. These findings explain how various studies over the last 4 decades have shown conflicting results regarding HCC survival but our data do not explain why HCC survival has improved so dramatically. This should be a topic of continued investigatio

NOTES

***18.** THE RELATIONSHIP BETWEEN CHRONIC LYMPHOCYTIC THYROIDITIS AND CENTRAL NECK LYMPH NODE METASTASIS IN PATIENTS WITH PAPILLARY THYROID CARCINOMA

Sebastian M. Jara, BS, Kathryn A. Carson, ScM, Justin A. Bishop, MD, Ralph P. Tufano, MD
Johns Hopkins University School of Medicine

Background: Several studies have reported that concurrent chronic lymphocytic thyroiditis (CLT) and papillary thyroid carcinoma (PTC) is associated with improved prognosis, including decreased lymph node metastasis. In the largest cohort of patients reported to date, we sought to assess the relationship of CLT and central nodal metastasis (CNM).

Methods: We retrospectively studied 495 consecutive patients who underwent a thyroidectomy for PTC with at least one lymph node excised. Pathology reports designated the presence or absence of CLT. Lab, operative and cervical ultrasound reports were reviewed. Covariates from a multivariate regression were used to develop a model of predicted probabilities of CNM based on age, sex, tumor size, suspicious level VI nodes on ultrasound, and CLT.

Results: Of the 495 patients, 391 (79%) were female, 226 (45.7%) had concurrent CLT and 220 (44.4%) had CNM. The CLT group had more females (88% vs. 71.4%, P<0.001), a younger average age (43 years vs. 47 years, P=0.03), a lower incidence of CNM (35% vs. 52.4%, P<0.001), a lower incidence of lymphovascular invasion (21.0% vs. 29.7%, P=0.02), and a higher incidence of pT1a (40.3% vs. 25.3%, P<0.001) and pT1b (37.6% vs. 29.0%, P<0.001) tumors than the PTC only group. A larger proportion of patients with concurrent CLT used thyroid hormone supplementation prior to surgery compared to the PTC only group (32.7% vs. 5.4%, P<0.001). Thyroid hormone supplementation prior to surgery was found to have an 83.9% PPV for predicting CLT on final histopathology. Among patients with conventional PTCs, those with CLT exhibited a lower incidence of CNM than those without CLT (36.5% vs. 57.1%, P<0.001). For pT1a tumors, the incidence of CNM was significantly lower in the CLT group than in patients with PTC only (17.6% vs. 39.7%, P=0.002). Multivariate analysis showed that the presence of CLT was associated with a 55% decreased odds of CNM after adjusting for age, sex, tumor size, and suspicious level VI nodes on ultrasound (OR 0.45, 95% CI:0.22-0.91, P=0.03). Predicted probability modeling showed that all women with CLT and no suspicious level VI nodal ultrasound findings had a 9-11% risk of CNM with pT1a tumors and a 27-31% risk with pT1b tumors.

Conclusion: Female patients of all ages with CLT and T1a tumors have the lowest incidence of CNM of all patients with PTC. In this patient population, the practice of routine prophylactic central compartment neck dissection may have the least utility.

NOTES

***19.** A MULTI-INSTITUTIONAL INTERNATIONAL STUDY OF RISK FACTORS FOR HEMATOMA AFTER THYROIDECTOMY

Michael Campbell, MD, Kelly L. McCoy, MD, Jacob Moalem, MD, Carrie C. Lubitz, MD, Sarah Oltmann, MD, Lutske Lodewijk, MD, Wen Shen, MD, Sally E. Carty, MD, Meno Vriens, MD, Herb Chen, MD, Rebecca S. Sippel, MD, David Greenblatt, MD, Rachel Henegan, MD, S
Brigham and Women's Hospital

Background: Bleeding is the most dangerous complication following thyroidectomy, but its risk factors remain poorly understood. We conducted an international case-control study to determine the risk factors for hematoma.

Method: We identified 170 patients who developed a hematoma requiring return to the operating room following thyroidectomy from 11 institutions in 3 countries. Each patient was compared to 3 institution-matched controls over the same time period.

Results: The median time to identification of the hematoma was 6 hours. Eighty-three percent of hematoma patients returned to the operating room within 24 hours of their index operation. On univariate analysis, patients with a hematoma were older (p=0.03), had a larger thyroid by mass (p=0.02), more operative blood loss (p<0.01), higher postoperative blood pressures (p<0.01) and a lower body temperature (p=0.02) than controls. Additionally, they were more likely to have a bilateral thyroidectomy (p=0.01), preoperative anticoagulant use (<0.01), thyroiditis (p<0.01), COPD/asthma (p=0.04), use of hemostatic agents (p<0.01), smoking (p=0.04), and have a drain placed (0.03).

On multivariate analysis, the independently predictive variables were preoperative anticoagulation (OR=18.60), perioperative steroids (OR=5.12), thyroiditis (OR=3.27), smoking (OR=3.19), bilateral thyroidectomy (OR=2.12), elevated postoperative systolic blood pressure (OR=1.02) and higher operative blood loss (OR=1.01).

Conclusion: Several risk factors were independently predictive of postoperative hematoma. Most patients who developed a hematoma presented within 24 hours of thyroidectomy. Surgeons should consider close overnight observation for patients with an increased risk of this life-threatening complication.

NOTES

***20.** THE ROLE OF SURGERY FOR RECURRENT AND METASTATIC ADRENOCORTICAL CANCER

Benzon M. Dy, MD, Geoffrey B. Thompson, MD, Kevin B. Wise, MD, William F. Young, MD, Clive S. Grant, MD, David R. Farley, MD, Jordan K. Rosedahl, BA, William S. Harmsen, MS, Melanie L. Richards, MD
Mayo Clinic Rochester

Background: Adrenocortical cancer (ACC) often recurs locally and with distant metastases despite complete surgical resection. The efficacy of chemotherapy and adjuvant treatment are limited, and the role of surgery for recurrent disease is not well-established. We sought to demonstrate the survival and palliative benefit of surgery for recurrent ACC and identify predictive factors of successful surgery.

Methods: A review of all patients undergoing surgery for ACC from 1980-2010 at a single tertiary care center was performed. We compared surgery to other treatments including chemotherapy, radiation therapy, and interventional procedures.

Results: We identified 164 patients who had surgery for ACC, of whom, 125 patients had a complete resection (R0). Recurrence occured in 93 (74%) of these R0 patients at a median time of 15m (range = 1.5-150 m). Symptoms at recurrence were present in 71% (66/93) of patients including pain (34%) and hormone excess (43%). The sites of recurrence included locoregional (22), liver (26), lung (28), and other sites (29). There were 67 patients that underwent 115 surgical procedures while 26 patients had only non-operative therapy or no intervention for recurrence. Forty-eight of 67 patients had complete resection for recurrence. Patients undergoing surgery for recurrence had a longer overall survival compared to those undergoing non-surgical management or no therapy (65 m vs. 6 m, $p < 0.01$). Median survival for non-operatively managed patients (226d) and those undergoing no therapy (179d) was shorter than for patients undergoing debulking procedures (1272d) $p=0.002$. Complete resection of recurrence ($p=0.005$) and a disease free interval > 6 m (<0.001) were associated with survival after operative intervention while original size ($p=0.47$), grade ($p=0.8$), and stage ($p=0.23$) of tumor were not predictive. Symptoms of pain and those associated with hormone excess improved in 84.4% of patients undergoing surgery compared to 29% of non-surgically managed patients ($p=0.005$). Debulking had similar symptomatic improvement as R0 resection ($p=0.52$).

Conclusion: Patients with recurrent ACC can benefit from surgical intervention with improvement in survival and overall symptoms. Patients with a disease free interval of greater than 6 m and locoregional or oligometastatic recurrence are more likely to benefit from surgery, but the near universal improvement in symptoms may expand the criteria for surgery in patients with recurrent ACC.

NOTES

***21.** RECALCITRANT HYPOCALCEMIA AFTER THYROIDECTOMY IN PATIENTS WITH PREVIOUS ROUX-EN-Y GASTRIC BYPASS

Travis J. McKenzie, MD, Yufei Chen, MD, Richard A. Hodin, MD, Scott A. Shikora, MD, Matthew M. Hutter, MD, Randall D. Gaz, MD, Francis D. Moore Jr., MD, Carrie C. Lubitz, MD, MPH
Massachusetts General Hospital

Background: Hypocalcemia is a known potential complication after thyroidectomy. Oral calcium supplementation may be inadequate in patients with malabsorptive enteric anatomy after roux-en-Y gastric bypass (RYGB). Such patients may develop symptomatic hypocalcemia requiring intravenous (IV) calcium and prolonged hospitalization after thyroidectomy. This complication is poorly described in the literature including only case reports and there is no current consensus on optimal post-thyroidectomy management in this unique population. The present study seeks to further describe this potential complication.

Methods: All patients from 2000-2012 undergoing thyroidectomy and having history of preceding RYGB were indentified retrospectively using a multi-institutional research patient data repository. Each of the 19 patients meeting inclusion criteria were matched 2:1 for age, gender, and BMI at initial operation. Cases were compared to controls with univariate analysis for the following outcomes: symptomatic post-operative hypocalcemia, requirement of IV calcium supplementation, and length of hospital stay (LOS).

Results: Average age, proportion of female patients, and BMI were equivalent between cases (n=19) and controls (n=38). Comparison of primary outcomes demonstrate the study group had a significant increase in incidence of symptomatic hypocalcemia (42% vs 0%, $p<0.001$), administration of IV calcium (21% vs 0%, $p<0.01$), and LOS (2.16 vs 1.23 days, $p=0.02$). Increase LOS in all cases within the study group was attributable to symptomatic hypocalcemia. One patient in the study cohort was readmitted with muscle spasm secondary to hypocalcemia.

Conclusions: This study demonstrates that patients with previous RYGB may be subject to symptomatic hypocalcemia after thyroidectomy and that this hypocalcemia may be recalcitrant to oral calcium supplementation, requiring supplemental intravenous calcium with prolonged hospitalization. The pathophysiology is likely multifactorial including relative hypoparathyroidism in the setting of malabsorptive enteric anatomy and metabolic bone disease. In this patient population, recalcitrant postoperative hypocalcemia should be anticipated, calcium levels should be closely monitored and early calcium and vitamin D supplementation should be preemptively initiated.

NOTES

***22.** COST-ANALYSIS OF THYROID LOBECTOMY AND INTRAOPERATIVE FROZEN SECTION VS. TOTAL THYROIDECTOMY IN PATIENTS WITH A CYTOLOGICAL DIAGNOSIS OF 'SUSPICIOUS FOR PAPILLARY THYROID CANCER'

Andrew Leiker, BS, Tina W.F. Yen, MD, Kevin Cheung, MD, Douglas B. Evans, MD, Tracy S. Wang, MD
Medical College of Wisconsin

Background: The optimal initial surgical management of a patient with a single thyroid nodule diagnosed as 'suspicious for papillary thyroid cancer (PTC)' on fine-needle-aspiration biopsy (FNA) is unclear. The intent of this study was to determine the incremental cost-utility of thyroid lobectomy with intraoperative frozen section (FS) or total thyroidectomy at initial surgery.

Methods: Cost-utility analysis was performed for a hypothetical cohort of adult patients with a cytologic diagnosis of 'suspicious for PTC' on FNA. Patients in the decision tree model underwent either initial total thyroidectomy (TT), or thyroid lobectomy with intraoperative FS and, depending on these results, completion thyroidectomy at the initial procedure or at a later time (TL). Patients continued in the model for 12 months. The incremental cost-utility ratio (ICUR), measured in U.S. $/quality-adjusted-life-year (QALY), was determined from the societal perspective and was considered to be cost-effective at a $50,000/QALY threshold. Input data were obtained from the literature and Medicare. Sensitivity analyses were performed for all relevant clinical inputs.

Results: In the base-case, TT and TL cost $6,216 and $6,510, respectively, with comparable QALYs (0.979 vs. 0.982). The base-case ICUR of TL was $100,235/QALY, strongly favoring TT as a more cost-effective modality given the minimal difference in patient utility. Sensitivity analyses demonstrated that the model was most sensitive to the accuracy of FS and to the rate of recurrent laryngeal nerve (RLN) injury. TL becomes cost-effective only if both FS and final pathology are benign in ≥91% of patients with preoperative suspicion for PTC (ICUR $56,892/QALY at 91%; ICUR $7,537/QALY at 100%). With increasing rates of unilateral (>5%) or bilateral (>2%) RLN injury with TT, TL becomes more cost-effective ($55,536 and $53,594/QALY, respectively).

Conclusions: In our model, TT at the time of initial surgery was the most cost-effective treatment for patients with a single thyroid nodule suspicious for PTC on FNA. Cost-utilities were dependent on rates of RLN injury and accuracy of FS and final pathology. Our results strongly support TT as the treatment of choice in these patients; TL is preferred only when complications reach unacceptable levels. This finding will likely be reproduced in other areas of specialty cancer/endocrine surgery and is important in the current efforts to develop accountable care organizations.

NOTES

***23.** PROSPECTIVE ANALYSIS OF CORONARY CALCIUM IN PATIENTS ON DIALYSIS UNDERGOING A NEAR-TOTAL PARATHYROIDECTOMY .

William T. Daniel, BS, Paolo Raggi, MD, James A. Bailey, MD, Collin J. Weber, MD, and Jyotirmay Sharma, MD
Emory University School of Medicine

Background: Patients with secondary hyperparathyroidism (HPT) and on dialysis are more likely to die of cardiovascular disease than the general population; and we have reported that near-total parathyroidectomy (NTPTX) reduces that mortality rate. Patients on dialysis experience accelerated vascular calcification, particularly in their coronary arteries with an average of a 15% increase in coronary calcification yearly. Cardiac CT enables objective measuring of coronary calcium quickly with low radiation exposure. The purpose of our study was to determine the impact of NTPTX on coronary artery calcium score (CACS).

Method: Sequential chest computed tomography for CACS measurement was performed in patients with CKD-5D before and after NTPTX between 11/2001 to 3/2008. Demographics, morbidities, CACS, outcomes, surgical findings, intact parathyroid hormone (PTH) measurements preoperatively, intraoperatively, and postoperatively in follow-up (mean = 5.1 years, range 2.4-11 years) were maintained in an IRB approved prospective database. 19 of 31 (61.3%) patients returned for a follow-up coronary CT.

Results: Preoperative mean PTH level and CACS were 1794 4 943 pg/ml and 979 4 1079, respectively; and postoperatively PTH and CACS were 321 4 244 pg/ml ($p<0.001$) and 1285 4 1577 ($p=0.044$), respectively. CACS was stable or reduced (<10% per year) in 14 of 19 patients (73.7%) and 42% of patients (n=8) had nearly undetectable (<1% per year) change in CACS after NTPTX. Only 1 patient had >15% increase in CACS, but CACS increased >10% per year in 5 patients. In patients with stable CACS, mean post-op PTH was 251.3 vs. 516.2 pg/ml in patients with increasing CACS; $p=0.02$. In patients with recurrent HPT (PTH>400) as compared to patients with stable post-operative PTH, CACS increased by 804 4 1081.9 vs. 16.2 4 84.1; $p = 0.01$.

Conclusions: Successful NTPTX with durable post-op PTH levels is associated with stabilization of CACS in patients with severe secondary hyperparathyroidism undergoing hemodialysis. This stabilization of CACS could contribute towards the improved survival seen after NTPTX.

NOTES

***24.** ONCOLYTIC VESICULAR STOMATITIS VIRUS AS A TREATMENT FOR NEUROENDOCRINE TUMORS

Reese W. Randle, MD, Scott A. Northrup, BS, Douglas S. Lyles, PhD, John H. Stewart, IV, MD
Wake Forest University School of Medicine

Background: Therapeutic goals for neuroendocrine tumors (NETs) not amenable to surgical cure are limited to relieving symptoms and slowing disease progression. However, many cancer cells acquire defects in antiviral responses as homeostatic mechanisms are shifted away from antiviral signaling toward growth and proliferation. These changes make a variety of tumors attractive targets for oncolytic viral therapy. Therefore, we explored the ability of recombinant wild-type vesicular stomatitis virus (rwt-VSV) and its attenuated M protein mutant (M51R-VSV) to exploit defective antiviral pathways in NETs and subsequently result in cell death.

Methods: Viral infectivity of H727, UMC-11, and CNDT2.5 human NET cell lines was evaluated using green fluorescent protein (GFP) encoded M51R-VSV and flow cytometry. We tested the lethality of rwt-VSV and M51R-VSV with MTS assays at different times following inoculation with various multiplicities of infection (MOIs). We evaluated -interferon (-IFN) pathways in our panel of NETs by testing IFN production and defining the impact of exogenous IFN on viral susceptibility. Murine xenografts of human NETs were treated with a single intratumoral injection of M51R-VSV to study viral efficacy in vivo.

Results: Flow cytometry revealed viral GFP activity in >99% of tumor cells within 24 hours of M51R-VSV inoculation, thereby indicating that cell lines supported both viral infection and protein synthesis. Moreover rwt-VSV and M51R-VSV were able to kill >95% of cells within 3 days of inoculation, even at MOIs less than 1 pfu/cell. Thus NET cells succumbed to the oncolytic effects of VSV and released active viral progeny upon death. NET cells did not produce significant amounts of -IFN in response to infection, but pretreatment with exogenous -IFN protected cells from viral oncolysis in a dose dependent manner. Treatment with M51R-VSV resulted in significant tumor shrinkage compared with tumor growth in mock-infected xenografts after 10 days for H727 tumors (-27416% vs 144421%, $p<0.001$) and UMC-11 tumors (-5748% vs 33418%, $p<0.001$). Mice displayed no evidence of toxicity following injection with M51R-VSV.

Conclusions: VSV infects and kills human NETs by exploiting an inability to produce a type I antiviral response. M51R-VSV is safe and effective in vivo, and is therefore an excellent candidate for the treatment of advanced NETs. Furthermore, the work described herein provides a fundamental framework for future clinical trials.

NOTES

***25.** MINORITY RULES: 10% TALL CELLS CONFER THE AGGRESSIVE FEATURES OF THE TALL CELL VARIANT OF PAPILLARY THYROID CARCINOMA

Toni Beninato, MD, David A. Kleiman, MD, Alessia Uccelli, MD, Daniela Vaca, MD, Theresa Scognamiglio, MD, Thomas J. Fahey, III, MD, Rasa Zarnegar, MD
New York Presbyterian Hospital - Weill Cornell Medical Center

Background: The tall cell variant of papillary thyroid carcinoma (PTC) is generally recognized as being more aggressive than classical PTC. However, the percentage of tall cells necessary to make the diagnosis has been debated, with current values ranging from 30-70% of the tumor and lower percentages being classified as only having tall cell features. We hypothesize that the presence of tall cells, independent of percentage, confers a more aggressive histopathology.

Methods: A prospectively maintained database at a single tertiary referral center was reviewed to identify all cases from January 1998 through May 2011 that had a diagnosis of the tall cell variant of PTC or PTC with tall cell features. Tumor characteristics and recurrence were compared to a control group of classic PTCs. An endocrine pathologist who was blinded to the final diagnosis reviewed all cases to determine the percentage of tall cells in each tumor.

Results: One hundred fifteen cases of PTC were reviewed including 44 cases that had previously been diagnosed as having tall cell features or being the tall cell variant of PTC, and 71 cases of classic PTC. Eighty-seven cases (76%) had at least 10% tall cells in the tumor, and 28 cases (24%) had no tall cells. Sixty one percent of the cases previously defined as classic PTC were reclassified as they had some tall cells present, but would not have met criteria for diagnosis of tall cell variant. There were no differences in age, sex, and size between tumors with any tall cells and those with no tall cells. Tumors with greater than or equal to 10% tall cells had significantly more extrathyroidal extension (48.4% vs. 25.0%, $p = 0.041$), angiolymphatic invasion (16.1% vs. 0%, $p = 0.030$), and lymph node involvement (67.7% vs. 32.1%, $p = 0.003$) than tumors with no tall cells. There were more recurrences (9.7% vs. 3.6%, $p = 0.43$) in patients with greater than or equal to 10% tall cells compared to classic PTC, but this was not significant. These findings are maintained with increasing percentages of tall cells in the tumor.

Conclusion: There are no differences between PTC with tall cell features versus the tall cell variant; however, there are significant differences between tumors with tall cells and those that are classic PTC. Papillary thyroid carcinomas with as little as 10% tall cells should be considered as aggressive as the tall cell variant.

NOTES

***26.** LOWERING DOSES OF RADIOIODINE FOR REMNANT ABLATION DOES NOT INCREASE STRUCTURAL RECURRENCE RATES IN PAPILLARY THYROID CARCINOMA
Mark Sywak, MMedSci, **Schelto Kruijff, PhD,** Paul Chen, MBBS, Ahmad M. Aniss, PhD, Stan B. Sidhu, PhD, Leigh W. Delbridge, MD, Paul Roach, PhD, Roderick J. Clifton-Bligh, MBBS, PhD, Diane L. Learoyd, PhD
University of Sydney

Background: Recent studies suggest that equivalent rates of ablation can be achieved using low doses of radioiodine (RAI) after total thyroidectomy for the treatment of papillary thyroid carcinoma (PTC). However the effect of lower dose RAI on the rate of PTC recurrence remains unclear. The aim of this study was to compare the rate of structural recurrence between patients receiving low dose and high dose RAI.

Methods: A retrospective cohort study of patients undergoing surgery and RAI for PTC was undertaken. The primary outcome measure was the rate of recurrence requiring re-operative surgery. Secondary outcome measures were the proportion of patients with stimulated thyroglobulin (Tg) < 2ng/ml and the use of recombinant TSH (rTSH). Two patient groups were compared; Group A which received low dose RAI at initial ablation and Group B treated with traditional high dose RAI (>3GBq).

Results: 1072 patients having total thyroidectomy with or without lymph node dissection for PTC in the period 1980-2012 were followed for a mean of 60 months. The mean age was 46yr and tumor diameter was 19mm. Group A comprised 156 (15%) patients treated with low dose RAI at initial ablation. In Group A 150 (97%) of patients had pT1-pT3 tumors. Group B comprised 790 (74%) patients treated with high dose RAI. 126 patients received no RAI. The mean cumulative dose of RAI was 2.4GBq for Group A and 6.6GBq for group B ($p<0.001$). The overall rate of recurrence requiring re-operative surgery was 3.7%. Structural recurrence rates for Group A and B were 2% and 4% respectively and not significantly different ($p=0.16$). Disease free survival stratified on tumor size at 5yr was 100% for Group A and 97% for Group B and equivalent ($p=0.2$). The commonest site of local recurrence was in the lateral neck compartment (62%), followed by nodal recurrence in the central compartment (28%). On multivariate analysis extrathyroidal extension of the primary tumor was the major factor predicting local recurrence, hazard ratio 3.1 ($p=0.007$). The risk of structural recurrence was not increased by the use of low dose RAI ($p=0.26$), or rTSH ($p=0.85$). The proportion of patients with Tg<2ng/ml at final follow up was equivalent between Group A and B adjusted for tumor size.

Conclusion: In patients with pT1-pT3 PTC, low doses of RAI at initial ablation do not increase the risk of structural recurrence requiring re-operation.

NOTES

***27.** THE IMPACT OF SURGICAL VOLUME ON OUTCOMES OF PATIENTS UNDERGOING THYROID SURGERY FOR BENIGN AND MALIGNANT CONDITIONS
Salem I. Noureldine, MD, Ali Abbas, MD, Ralph P. Tufano, MD, Emad Kandil, MD
Tulane University School of Medicine

Background: Total thyroidectomy (TT) is perceived to have a low complication rate with excellent outcomes. We aimed to evaluate the association between the indications for surgery on patients' outcomes after TT, and examine the impact of surgical volume on these findings.

Methods: The nationwide inpatient sample (NIS) was used to identify all patients who underwent TT from 2000-2009, using ICD-9 procedure codes. Patients who underwent additional neck dissection were excluded. Indications for surgery, clinical and demographic characteristics, co-morbidities and postoperative complications were collected along with surgeon volume and hospital characteristics to predict patient outcomes. Surgeries were stratified into four groups according to surgeon volume, unknown, low (<10 surgeries), intermediate (10-99) and high (>100). Univariate and multivariate analysis were used to examine the effect of Graves' disease on outcomes after Surgery.

Results: 46,261 patients were included in this analysis. The majority of procedures, 23,027 (50%), were performed for benign thyroid disease. TT was performed for thyroid malignancy in 20,371 (44%) patients and 2,863 (6.3%) for Graves' disease. Patients with Graves' disease had the highest postoperative complications (17.5%) compared to patients undergoing TT for benign (13.9%) and malignant (13.2%) thyroid disease, who had an equivalent rate of complications ($p=0.001$). After stratification by surgeon volume, Graves' disease was a significant predictor of postoperative complications among surgeries performed by low and intermediate volume surgeons ($p<0.05$). However, Graves' disease was not a significant predictor for postoperative complications when performed by high volume surgeons ($p=0.81$).

Conclusion: Surgery for Graves' disease is associated with a higher risk of complications when it is performed by less experienced surgeons. This finding should prompt recommendations for increasing surgical specialization and referrals to high volume surgeons in the management of Graves' disease.

NOTES

***28.** EFFECT OF RE-OPERATION ON OUTCOMES IN PAPILLARY THYROID CANCER
Stephanie Young, MPH, Avital Harari, MD, Stephanie Smooke-Praw, MD, MA, Philip H.G. Ituarte, PhD, MPH, Noah E. Silverman, MS, Michael W. Yeh, MD
UCLA David Geffen School of Medicine

Background: The influence of lymph node recurrences of papillary thyroid carcinoma (PTC) on overall prognosis is uncertain. We performed a population-based longitudinal analysis of the association between re-operation and mortality.

Methods: Patients with a diagnosis of PTC were abstracted from the California Cancer Registry database (1999-2008). These patients also had an initial surgery for PTC abstracted from the Office of Statewide Health Planning and Development database (inpatient records 1999-2008, outpatient records 2005-2008). Re-operation was defined as any lymph node dissection (LND) following initial thyroidectomy. Multivariate logistic regression was applied to assess the association of re-operation with all-cause mortality and disease-specific mortality.

Results: Initial surgery for PTC was performed on 12,078 patients during the study period. Re-operations were performed in 231 patients (1.9%). The median time to re-operation was 266 days, with 58.4% and 84.0% of re-operations being performed within 1 and 2 years of initial surgery, respectively. The mortality rate from PTC was 2.2% (271 patients). Patients who died from PTC had a median survival time of 23 months. Adjuvant radioactive iodine therapy (RAI) was administered to 64% of patients and had no influence on the rate of re-operation. However, RAI was associated with reduced all-cause mortality (OR = 0.70; $p<0.0001$) and disease-specific mortality (OR = 0.55; $p<0.0001$). After adjusting for age, gender, tumor size, comorbidity, stage, and RAI, re-operation was associated with an increased rate of all-cause mortality (OR, 1.72; 95% CI, 1.11-2.69; $p<0.0163$) and disease-specific mortality (OR, 3.20; 95% CI, 1.90-5.39, $p<0.0001$).

Conclusion: Re-operation is independently associated with mortality in PTC. This raises the question of whether preventing lymph node recurrence by optimizing initial surgical management would improve outcomes.

NOTES

***29.** ATTRIBUTABLE COSTS OF DIFFERENTIATED THYROID CANCER IN THE ELDERLY MEDICARE POPULATION

Melissa M. Boltz, DO, Christopher S. Hollenbeak, PhD, Brian D. Saunders, MD, Eric Schaefer, MS, David Goldenberg, MD
Penn State Milton S. Hershey Medical Center

Background: Although long-term survival of patients with differentiated thyroid cancer (DTC) is common, little is known about the cost attributable to the disease and follow-up care. The objective of this study was to use data from the Surveillance Epidemiology and End Results (SEER) database to study costs attributed to the stage of disease, treatment options, and recurrence of DTC in the elderly, as well as the cumulative cost of the disease over five years.

Method: We identified non-HMO patients aged 66 years or older diagnosed with DTC between 1995-2005. The final sample included 2,761 with DTC and 422,259 non-HMO noncancer comparison group cases without thyroid cancer taken from the SEER 5% Medicare sample and matched by a propensity score calculated from age, gender, race/ethnicity, and comorbidities. Costs were payments made by Medicare for all-cause medical treatments. Using the Bang and Tsiatis method, cumulative costs were estimated at 1 and 5 years by estimating average costs for each patient in each month up to 60 months following diagnosis. Total costs were weighted sums of monthly costs, where weights were the inverse probability that the patient was not censored. Using the Lin method, multivariate analyses of costs were performed by fitting each of the 60 monthly costs to linear models that controlled for demographic characteristics and comorbidities. Marginal effects of covariates on 1- and 5-year costs were obtained by summing the coefficients for months 1-12 and months 1-60, respectively. Confidence intervals were obtained by bootstrapping.

Results: Cumulative total costs for DTC patients were $15,048 per patient in the first year following diagnosis and $41,373 per patient in the first 5 years following diagnosis. Disease stage was a significant determinant of costs. Patients with regional disease incurred higher costs at 1 year ($9,612, 95% CI: $6,703-12,725) and 5 years ($9,521, 95% CI: $3,670-$15,437). Patients with distant disease incurred costs of $28,059 (95% CI: $20,357-36,345) at 1 year and costs of $21,264 (95% CI: $9,615-32,130) at 5 years. Compared to surgery alone, patients undergoing both surgery and radiation incurred higher costs at 1 year ($13,380, 95% CI: $6,817-20,138) and 5 years $21,495 (95% CI: $10,359-33,886).

Conclusion: Well-differentiated thyroid cancer in the elderly is associated with significant economic burden that is largely attributable to patient demographics, stage of disease, and treatment modalities.

NOTES

31. A NOVEL OPTICAL APPROACH TO INTRAOPERATIVE DETECTION OF PARATHYROID GLANDS

Constantine A. Paras, PhD, Melanie A Gault, MS, Lisa White, MD, John Phay, MD, Anita Mahadevan-Jansen, PhD, **James Broome, MD**
Vanderbilt University

Background: Inadvertent or accidental removal of parathyroid glands is a recognized challenge in endocrine surgery. Existing methods for identifying parathyroid glands are limited in their applicability and sensitivity, rendering them inadequate for intra-operative guidance. Thus there is a critical need for a diagnostic tool that provides sensitive, real-time detection of parathyroid glands during thyroidectomies and parathyroidectomies. We have developed an intraoperative technique using near infrared (NIR) fluorescence to detect the parathyroid gland regardless of its pathologic state, in vivo, in real-time.

Methods: NIR fluorescence was measured intra-operatively from 59 patients undergoing parathyroidectomy and thyroidectomy with informed consent. Spectra were measured from the parathyroid, thyroid, fat, muscle, and lymph nodes during surgery using a portable, probe-based fluorescence system at 785 nm excitation. Six measurements were recorded at each tissue site with a 300 ms integration time and averaged. Accuracy of the technique was evaluated by comparison to histology when available or visual recognition by the surgeon.

Results: NIR fluorescence can discriminate between parathyroid and surrounding neck tissues in 100% of patients. Parathyroid fluorescence was significantly stronger (2 – 11 times) than that of the thyroid with peak fluorescence occurring at 820 nm. Fat, muscle, and lymph nodes showed no autofluorescence. Disease state did not affect the ability to discriminate parathyroid glands but may account for variability in signal intensity.

Conclusions: NIR fluorescence can intraoperatively distinguish the parathyroid gland from the thyroid regardless of tissue pathology. Our approach utilizes the auto-fluorescence of the parathyroid gland when excited with NIR light, which has not been previously reported by any other group. We hypothesize the basis of this signal to be due to calcium sensing receptors present in abundance in the parathyroid. The strength and consistency of the observed signal indicates the simplicity and effectiveness of the method as an intraoperative tool. Implementation of this technique could limit surgical time, cut costs associated with expensive machinery and assays, and improve surgical success rates during parathyroidectomy and thyroidectomy.

NOTES

32. DEVELOPMENT OF A CALCIUM-SENSING RECEPTOR MOLECULAR IMAGING AGENT

Adlina Mohd Yusof, PhD, Shankaran Kothandaraman, PhD, Haiming Ding, BS, Moto Saji MD, PhD, Michael Tweedle, PhD, **John Phay, MD**
Ohio State University

Background: The calcium-sensing receptor (CaSR) is expressed primarily by parathyroid and kidney cells. A molecular imaging agent which localizes to the receptor could have a significant impact on parathyroid surgery. Thyroid C-cells also express the receptor to regulate calcitonin release. Medullary thyroid carcinoma (MTC) will release calcitonin in response to calcium stimulation. A CaSR imaging agent may have a role in the diagnosis and treatment of MTC as well. We have developed several compounds that can functionally regulate CaSR function. We labeled one of these compounds with I-125 which in nude mice localized to a human MTC xenograft (TT cells) which expresses CaSR endogenously. Because of the significant background of using an iodine labeled compound in the neck, we synthesized a novel analogue containing a flourine residue for potential labeling with F-18 or a flourescent agent. We then demonstrated function of this analogue.

Methods: Starting from our parent compound, which we have previously demonstrated to have calcylitic properties, several modifications were performed to synthesize compound 42. Human embryonic kidney cells (HEK-293), which do not express CaSR, were transfected with a CaSR-GFP construct. The transfected cells were preincubated with compound 42 at concentrations of 0.1, 0.2, 0.5, 1 and 2 mM for 30 minutes. The cells were then exposed to 4 mM calcium for 10 minutes. Immunoblotting for p44/42 mitogen-activated protein kinase (MAPK) (ERK1/2)/phospho-p44/42 MAPK (phospho-ERK1/2) and GAPDH was performed.

Results: Synthesis of compound 42 was confirmed. When exposed to increasing concentrations of compound 42, there is an inhibition of the MAP kinase signaling pathway as seen by a dose dependant decrease in phosphorylated ERK1/2 while the levels of total ERK did not change.

Conclusion: We have developed a novel molecule which demonstrates functional inhibition of CaSR, and has a favorable structure for labeling. This could improve the surgical treatment of parathyroid disease and medullary thyroid carcinoma.

NOTES

33. EXPRESSION OF FUNCTIONAL FOLATE RECEPTORS BY HUMAN PARATHYROID TUMOR CELLS

Collin J. Weber, MD, DMSci, Rahuveer K. Halkar, MD, Susan Muller, DMD, Kereen B. Gordon, MS, Praveen Amancha, PhD, Francois Villinger, DVM, PhD, Vernon M. Camp,VMC, CNMT(ASCP), Malgorzata Lipowska, PhD, Jyotirmay Sharma, MD, Mark Goodman, PhD, Cristina M
Emory University

Background: There is a need for improved parathyroid tumor imaging and for effective therapy for human parathyroid carcinoma. We have reported that human parathyroid cells (normals, adenomas, hyperplasias, and carcinomas) express folate receptors (FRs), as shown by immunohistochemistry and Western blotting, while human thyroid cells do not (Mod. Pathol. 25; S2:148A, 2012). The goal of the present study was to characterize the functionality of FRs on human parathyroid tumors.

Methods: Portions of 33 resected PTH tumors and 6 samples of normal thyroid tissue were obtained with IRB approval. Expression of genes for FR alpha and FR beta was measured using Illumina Human HT-12 Expression Bead Chips. FR alpha and FR beta expression on human parathyroid tumor cells was verified by quantitative RT-PCR. Folate incorporation by parathyroid tumor cells versus normal human thyroid cells was determined by incubating single-cell suspensions with 99mTc(CO)3-folate. Parathyroid tumor cells were incubated with 99mTc-Etarfolatide or 3H-folic acid and uptake was determined by gamma counting. In all binding experiments, specific targeting of FRs on parathyroid cells was demonstrated by blocking with cold folic acid. Normal thyroid and A549 cells served as FR negative controls, and KB cells were FR positive controls.

Results: The FR alpha gene was expressed in all parathyroids analyzed, and the FR beta gene was expressed by most, as shown by whole genome expression array and quantitative RT-PCR. There was significantly increased uptake of 99m Tc(CO)3-folate in parathyroid cells compared to thyroid cells (6.9 4 1.5 vs 1.7 4 0.1, % dose/tissue prep, respectively, p= 0.028). A dose-dependent uptake of 99mTc-Etarfolatide was detected and was significantly inhibited by pre-incubation with cold folate (for example, 3.4 4 0.6 unblocked vs 1.9 4 0.2 blocked, % dose/tissue prep, $p<0.01$). Uptake of 3H-folic acid by parathyroid tumor cells was also blocked by cold folic acid (1313 cpm unblocked vs 372 blocked), confirming FR-mediated binding.

Conclusions: Human parathyroid tumor cells express functional FR alpha and FR beta. Since novel folate-targeted reagents are available and may be exploited to image and treat human PTH tumors, we believe that these findings may be clinically relevant.

NOTES

34. MYOCARDIAL AND ENDOTHELIAL DYSFUNCTION IN SYMPTOMATIC PRIMARY HYPERPARATHYROIDISM PATIENTS AND ITS REVERSAL FOLLOWING PARATHYROIDECTOMY: A PROSPECTIVE CASE-CONTROL STUDY

Gaurav Agarwal, MS, Gitika Nanda, MS, Aditya Kapoor, MD, DM, Sanjeev Kumar Syal, MD, DM, Gyan Chand, MS, Anjali Mishra, MS, Amit Agarwal, MS, Ashok K Verma, MS, Saroj K Mishra, MS
Sanjay Gandhi Postgraduate Institute of Medical Sciences

Background: Cardiovascular (CV) mortality in PHPT patients (pts) is attributed to myocardial & endothelial dysfunction based on studies in asymptomatic Caucasian pts. This prospective, case-control study objectively assessed myocardial & flow-mediated vasodilatation (FMD) in symptomatic Indian PHPT pts and their reversal after parathyroidectomy (PTx).

Methods: Consecutive PHPT pts (n=50,mean age47y) underwent 2-D Echo, tissue Doppler, serum N-terminal pro-brain natriuretic peptide (s-NTpro-BNP) estimation, and endothelial (FMD) & smooth muscle (Nitroglycerine mediated, NMD) vasodilatation before, 3 & 6 months after PTx. Age & sex matched normocalcemic controls (n=20) were studied similarly.

Results: Myocardial/mitral annular calcifications were seen in 24% pts. Pts had significantly higher left ventricular mass (LVM, mean+SD 194.3+72.8gm vs.150+5.3;p=0.012), interventricular septal thickness (IVS, 10.8+2.4mm vs8.8+1.8;p=0.001) & posterior wall thickness (PWT, 10+2.1mm vs8.8+1.8;p=0.02). Trend of lower LV ejection fraction(LVEF), & higher end diastolic (LVEDD), end systolic (LVESD) dimensions, end systolic (ESV) & end diastolic volumes (EDV) were noted. Diastolic dysfunction (lower E/A trans-mitral flow velocity ratio-1.1+0.5vs1.5+0.4;p=0.001) was noted {grade 1(E/A<1) in 22,grade II(E/A>2) in 5}. Pts had higher s-NTpro-BNP (463.4+1178.4 vs 42.5+2;p=0.002); titers were>125pg/ml in 22 & >400 in 6. FMD(0.11+0.09vs0.13+0.56,p=0.035) & NMD(0.16+0.1vs0.19+0.7,p=0.04) were significantly lower in pts. At 3 & 6 months post-PTx, all pts were normocalcemic. Significant, sustained improvement in LVM (LVEDD,IVS,PWT) and LV function (LVEDV,LVESV,stroke volume,LVEF) were noted at 3 & 6 months post-PTx. S-NTproBNP levels mirrored Echo changes with significant sustained fall at 3 & 6 months post-PTx. Diastolic dysfunction (E/A ratio) significantly improved at 6 months post-PTx. FMD, NMD did not improve significantly in 6 months follow-up.

Conclusion: Symptomatic PHPT patients have significant myocardial dysfunction in form of high s-NTproBNP (sensitive marker of myocardial damage), high LVM, diastolic dysfunction, and trend towards lower LVEF. Most of these parameters improve within 3 to 6 months post-PTx. Endothelial & smooth muscle mediated vasodilatation are deranged in PHPT pts, and donot improve by 6 months post-PTx. Evaluation with 2D-Echo, tissue Doppler and s-NTpro-BNP may help objectively monitor CV derangements and improve CV outcomes in symptomatic PHPT pts.

NOTES

35. PTTG1 OVER-EXPRESSION IN ADRENOCORTICAL CANCER IS ASSOCIATED WITH POOR SURVIVAL AND REPRESENTS A POTENTIAL THERAPEUTIC TARGET
Michael J. Demeure, MD, MBA, Kathryn E. Coan, MD, Clive S. Grant, MD, Richard A. Komorowski, MD, Elizabeth Stephan, PhD, Shripad Sinari, MS, David Mount, PhD, Kimberly J. Bussey, PhD
Translational Genomics Research Institute

Background: Adrenocortical carcinoma (ACC) is associated with poor survival rates due to generally aggressive biology and a lack of effective systemic therapy. Some patients may have an indolent course despite metastatic disease. Aberrant p53 pathway function has been implicated in the pathogenesis of ACC but only 20% of adult patient's tumors harbor a p53 mutation. The objective of the study was to analyze ACC gene expression profiling data for biochemical pathway enrichment, prognostic biomarkers and novel therapeutic targets.

Methods: RNA samples from 47 ACC tumors and 4 normal adrenal glands were profiled on Affymetrix U133 Plus 2 expression microarrays and Gene Set Enrichment Analysis performed. Kaplan-Meier plots were used to assess survival in the 23 patients for whom we had survival data. Protein levels were determined by western blot. Drug dose response curves were generated to assess drug efficacy against ACC cell lines. Previously published expression datasets including survival data were analyzed as validation data sets to confirm findings in our discovery set.

Results: GSEA identified marked dysregulation of the cell cycle control, focused on the regulation of cyclin-dependent kinases and mitosis. Over-expression of PTTG1, which encodes securin, a negative regulator of p53 and a protein involved in sister chromatid adhesion, was identified as a marker of poor survival. Median survival for patients with tumors expressing high PTTG1 levels (log2 ratio of PTTG1 to average beta-actin <-3.04) was 1.7 years compared to 9.8 years if tumors expressed lower levels of PTTG1 (P=0.002). These findings were confirmed as valid by our analysis of previously published clinically annotated gene expression data. Treatment of two ACC cell lines with the histone deacetylase inhibitor, vorinostat, decreased securin protein levels in two ACC cell lines and inhibited cell growth with IC50 values of 1.69 uM and 0.891 uM, for SW-13 and H295R, respectively.

Conclusion: Over-expression of PTTG1 is correlated with poor survival in ACC. Because it is a negative regulator of p53, over-expression of PTTG1 may have a role in the pathogenesis of ACC. Our study shows that PTTG1/securin is a prognostic biomarker and investigation of it as a potential therapeutic target is warranted.

NOTES

36. INCREASES IN THYROID NODULE FINE NEEDLE ASPIRATIONS, SURGERIES, AND DIAGNOSES OF THYROID CANCER IN THE UNITED STATES

Julie A. Sosa, MD, John Hanna, MBA, Richard B. Lanman, MD, Karen A. Robinson, PhD, Paul W. Ladenson, MD
Duke University, Veracyte, Inc., Johns Hopkins Medical Institutions

Background: To provide population-based estimates of trends in thyroid nodule fine needle aspirations (FNA) and surgery volumes, we employed multiple claims databases to quantify rates of these procedures and their potential association with rising thyroid cancer incidence from 30,180 cases in 2006 to 48,020 in 2011.

Methods: Utilization data from a proprietary insurance claims database and the Centers for Medicare & Medicaid Services Standard Analytic File were used to estimate procedure volumes from 2006-11. Rates of FNA with/out ultrasound guidance were defined by CPT4 codes with a corresponding diagnosis of nontoxic uni- or multinodular goiter. Rates of outpatient thyroidectomy and lobectomy were derived from CPT4 codes with ICD-9 codes for thyroid neoplasms. Inpatient thyroid surgery rates were obtained from the 2006-10 HCUP Nationwide Inpatient Sample using relevant ICD-9 codes, with 2011 based on the trend from 2006-10. Completion thyroidectomies were excluded to identify unique patients undergoing primary surgery.

Results: Use of thyroid FNA more than doubled over the 5-year study period (16% annual growth rate), from 254,000 to 526,700. The increase in the rate of FNAs performed with ultrasound guidance (21%) was nearly double that of biopsy without guidance (11%). Thyroid FNA also grew as a percentage of all FNAs performed, from 49% to 65%. The total number of thyroid surgeries performed for thyroid nodules increased by 31%, from 99,613 to 130,216. Total thyroidectomies increased by 8%/year, from 45,588 to 72,344, whereas the number of lobectomies increased only 1%/year, from 54,055 to 57,872. As a result, for the first time, total thyroidectomy accounts for more than half (54%) of the primary operations for thyroid neoplasm in the U.S. Increasingly, thyroid surgery is an outpatient procedure, with 55% performed in the ambulatory setting in 2006 and 62% in 2011.

Conclusion: Thyroid FNA procedures have rapidly increased in the U.S., with a downstream rise in the number of thyroid surgeries (and especially total thyroidectomies) and identification of more thyroid cancers. The relatively greater increase in total versus unilateral surgeries suggests that operated patients are perceived to have greater risk of thyroid cancer based on preoperative assessments. These trends have important policy implications for resource utilization for the diagnosis and treatment of thyroid nodules, as well as surgical training and access to quality care.

NOTES

37. FACTORS IN CONVERSION FROM MINIMALLY INVASIVE PARATHYROIDECOMY TO BILATERAL PARATHYROID EXPLORATION FOR PRIMARY HYPERPARATHYROIDISM

David T. Hughes, MD, Paul B. Park, MD, Mark S. Cohen, MD, Barbara S. Miller, MD, Paul G. Gauger, MD
University of Michigan

Background: Ongoing experience has documented general equivalence of minimally invasive parathyroidectomy(MIP) and standard bilateral parathyroid exploration(BPE) for primary hyperparathyroidism in most patients. BPE either as a planned procedure or as an intraoperative conversion is required for some patients for multiple indications. This study analyzes the factors, cure rates and predictors in conversion of MIP in an unselected surgical practice.

Methods: A prospective, single institution database of 1002 patients undergoing initial parathyroidectomy for primary hyperparathyroidism from 2008-2011 was analyzed for rates of MIP, BPE and factors in conversion from MIP to BPE. Localization studies included surgeon performed ultrasound and/or sestamibi. Intraoperative PTH(IOPTH) monitoring was used in all cases and IOPTH criteria were a >50% drop from baseline and a value in the normal range (≤65pg/mL).

Results: Of 1002 parathyroidectomies, 647(65%) were successful MIP and 355(35%) required BPE. Of the BPEs 169(48%) were planned and 186(52%) were intraoperative conversions. Indications for planned BPE included: negative or equivocal localization 110(65%); concomitant thyroidectomy 46(27%); MEN-1 7(4%) and lithium exposure 6(4%). Indications for conversion included: IOPTH criteria not met 86(46%); localization incorrect 66(36%); concern for multigland hyperplasia 30(16%); parathyroid cancer 2(1%) and uninterpretable IOPTH data 2(1%). In the MIP conversion cases multiple glands were excised in 120(65%), a single adenoma was excised in 66(35%). Persistent or recurrent disease, as defined by calcium and PTH above the normal range, occurred in 6(0.9%) MIPs compared to 10(5.4%) converted MIPs ($p<0.001$). Of the 16 patients with persistent or recurrent disease 3 had met IOPTH criteria for cure and were therefore false positives. Preoperative PTH and serum calcium was not significantly different between converted and successful MIPs. Utilizing the CaPTHUS scoring model (Kebebew, Arch Surg 2006), converted MIPs had lower mean score (1.78 vs. 2.19; $p<0.001$) primarily due to more frequently negative sestamibi, however most patients had scores ≤2 (MIPs-60% and converted MIPs-78%).

Conclusions: Conversion of MIP to BPE is required in 19% of patients, is due to multigland disease in most, cannot be predicted by preoperative PTH or calcium, but do have more negative sestamibi scans. Converted MIP has a 5-times higher failure rate than MIP using strict IOPTH criteria.

NOTES

38. A 27 YEAR FOLLOW-UP OF PATIENTS WITH PAPILLARY THYROID CANCER: THE IMPORTANCE OF A LONG-TERM STUDY

Raymon H. Grogan, MD, Sharone P. Kaplan, MSW, Hongyuan Cao, PhD, Omran Embia, MD, Roy E. Weiss MD PhD, Cassie Simon, CRT, Leslie Degroot, MD, Peter Angelos, MD PhD, Edwin L. Kaplan, MD, Rebecca L. Brown, MD
University of Chicago

Background: Long-term study of patients with papillary thyroid cancer (PTC) is difficult, but essential, since both recurrences and death occur many years after initial diagnosis. We report the outcomes of patients with PTC treated between 1968-1988 at our institution with a median follow-up of 27 years. The cohort was originally published in 1990 with a median follow-up of 11 years.

Methods: Demographics, tumor pathology, treatments, recurrences, and deaths from PTC were ascertained. Multivariate Cox proportional hazard model was used to identify risk factors associated with recurrence and death. Risk factors were age at diagnosis, history of external low-dose radiation exposure, stage, tumor size, multifocality, capsular invasion, follicular variant of PTC, nodal status, distant metastatic disease, and radioactive iodine treatment. Twenty-six patients were excluded from the multivariate analysis due to incomplete staging. Risk factors with p-values ≤ 0.05 were considered significant. Kaplan-Meier curves were used to determine recurrence and death rates. The 7th edition of the AJCC TNM guidelines was used for staging.

Results: Of 269 patients, 180 (66%) were female, 196 (73%) were ≤ 45 years of age, and 99 (37%) reported a history of prior external radiation exposure. A total of 211 cases were stage 1 (78%), 12 were stage 2 (4%), 10 were stage 3 (4%), 17 were stage 4a (6%), 13 were stage 4c (5%), and 6 cases were unknown stage (2%). Risk factors for recurrence by multivariate analysis were older age at diagnosis (HR 1.5, CI 1.1-2.1), follicular variant of PTC (HR 1.9, CI 1.1-3.2), larger tumor size (HR 1.6, CI 1.4-2.0) and metastatic disease (HR 10.6, CI 5.1-22.1). Significant predictors of death from PTC were older age at diagnosis (HR 2.9, CI 2.0-4.3) and stage of disease (Stage 3: HR 5.2, CI 2.2-12.7; Stage 4a: HR 3.7, CI 1.8-7.8; Stage 4c: HR 20.0, CI 8.3-48.2). The mean time to recurrence was 8 years and to death was 10 years. However, there were 3 cases of recurrence and 2 deaths from PTC after 30 years. Overall 30-year recurrence and death rates from PTC were 30% and 9%, respectively. The additional follow-up from the original study identified 9% more recurrences (n=6) and 9% more deaths from PTC (n=2).

Conclusion: The 27 year median follow-up achieved in this study is among the longest in the literature for PTC. Long-term follow-up is essential if the true natural history and death rates are to be known.

NOTES

39. LONG-TERM OUTCOME OF ULTRASOUND-GUIDED PERCUTANEOUS ETHANOL ABLATION OF SELECTED "RECURRENT" NECK NODAL METASTASES IN 25 PATIENTS WITH TNM STAGES III OR IVA PAPILLARY THYROID CARCINOMA PREVIOUSLY TREATED BY SURGERY AND I-131 THERAPY

Ian D Hay, MD, PhD, Robert A. Lee, MD, Caroline Davidge-Pitts, MB, BCh, Jennifer R. Geske, MS, Carl C. Reading, MD, J. William Charboneau, MD
Mayo Clinic Rochester

Background: Ultrasound-guided percutaneous ethanol ablation (UPEA) of selected neck nodal metastases (NNM) in papillary thyroid carcinoma (PTC) patients has been described (JCEM 96: 2717-20, 2011) as an effective, safe, and cheaper alternative to re-exploratory neck surgery in TNM stage I PTC patients managed by thyroidectomy and remnant ablation. Presently, there are few reports describing the efficacy of UPEA in more advanced localized disease.

Methods: We treated with UPEA 25 patients who presented with either stage III or stage IVA disease, and had "recurrent" NNM discovered at a median of 4 postoperative years. Prior to UPEA, 5/8 stage III patients (62%) had a total of seven neck re-explorations. The eight stage III patients also received 13 doses of radioactive iodine (RAI) therapy (mean 238 mCi). 8/17 stage IVA patients (47%) had a total of 12 re-explorations; 28 RAI doses were delivered to the 17 stage IVA patients (mean 226 mCi). Each of 37 NNM (mean largest size 13mm, range 7-25mm), selected for UPEA, was biopsied under ultrasound-guidance. The 25 patients were aged 46-73 years (mean 58 years). UPEA was administered (AJR 178: 699, 2002) in two outpatient sessions on successive days. Patients were evaluated at 3-6 months after UPEA, and annually thereafter. At each visit, NNM size was measured and Doppler flow assessed.

Results: All 37 NNM decreased in size after UPEA. None had detectable Doppler flow; 15 (40%) disappeared on re-scanning. None of the UPEA-treated NNM, followed on average for 58 months (range 4-141), required further intervention. Only 1/8 stage III patients (12%) and 4/17 stage IVA patients (22%) subsequently developed "new" NNM at sites requiring more surgery and/or further UPEA. The majority (5/7, 71%) of these later "recurrent" episodes were managed successfully by UPEA, rather than by further surgery. After UPEA, none of the 25 patients developed permanent hoarseness.

Conclusions: UPEA of selected NNM in stage III and IVA PTC has proved effective and in these 25 patients prevented, to date, 30 expensive, potentially hazardous, neck re-explorations. Estimating an average cost-saving of about $38,400 per UPEA procedure, it is likely that these particular 25 patients, by avoiding further surgery, saved themselves approximately $1.152 million. We would conclude that UPEA, performed by dedicated sonographers, is, therefore, not only safe and effective, but also considerably cheaper than the traditional surgical alternative.

NOTES

40. POTENTIAL ROLE OF 5- AZA-2'-DEOXYCYTIDINE INDUCED MAGEA4 EXPRESSION IN IMMUNOTHERAPY FOR ANAPLASTIC THYROID CANCER.
Viswanath Gunda, PhD, Alexandria P. Cogdill, BS, Jennifer A. Wargo, MD, **Sareh Parangi, MD**
Harvard Medical School/Massachusetts General Hospital

Background: MAGEA4, a member of the cancer testis antigen (CTA) family is expressed in various cancers including melanoma, bladder, head and neck, lung, and is a potential target for TCR based immunotherapy. BRAF inhibitors and histone demethylating agents have been shown to induce/enhance the expression of various CTAs and melanoma differentiating antigens (MDAs) in melanoma and other cancer cells. We hypothesized that treatment with BRAF inhibitors or demethylating agents may lead to similar increases in the expression of CTAs in thyroid cancer cells.

Method: Human thyroid cancer cells (8505c, HTh7, BCPAP and TPC-1) were grown in medium with either 10 ×M azacytidine (Aza) , 1.0×M 5-aza 2'deoxycytidine (5-Aza-dC) , 10×M PLX4720 (Plexxikon) or control for 72 hours and evaluated for the presence of various MAGE-A family as well as MART-1 and gp100 gene expression using Taqman gene expression assays. Later 8505c cells were treated with PLX4720 in the presence of 5-Aza-dC. Methylation status of the MAGEA4 promoter was determined using a Methycode bisulfite conversion kit.

Results: None of the cell lines expressed any MAGEA1, A3, A4, A6, MART-1 and gp100 at baseline. Only 8505c cells (BRAF V600E hemizygous) showed an increase in MAGEA4 mRNA and a moderate increase in MAGEA1 with both 5-Aza-dC and Aza (5-Aza-dC>Aza). PLX treatment had no effect on the expression of MAGEA4/A1. 8505c cells with lentiviral knockdown of BRAFV600E showed a dramatic dampening of this increased expression of MAGEA4 which had been seen with both Aza and 5-Aza-dC. In addition, treatment of 8505c cells with the BRAF inhibitor PLX4720 in the presence of either Aza or 5-aza-dC decreased the induced expression of MAGEA4 (~ 5 fold change) but not completely. None of the treatments showed any significant changes in MAGEA4 promoter methylation status.

Conclusion: Treatment with demethylating agents increases MAGEA4 expression on the surface of 8505c thyroid cancer cells. In contrast to melanoma where expression of cell surface MDAs appear to be increased in response to BRAF inhibition, the tested thyroid cancer cells do not show increased expression of similar cell surface markers with BRAF inhibition. However, treatment with BRAF inhibitors decreased the demethylating agent induced increased MAGEA4 expression implying a role for downstream BRAF signaling in the MAGEA4 expression. Expression of MAGEA4 may make immunotherapeutic intervention possible in selected thyroid cancer

Poster Displays

POSTER GROUP 1: THYROID CANCER: CLINICAL AND BASIC SCIENCE

1. A COST-UTILITY ANALYSIS OF PROPHYLACTIC CENTRAL NECK DISSECTION FOR PAPILLARY THYROID CANCER
Barnard J. A. Palmer, MD MEd, Arturo Garcia, MD, Nancy A. Parks, MD, Terrence H. Liu, MD MPH
University of California, San Francisco-East Bay

2. A META-ANALYSIS OF THE EFFECT OF PROPHYLACTIC CENTRAL COMPARTMENT NECK DISSECTION ON LOCOREGIONAL RECURRENCE RATES IN PATIENTS WITH PAPILLARY THYROID CANCER
Tracy S. Wang, MD, Kevin Cheung, MD, Forough Farrokhyar, PhD, Sanziana A. Roman, MD, Julie Ann Sosa, MD
Yale University

3. SHOULD WE ROUTINELY PERFORM LEVEL V LYMPH NODE DISSECTION IN N1B PAPILLARY THYROID CARCINOMA PATIENTS?
J.W. Kim MD, H. Son, MD, C.R. Lee, MD, S. Park, MD, S. Lee, MD, S.W. Kang, MD, J.J. Jeong, MD, K.H. Nam, MD, W.Y. Chung, MD, C.S. Park, MD
Yonsei University College of Medicine

4. IPSILATERAL CENTRAL NECK DISSECTION PLUS FROZEN SECTION EXAMINATION VS PROPHYLACTIC BILATERAL CENTRAL NECK DISSECTION IN CN0 PAPILLARY THYROID CARCINOMA
Marco Raffaelli, MD, Carmela De Crea, MD, Luca Sessa, MD, Chiara Bellantone, MS, Celestino P. Lombardi, MD
U.O. Chirurgia Endocrina e Metabolica - Policlinico A. Gemelli - Università Cattolica del Sacro Cuore

5. ROUTINE PREOPERATIVE ULTRASOUND OF THE LATERAL NECK IN PATIENTS WITH PAPILLARY THYROID CANCER
Stanley Z. Trooskin, MD, Gandhi Lanke, MD, MPH, Sandeep Tummala, MD, Mitchell L. Simon, MD, Tomer Davidov, MD
University of Medicine and Dentristy of New Jersey-Robert Wood Johnson Medical School

6. HIF1A EXPRESSION IS INCREASED IN BRAF V600E THYROID CANCER AND MAY CONTRIBUTE TO ITS AGGRESSIVE PHENOTYPE
Jonathan Zagzag, MD, Linda Dultz, MD, Seth Concurs, BS, Jennifer B. Ogilvie, MD, Keith S. Heller, MD, Kepal N. Patel, MD
New York University Langone Medical Center

7. FOCAL ADHESION KINASE (FAK): A MARKER OF BENIGN VERSUS MALIGNANT THYROID DISEASE
Timothy A. Platz, DO, Lourdes R. Ylagan, MD, Nestor R. Rigual, MD, William G Cance, MD
Roswell Park Cancer Institute

8. MICRORNA-222 MODULATES TAMOXIFEN RESISTANCE IN PAPILLARY THYROID CANCER
Hyunsuk Suh, MD, Susana Wishnia, MD, Susannah Orzell BA, Samuel Kim MA, Samir Sur BS, Frances Tangherlini BA, Stephanie Lee, MD PhD, Jennifer E. Rosen MD
Boston University School of Medicine

9. PREOPERATIVE DISCRIMINATION OF BENIGN FROM MALIGNANT DISEASE IN THYROID NODULES WITH INDETERMINATE CYTOLOGY USING ELASTIC LIGHT-SCATTERING SPECTROSCOPY
Hyunsuk Suh, MD, Nicholas Giordano, BS, Irving Bigio, PhD, Ousama A'amar, PhD, Eladio Rodriguez-Diaz, PhD, Stephanie Lee, MD PhD, Jennifer E. Rosen, MD
Boston University

10. A NOVEL AMPK ACTIVATOR INHIBITS THYROID CANCER CELL GROWTH
Robert L. Plews, MD, Adlina Mohd Yusof, PHD, Chaojie Wang, BS, Motoyasu Saji, MD, Ching-Shih Chen, PHD, Matthew D. Ringel, MD, John E. Phay, MD
The Ohio State University Medical Center

11. EVALUATION OF AN ALGORITHM FOR MOLECULAR TESTING OF INDETERMINATE THYROID NODULES
Kristen K. Rumer, PhD, Maria B. Albuja Cruz, MD, Christopher D. Raeburn, MD, Bryan R. Haugen, MD, Joshua P. Klopper MD, Carrie B. Marshall MD, Robert J. McIntyre, MD
University of Colorado School of Medicine

12. THE IMPACT OF MOLECULAR TESTING ON THE CLINICAL MANAGEMENT OF PATIENTS WITH THYROID NODULES.
Patricia Aragon Han, MD, Matthew T. Olson, MD, Martha A. Zeiger, MD
Johns Hopkins University School of Medicine

POSTER GROUP 2: THYROID CLINICAL

13. THYROIDECTOMY AS PRIMARY TREATMENT OPTIMIZES BMI IN PATIENTS WITH HYPERTHYROIDISM
David F. Schneider, MD, MS, Ratnam Nookala, MBBS, Taylor J. Jaraczewski, Herbert Chen, MD, Carmen C. Solorzano, MD, and Rebecca S. Sippel, MD
University of Wisconsin

14. DOES BETHESDA CATEGORY MATTER? ASSOCIATIONS BETWEEN BETHESDA CLASSIFICATION AND AGGRESSIVE FEATURES OF MALIGNANT THYROID NODULES
David A. Kleiman, MD, Toni Beninato, MD, Yiyan Shou, BA, James Hodgens, BA, Rasa Zarnegar, MD, Thomas J. Fahey, III, MD
New York Presbyterian Hospital - Weill Cornell Medical College

15. THE CHANGING PATTERNS OF MALE THYROID CANCER; THE TREND OF RECENT 10 YEARS
Seulkee Park, MD, Cho Rok Lee, MD, Sohee Lee, MD, Sang-Wook Kang, MD, Jong Ju Jeong, MD, Kee-Hyun Nam, MD, PhD, Woong Youn Chung, MD, PhD, Cheong Soo Park, MD, PhD
Yonsei University College of Medicine

16. THE CLINICOPATHOLOGIC PATTERNS OF FOLLICULAR VARIANT PAPILLARY THYROID CARCINOMA ACCORDING TO THE BRAFV600E MUTATION
Seulkee Park, MD, Cho Rok Lee, MD, Hae Young Son MD, Jung Woo Kim MD, Sohee Lee MD, Sang-Wook Kang, MD, Jong Ju Jeong, MD, Kee-Hyun Nam MD, PhD, Woong Youn Chung, MD, PhD, Cheong Soo Park MD, PhD
Yonsei University College of Medicine

17. INFORMED CONSENT FOR THYROIDECTOMY: WHAT DO SURGEONS TELL THEIR PATIENTS?
Scott B. Grant, MD, MBE, Raymon H. Grogan, MD, Edwin L. Kaplan, MD, Peter Angelos, MD, PhD
University of Medicine and Dentristy of New Jersey - Robert Wood Johnson Medical School

18. LARGE (≥4 CM) THYROID NODULES: CAN ULTRASOUND AND CYTOLOGY RELIABLY EXCLUDE CANCER?
Laura I. Eichhorn-Wharry, MD, Kelly L. McCoy, MD, Michael T. Stang, MD, Michaele J. Armstrong, PhD, Ari B. Silbermann, BS, N. Paul Ohori, MD, Sally E. Carty, MD, Linwah Yip, MD
University of Pittsbugh Medical Center

19. PATIENTS WITH FAMILY HISTORY OF THYROID CARCINOMAS IN THE SECOND DEGREE FAMILY MEMBERS HAVE CARRIED THE SAME RISK FOR DEVELOPMENT OF THYROID CARCINOMA AS IN THE FIRST DEGREE MEMBERS.
Alexander L. Shifrin, MD, Justin Anderson, BS, Danielle Lann, MD, Sunil Asnani, MD, Yen-Hong Kuo, PhD
Jersey Shore University Medical Center

20. CONTINUOUS COMPARED TO INTERMITTENT NERVE MONITORING IN THYROID SURGERY: IMPROVING PREDICTION OF VOCAL CORD PROTECTION FROM RLN PALSY
Henning Dralle, MD, Rick Schneider, MD, Kerstin Lorenz, MD, Phuong Nguyen Thanh, MD, Carsten Sekulla, PhD, Gregory Randolph, MD, Michael Bucher, MD
Martin Luther University Halle-Wittenberg

21. PROSPECTIVE EVALUATION OF ZOLEDRONIC ACID IN THE TREATMENT OF BONE METASTASES FROM DIFFERENTIATED THYROID CARCINOMA
Iwao Sugitani, MD, PhD, Kazuhisa Toda, MD, Yoshihide Fujimoto, MD, PhD
Cancer Institute Hospital. Japanese Foundation for Cancer Research

22. RISK OF HYPOTHYROIDISM FOLLOWING HEMITHYROIDECTOMY: AN EXAMINATION OF AGE, GENDER, OBESITY, AND FEAURES OF METABOLIC SYNDROME
Christa Abraham, MD, Carrie Carsello, MD, Alexander Chapman, BS, Caitlin Snyder, MD, Todd Beyer, MD
Albany Medical College

23. CONCERNING TRENDS IN APPALACHIAN PATIENTS WITH THYROID CARCINOMA
Kristin L. Long MD, Bin Huang PhD, Jing Guo, Cortney Y. Lee MD, David A. Sloan MD, Shaun P. McKenzie MD
University of Kentucky

24. HOW WELL DOES THE SURGEON'S CLINICAL ASSESSMENT OF PAPILLARY THYROID CANCER COMPARE WITH THE PATHOLOGICALLY CALCULATED MACIS SCORE?
Laura Chin-Lenn, MBBS, Michael Deutschmann, MD, Shamir P. Chandarana, MD, Alan Brilz, Jennifer Au, Janice L. Pasieka, MD
University of Calgary

POSTER GROUP 3: PARATHYROID AND THYROID

25. SURGICAL OUTCOMES AFTER PARATHYROIDECTOMY FOR RENAL HYPERPARATHYROIDISM IN THE PRESENCE OF CINACALCET.
Adewunmi O. Adeyemo, MD, Patricia A. Pentiak, MD, Amita Desai, MD, Brandon Shallop, BS, Peter F. Czako, MD, Larry R. Lloyd, MD.
Oakland University William Beaumont Health System

26. THE FINAL INTRAOPERATIVE PARATHYROID HORMONE LEVEL: HOW LOW SHOULD IT GO?
Laura I. Eichhorn-Wharry, MD, Linwah Yip, MD, Michaele J. Armstrong, PhD, Mohamed A. Virji, MD, Michael T. Stang, MD, Sally E. Carty, MD, Kelly L. McCoy, MD
University of Pittsburgh Medical Center

27. NEGATIVE PARAFIBROMIN STAINING PREDICTS MALIGNANT BEHAVIOUR IN ATYPICAL PARATHYROID ADENOMAS
Schelto Kruijff, PhD, Stan B. Sidhu, PhD, Mark Sywak, MmedSci, Anthony J. Gill, MD, Leigh W. Delbridge, MD
University of Sydney

28. PARATHYROID SURGERY IN THE ELDERLY – SHOULD MINIMALLY INVASIVE SURGERY BE ABANDONED?
Michal Mekel, MD, Hayim Gilshtein, MD, Katya Chapchay,MD, Bishara Bishara,MD, Michael M. Krausz, MD, Herbert R. Freund, MD, Yoram Kluger, MD, Ahmed Eid, MD, Haggi Mazeh, MD
Rambam-Health Care Campus

29. TIMING OF SYMPTOM IMPROVEMENT AFTER PARATHYROIDECTOMY
Sara E. Murray, MD, Priya Pathak, David Pontes, David F. Schneider, MD, Chee Paul Lin, MA, Sarah Schaefer, NP, Herbert Chen, MD, Rebecca S. Sippel, MD
University of Wisconsin

30. MULTIGLAND DISEASE AND A SLOWER DECLINE IN INTRAOPERATIVE PTH CHARACTERIZE MILD PRIMARY HYPERPARATHYROIDISM
David F. Schneider, MD, MS, Jocelyn F. Burke, MD, Kristin A. Ojomo, PA, Nicholas Clark, BA, Haggi Mazeh, MD, Rebecca S. Sippel, MD, and Herbert Chen, MD
University of Wisconsin

31. TWO-PHASE COMPUTED TOMOGRAPHY FOR PREOPERATIVE PARATHYROID LOCALIZATION
Amber L. Shada, MD, Prashant Raghavan, MD, Christopher R. Durst, MD, Sugoto Mukherjee, MD, David A. Ornan, MD, John B. Hanks, MD, Philip W. Smith, MD
University of Virginia

32. EFFICACY OF RECOMBINANT HUMAN PARATHYROID HORMONE (RHPTH [1-84]) FOR THE TREATMENT OF ADULTS WITH HYPOPARATHYROIDISM: THE REPLACE STUDY
Tamara J. Vokes, MD, Dolores Shoback, MD, Bart L. Clarke, MD, Michael Mannstadt, MD, Hjalmar Lagast, MD, Roger Garceau, MD, John P. Bilezikian, MD
NPS Pharmaceuticals

33. RACIAL DISPARITY IN CLINICAL AND ECONOMIC OUTCOMES IN THYROID AND PARATHYROID SURGERY
Salem I. Noureldine, MD, Ali Abbass, MD, Ralph P. Tufano, MD, Emad Kandil, MD
Tulane University School of Medicine

34. COMPRESSIVE SYMPTOMS IN BENIGN THYROID DISEASE: IS SURGERY HELPING THESE PATIENTS?
Annette M. Pascual, MPH, Jonathan Matías, BS, William Méndez, MD
University of Puerto Rico School of Medicine

35. MEDIASTINAL EXTENSION OF THE GOITER REPRESENTS A RISK FACTOR FOR LARYNGEAL NERVE PALSY DURING TOTAL THYROIDECTOMY. AN ITALIAN MULTICENTER STUDY ON 19,662 PATIENTS.
Ilaria F. Franco, MD, Mario Testini, MD, Giuseppe Piccinni, MD, Nicola Avenia, MD, Germana Lissidini, MD, PhD, Rocco Bellantone, MD, Celestino Pio Lombardi, MD, PhD, Giorgio De Toma, MD, Ludovico Rosato, MD, Angela Gurrado, MD, PhD, Francesco Fragas
University Medical School of Bari

POSTER GROUP 4: ADRENAL, NEUROENDOCRINE, AND THYROID

36. THE UTILITY OF OCTREOTIDE TO PREVENT CARCINOID CRISIS IN PATIENTS UNDERGOING LAPAROSCOPIC RFA OR RESECTION OF CARCINOID LIVER METASTASES
Shamil Aliyev, MD, Onur Birsen, MD, Halit E. Taskin, MD, Erol Aksoy, MD, Koray Karabulut, MD, Allan E. Siperstein, MD, Eren Berber, MD
Cleveland Clinic

37. TESTING THE VALIDITY AND CLINICAL APPLICABILITY OF THE NEW AJCC AND ENETS STAGING SYSTEMS FOR PANCREATIC NEUROENDOCRINE TUMORS
Nicole Gordon, MD, , Rodney Pommier, MD, SuEllen Pommier, PhD, Cory Donovan, MD
Oregon Health & Science University

38. TUMOR-INDUCED OSTEOMALACIA: THE LARGEST AMERICAN SURGICAL EXPERIENCE
Jennifer Tseng, MD, Diala El-Maouche, MD, William H. Chong, MD , Felasfa Wodajo, MD, Michael T. Collins, MD, Marybeth S. Hughes, MD
National Institutes of Health

39. ROBOTIC VERSUS LAPAROSCOPIC ADRENALECTOMY FOR PHEOCHROMOCYTOMA
Shamil Aliyev, MD, Koray Karabulut, MD, Orhan Agcaoglu, MD, Katherine Wolf, Halit E. Taskin, MD, Onur Birsen, MD, Jamie Mitchell, MD, Allan Siperstein, MD, Eren Berber, MD
Cleveland Clinic

40. SURGICAL COMPLETENESS VARIES WITH NUMBER OF OPERATIONS REQUIRED FOR TOTAL THYROIDECTOMY AND SURGEONS' AWARENESS OF THE PREOPERATIVE DIAGNOSIS OF THYROID CANCER.
Konstantinos P. Economopoulos, MD, Sareh Parangi, MD, Randall D. Gaz, MD, Carrie C. Lubitz, MD, Roy Phitayakorn, MD, Margaret M. Lotz, PhD, Gregory W. Randolph, MD, Richard A. Hodin, MD, Antonia E. Stephen, MD.
Massachusetts General Hospital, Harvard Medical School

41. APPLICATION OF A NOMOGRAM IN PREDICTION OF SUITABILITY FOR SHORT STAY TOTAL THYROIDECTOMY
Iain J. Nixon, MbChB, Frank L. Palmer, BA, Andrea Wang, MD, Dorothy Thomas, BA, Ashok R. Shaha, MD, Jatin P. Shah, MD, Ian Ganly, PhD, Snehal G. Patel, MD
Memorial Sloan-Kettering Cancer Center

42. POTASSIUM IODIDE SOLUTION PRIOR TO TOTAL THYROIDECTOMY FOR GRAVES' DISEASE: IS IT REALLY NECESSARY?
James T. Broome, MD, Arielle Baker, Carmen Solorzano, MD
Vanderbilt University

43. RADIOACTIVE IODINE REMNANT UPTAKE AFTER COMPLETION THYROIDECTOMY – NOT SUCH A COMPLETE CANCER OPERATION
Sarah C. Oltmann, MD, David F. Schneider, MD, MS, Sivashanmugam Tamilselvan, Herbert Chen, MD, Rebecca Sippel, MD
University of Wisconsin - Madison

44. HIGH RISK HISTOPATHOLOGIC FEATURES ARE RARE IN PAPILLARY THYROID MICROCARCINOMA
Gina M. Howell, MD, Michaele J. Armstrong, PhD, Michael T. Stang, MD, Kelly E. McCoy, MD, Marina N. Nikiforov, MD, Steven P. Hodak, MD, Yuri E. Nikiforov, MD, Sally E. Carty, MD, Linwah Yip, MD
University of Pittsburgh

45. IS TOTAL THYROIDECTOMY APPROPRIATE SURGERY FOR FOLLICULAR VARIANT OF PAPILLARY THYROID CANCER?
Paul H. Graham, MD, Daniel T. Ruan, MD, Atul A. Gawande, MD, Francis D. Moore Jr., MD, Nancy L. Cho, MD
Brigham and Women's Hospital

46. SCREENING CAROTID DOPPLER US IN PATIENTS UNDERGOING LATERAL NECK DISSECTION: IS IT WORTHWHILE?
Luca Revelli, MD, Angelo Santoliquido, MD, Carmela De Crea, MD, Marco Raffaelli, Paul Kateta Tshibamba MD, Emanuela Traini, MD, Annamaria D'Amore, MD, Paolo Tondi, MD, Celestino P. Lombardi, MD
U.O. Chirurgia Endocrina e Metabolica - Policlinico A. Gemelli - Università Cattolica del Sacro Cuore

Bylaws

BYLAWS OF THE AMERICAN ASSOCIATION OF ENDOCRINE SURGEONS

I. CORPORATION

1.1 **NAME.** The name of the corporation is The American Association of Endocrine Surgeons.

1.2 **PURPOSES.** The purposes for which the corporation is organized are as follows: The corporation is organized exclusively for the purposes set forth in Sections 501(c)(3) of the Internal Revenue Code of 1986 (or the corresponding provision of any future United States Internal Revenue law) (the "Code"), including, for such purposes, making of distributions to organizations that qualify as exempt organizations under Section 501(c)(3) of the Code. The objects of the corporation shall include: (1) advancement of the science and art of endocrine surgery and (2) maintenance of high standards in the practice and art of endocrine surgery; and doing anything reasonably in furtherance of, or incidental to, the foregoing purposes as the Council may determine to be appropriate and as are not forbidden by Section 501(c)(3) of the Code, with all the power conferred on nonprofit corporations under the laws of the State of Illinois.

1.3 **NONPROFIT OPERATION.** The corporation shall be operated exclusively for scientific, literary and educational purposes within the meaning of Section 501(c)(3) of the Code as a nonprofit corporation. No Councilor or member of the corporation shall have any title to or interest in the corporate property or earnings in his or her individual or private capacity and no part of the net earnings of the corporation shall inure to the benefit of any Councilor, member, officer or any individual. No substantial part of the activities of the corporation shall consist of carrying on propaganda or otherwise attempting to influence legislation, nor shall the corporation participate in or intervene in any political campaign on behalf of (or in opposition to) any candidate for public office.

II. MEMBERSHIP

2.1 **MEMBERSHIP.**

A. Membership in this Association shall be limited to physicians or scientists of good professional standing, who have a major interest and devote significant portions of their practice or research to endocrine surgery, and who are certified by the appropriate specialty boards as noted in Section B below.

B. Types of Members. There shall be seven types of members: Active, Senior, Allied Specialist, Honorary, Corresponding, Candidate, and Resident/Fellow.

1. Active members shall consist of original charter members and all members subsequently elected until they become eligible for senior membership. The number of active members shall not be limited.

> **1a.** The candidates for Active membership would have attended at least two annual meetings (hereinafter "assembly") of the American Association of Endocrine Surgeons prior to their application;
> **1b.** The candidates for Active membership should be able to provide evidence of special interest in endocrine surgery;
> **1c.** The candidates for Active membership must be certified by the American Board of Surgery or its equivalent in Canada (FRCSC), Central America, Mexico, and South America. In addition, membership shall be limited to Fellows of the American College of Surgeons or its international equivalent. The candidates who are applying for Active membership, who have completed their Endocrine Surgical Fellowship, should be in practice at least for two years with special emphasis in endocrine operative surgery.

2. Senior members shall consist of Active members who have reached the age of 65 years or who have retired from active practice. Senior members shall have all the responsibilities and privileges of active members, excepting those regarding attendance at assemblies. Senior members are not required to pay dues.

3. Honorary members shall consist of individuals who have made outstanding contributions to the discipline of endocrine surgery. They shall have no voting privileges, are not eligible for election as officers, and are not subject to assessment for dues.

4. Corresponding members shall consist of individuals who meet all the same qualifications in their respective countries as active members. They shall have no voting privileges, are not eligible for election as officers, shall attend one annual meeting and may be subject to dues at a reduced amount.

5. Allied Specialist members shall consist of specialists with American Board certification in their respective field or its equivalent in Canada, Central America, Mexico and South America. In addition, Allied Specialist membership shall be limited to Fellows of the American College of Surgeons, FACE, FACR, FACP, ACP etc. or their international equivalent. Allied Specialist members shall have demonstrated a significant commitment to and documented excellence in clinical practice, education, and/or research in their area(s) of practice within endocrine surgery. Allied Specialist members shall have been in practice within their specialty for a minimum of five years beyond training. Non-physician scientists (PhD) with a demonstrated interest in, and who have made significant contributions to, the field of endocrine surgery, are also eligible for membership under the Allied Specialist category. Allied Specialist members must have attended at least one assembly of the AAES prior to their application for membership. Allied Specialist members shall pay dues as levied by the Council and approved by the membership, shall have voting privileges, are subject to attendance requirements, shall attend the annual meeting, can serve on committees, and are not eligible for election to office or Council.

6. Candidate members shall consist of individuals who have completed their surgical training and who are awaiting qualification as Active members. Candidate members are required to pay dues at a reduced rate, do not have voting rights, and may register for the annual meeting at a reduced rate. Candidate membership will be limited to a period of time no more than three years following completion of all continuous training to include residency and fellowship(s). A letter of sponsorship from an Active, Corresponding, Allied, or Senior AAES member will be sufficient to be considered as a Candidate member. Candidate members are strongly urged to attend the annual meeting but need not have attended a prior meeting. Candidate members shall not have the right to attend the annual business meeting, cannot serve on committees, and are not eligible for election to office or Council and cannot act as sponsors for membership or submissions to the annual meeting.

7. Resident/Fellow members shall consist of individuals who are currently training, either as surgical residents or fellows. Resident/Fellow members are required to pay dues at a reduced rate, do not have voting rights, and may register for the annual meeting at a reduced rate. Resident/Fellow membership is limited to the time that an individual is in a residency, research, or clinical

fellowship training program. A letter of sponsorship from an Active, Corresponding, Allied, or Senior AAES member will be sufficient to be considered as a Resident/Fellow member. Attendance at a prior meeting of the AAES is not required. Resident/Fellow members will become Candidate members upon completion of their training and upon request. Resident/Fellow members shall not have the right to attend the annual business meeting, cannot serve on committees, and are not eligible for election to office or Council and cannot act as sponsors for membership or submissions to the annual meeting.

C. Election of New Members

1. Physicians fulfilling the requirements for Active or Allied Specialist membership stated in paragraphs 2.1A and 2.1B of these Bylaws who reside in the United States, Canada, Central America, Mexico or South America may be eligible for Active membership or Allied Specialist membership.

2. Application forms for Active, Corresponding, or Allied Specialist membership shall be provided by the Secretary-Treasurer on line. Completed application forms signed by the proposed member, one sponsor, and two endorsees shall be delivered to the Secretary-Treasurer at least four months before the annual assembly. Completed applications shall be reviewed by Council, which has the right to accept or reject any application for membership in the Association. Names of prospective members recommended for election by the Council shall be submitted to the membership at the annual assembly. Election shall be made by secret ballot, by a three-fourths affirmative vote of the members present. A prospective member who fails to be elected at one assembly may be considered at the next two annual assemblies of the Association. If election fails a third time, the prospective member's application may be resubmitted after a two year interval.

3. Prospective members for Honorary membership shall be proposed in writing to the Council through the Secretary-Treasurer. Prospective members approved by the Council will be elected by three-fourths affirmative vote of the Council and officers present.

4. Active members in good standing who subsequently take up practice in geographic areas outside of the United States, Canada, Central America, Mexico, or South America shall be changed to corresponding members of the Association upon request.

5. Sponsors and endorsers shall be Active, Allied, Corresponding, or Senior members.

D. Dues

Dues and assessments shall be levied by the Council and approved by the membership at the annual assembly.

E. Resignations / Expulsions

1. Resignations of members otherwise in good standing shall be accepted by majority vote of the Council.

2. Charges of unprofessional or unethical conduct against any member of the Association must be submitted in writing to Council. The Council's concurrence or disallowance of the charges shall be presented to the membership at the annual assembly executive session. A three-fourths affirmative vote of the members present shall be required for expulsion.

3. Any Active or Allied Specialist member who is absent from three consecutive annual assemblies without adequate explanation of this absence made in writing to the Secretary-Treasurer shall be dropped from membership in the Association by vote of the Council. Membership may be reinstated by vote of the Council.

4. Any member whose dues remain unpaid for a period of one (1) year shall be dropped from membership, provided that notification of such a lapse beginning at least three (3) months prior to its effective date. The member may be reinstated following payment of the dues in arrears on approval of the Council.

2.2 PLACE OF ASSEMBLIES. Annual and special assemblies of the members shall be held at such time and place as shall be determined by the Council.

2.3 ANNUAL ASSEMBLY. The annual assembly of the members of the corporation for election of Officers and Councilors and for such other business as may come before the assembly shall be held on such date and hour as shall have been determined by the members (or if the members have not acted, by the Council or the Chairperson), and stated in the notice of the assembly. If for any reason the annual assembly is not held on the determined date of any year, any business which could have been conducted at an annual assembly may be conducted at any subsequent special or annual assembly or by consent resolution.

A. During the annual assembly, there shall be an AAES Business Meeting of the membership. The business of the association shall be conducted at this time. The report of the nominating committee shall be presented to the membership during the AAES Business Meeting. Nominations may be made from the floor. Officers of the Association and Council members shall be elected by majority vote of the Active, Allied Specialist, and Senior members during the AAES Business Meeting.

B. Any member of the Association may invite one or more guests to attend the annual assembly.

C. Abstracts for consideration for presentation must be authored or sponsored by a member of the following categories: Active, Corresponding, Senior, Honorary, or Allied Specialist.

2.4 **SPECIAL ASSEMBLIES.** Special assemblies of the members of the corporation may be called by the Council or the President and shall be called by the President or the Secretary-Treasurer at the written request of any 30 members of the corporation. No business may be transacted at a special assembly except the business specified in the notice of the assembly.

2.5 **NOTICE OF ASSEMBLIES OF MEMBERS.** Except as otherwise provided by statute, written notice of the place, day, and hour of the assembly and in the case of a special assembly, the purpose or purposes for which the assembly of the members of the corporation is called, shall be given not less than five (5) nor more than sixty (60) days before the date of the assembly to each member, either personally or by mailing such notice to each member at the address designated by the member for such purpose or, if none is designated, at the member's last known address.

2.6 **WAIVER OF NOTICE.** Whenever any notice whatever is required to be given under the provisions of the Illinois Not for Profit Corporation Act of 1986 ("the Act") or under the provisions of the articles of incorporation or bylaws of this corporation, a waiver thereof in writing signed by the person or persons entitled to such notice, whether before or after the time stated therein, shall be deemed equivalent to the giving of such notice. Attendance at any meeting shall constitute waiver of notice thereof unless the person at the meeting objects to the holding of the meeting because proper notice was not given.

2.7 **QUORUM OF MEMBERS ENTITLED TO VOTE.** A minimum of thirty (30) members eligible to vote shall constitute a quorum at the annual assembly to effect changes in the bylaws of the Association, to make assessments, to authorize appropriations or expenditures of money other than those required in the routine business of the Association, to elect officers, Council members

and members, and to expel members. For the transaction of other business, the members entitled to vote present at any annual assembly shall constitute a quorum.

III. COUNCIL

3.1 **COUNCIL.** The business and affairs of the corporation shall be managed by or under the direction of a Council which is the governing body of the corporation. The Council shall meet as often as necessary to conduct the business of the corporation.

3.2 **NUMBER AND SELECTION OF COUNCIL.** The Council shall consist of the officers of the Association, the three immediate past Presidents, and six other Council members, as the membership shall from time to time determine. The Council shall be elected by majority vote of the Active, Allied, and Senior membership during the AAES Business Meeting at its annual assembly and vacancies shall be filled in the manner specified in Section 3.4 below. Councilors (other than those elected to fill vacancies) shall serve for three (3) year terms, with two (2) Councilors being elected annually so as to provide overlapping terms.

3.3 **REMOVAL.** Any Councilor may be removed from office with cause at any annual or special assembly of the members. No Councilor may be removed except as follows: (1) A Councilor may be removed by the affirmative vote of two-thirds of the votes present and voted, either in person or by proxy (2) No Councilor shall be removed at a meeting of members entitled to vote unless the written notice of such meeting is delivered to all members entitled to vote on removal of Councilors. Such notice shall state that a purpose or the meeting is to vote upon the removal of one or more Councilors named in the notice. Only the named Councilor or Councilors may be removed at such meeting. If the vote of Councilors is to take place at a special assembly of Councilors, written notice of the proposed removal shall be delivered to all Councilors no less than twenty (20) days prior to such assembly. Written notice for removal must include the purpose of the assembly (i.e., removal) and the particular Councilor to be removed.

3.4 **VACANCIES.** Vacancies occurring in the Council by reason of death, resignation, removal or other inability to serve shall be filled by the affirmative vote of a majority of the remaining Councilors although less than a quorum of the Council. A Councilor elected by the Council to fill a vacancy shall serve until the next annual assembly of the membership. At such annual assembly, the members shall elect a person to the Council who shall serve for the remaining portion of the term.

3.5 **ANNUAL ASSEMBLY.** The annual assembly of the Council shall be held at such place, date and hour as the Council may determine from time to time. At the annual assembly, the Council shall consider such business as may properly be brought before the assembly. If less than a quorum of the Councilors appear for such an annual assembly of the Council, the holding of such annual assembly shall not be required and matters which might have been taken up at the annual assembly may be taken up at any later regular, special or annual assembly or by consent resolution.

3.6 **REGULAR AND SPECIAL ASSEMBLIES.** Regular assemblies of the Council may be held at such times and places as the Councilors may from time to time determine at a prior assembly or as shall be directed or approved by the vote or written consent of all the Councilors. Special assemblies of the Council may be called by the President or the Secretary-Treasurer, and shall be called by the President or the Secretary-Treasurer upon the written request of any two (2) Councilors.

3.7 **NOTICE OF ASSEMBLIES OF THE COUNCIL.** Written notice of the time and place of all assemblies of the Council shall be given to each Councilor at least 10 days before the day of the assembly, either personally or by mailing such notice to each Councilor at the address designated by the Councilor for such purposes, or if none is designated, at the Councilor's last known address. Notices of special assemblies shall state the purpose or purposes of the assembly, and no business may be conducted at a special assembly except the business specified in the notice of the assembly. Notice of any assembly of the Council may be waived in writing before or after the assembly.

3.8 **ACTION WITHOUT AN ASSEMBLY.** Any action required or permitted at any assembly of the Council or a committee thereof may be taken without an assembly, without prior notice and without a vote, if a consent in writing, setting forth the action so taken, shall be signed by all of the Councilors and all of any non-Councilor committee members entitled to vote with respect to the subject matter thereof, or by all the members of such committee, as the case may be. The consent shall be evidenced by one or more written approvals, each of which sets forth the action taken and bears the signature of one or more Councilors or committee members. All the approvals evidencing the consent shall be delivered to the Secretary-Treasurer to be filed in the corporate records. The action taken shall be effective when all the Councilors or the committee members, as the case may be, have approved the consent unless the consent specifies a different effective date. Any such consent signed by all Councilors or all the committee members, as the case may be, shall have the same effect as a unanimous vote and may be stated as such in any document filed with the Secretary of State under the Illinois General Not for Profit Corporation Act.

3.9 **QUORUM AND VOTING REQUIREMENTS.** A majority of the Councilors then in office and a majority of any committee appointed by the Council constitutes a quorum for the transaction of business. The vote of a majority of the Councilors or committee members present at any assembly at which there is a quorum shall be the acts of the Council or the committee, except as a larger vote may be required by the laws of the State of Illinois, these bylaws or the Articles of Incorporation. A member of the Council or of a committee may participate in an assembly by conference telephone or similar communications equipment by means of which all persons participating in the assembly can hear one another and communicate with each other. Participation in an assembly in this manner constitutes presence in person at the assembly. No Councilor may act by proxy on any matter.

3.10 **POWERS OF THE COUNCILORS.** The Councilors shall have charge, control and management of the business, property, personnel, affairs and funds of the corporation and shall have the power and authority to do and perform all acts and functions permitted for an organization described in Section 501(c)(3) of the Code not inconsistent with these bylaws, the Articles of Incorporation or the laws of the State of Illinois. In addition to and not in limitation of all powers, express or implied, now or hereafter conferred upon Boards of Directors of nonprofit corporations, and in addition to the powers mentioned in and implied from Section 1.3, the Councilors shall have the power to borrow or raise money for corporate purposes, to issue bonds, notes or debentures, to secure such obligations by mortgage or other lien upon any and all of the property of the corporation, whether at the time owned or thereafter acquired, and to guarantee the debt of any affiliated or subsidiary corporation or other entity, whenever the same shall be in the best interests of the corporation and in furtherance of its purposes.

3.11 **COMPENSATION.** Councilors shall receive no compensation for their services on the Council. The preceding shall not, however, prevent the corporation from purchasing insurance as provided in Section 5.1 nor shall it prevent the Council from providing reasonable compensation to a Councilor for services which are beyond the scope of his or her duties as Councilor or from reimbursing any Councilor for expenses actually and necessarily incurred in the performance of his or her duties as a Councilor.

IV. OFFICERS

4.1 **OFFICERS.** The officers shall be a President, a President-Elect, a Vice President, a Secretary-Treasurer, and a Recorder.

4.2 **ELECTION AND TERM OF OFFICE.** The President, President-Elect, and Vice President of the Association shall be elected for terms of one year each. The Secretary-Treasurer and Recorder shall be elected for three year terms. Officers of the Association shall be elected by majority vote of the Active, Allied Specialist, and Senior members during the AAES Business Meeting.

4.3 **REMOVAL.** Any officer or agent may be removed with or without cause by the Council or other persons authorized to elect or appoint such officer or agent but such removal shall be without prejudice to the contract rights, if any, of the person so removed. Election or appointment of an officer or agent shall not of itself create any contract rights.

4.4 **PRESIDENT.** The President shall preside at Council assemblies and the annual members' assembly. The President shall appoint members to all standing and ad hoc committees and shall serve as an ex-officio member of each. Successors to vacated offices of the Association shall be appointed by the President until the position is filled at the next annual assembly. The President shall prepare an address to the annual assembly of the Association.

4.5 **PRESIDENT-ELECT.** The President-Elect, in the absence or incapacity of the President, shall perform the duties of the President's office.

4.6 **VICE PRESIDENT.** In the absence or incapacity of both the President and the President-Elect, the Chair shall be assumed by the Vice President

4.7 **SECRETARY-TREASURER.** The Secretary-Treasurer shall keep minutes of the Association and the Council, receive and care for all records belonging to the Association, and conduct the correspondence of the Association. This office will issue to all members a written report of the preceding year's transactions to be read to the Council and membership at the annual assembly. The Secretary-Treasurer will prepare an annual report for audit. The Secretary-Treasurer shall have the authority to certify the bylaws, resolutions of the members and Council and committees thereof, and other documents of the corporation as true and correct copies thereof.

4.8 **RECORDER.** The Recorder shall receive the manuscripts and edition of the discussions. The Recorder shall be custodian for the transactions of the Association.

V. INDEMNIFICATION

5.1 **INDEMNIFICATION.** Each person who is or was a Councilor, member, officer or member of a committee of the corporation and each person who serves or has served at the request of the corporation, as a Councilor, officer, partner, employee or agent of any other corporation, partnership, joint venture, trust or other enterprise may be indemnified by the corporation to the fullest extent permitted by the corporation laws of the State of Illinois as they may be in effect from time to time. The corporation may purchase and maintain insurance on behalf of any such person against any liability asserted against and incurred by such person in any such capacity or arising out of his status as such, whether or not the corporation would have power to indemnify such person against such liability under the preceding sentence. The corporation may, to the extent authorized from time to time by the Council, grant rights to indemnification to any employee or agent of the corporation to the fullest extent provided under the laws of the State of Illinois as they may be in effect from time to time.

VI. COMMITTEES

6.1 **COMMITTEES.** A majority of the Council may establish such committees from time to time as it shall deem appropriate and shall define the powers and responsibilities of such committees. The Council may establish one or more executive committees and determine the powers and duties of such executive committee or committees within the limits prescribed by law.

A. Standing committees of the Association shall consist of the Membership Committee (composed of the Council), Publication and Program Committee, Education and Research Committee, Information and Technology Committee, and Fellowship Committee.

B. The Nominating Committee shall consist of the President and two immediate past Presidents. The most senior past President is chairman of the committee.

C. All committees shall be chaired by members appointed by the President with the advice of the Council.

6.2 **COMMITTEES OF COUNCILORS.** Unless the appointment by the Council requires a greater number, a majority of any committee shall constitute a quorum, and a majority of committee members present and voting at a meeting at which a quorum is present is necessary for committee action. A committee may act by unanimous consent in writing without a meeting and, subject to the provisions of the bylaws for action by the Council, the committee by majority vote of its members shall determine the time and place of meetings and the notice required thereof. To the extent specified by the Council or in the articles of incorporation or bylaws, each committee may exercise the authority of the Council under Section 108.05 of the Act; provided, however, a committee may not:

A. Adopt a plan for the distribution of the assets of the corporation, or for dissolution;

B. Approve or recommend to members any act the Act requires to be approved by members, except that committees appointed by the Council or otherwise authorized by the bylaws relating to the election, nomination, qualification, or credentials of Councilors or other committees involved in the process of electing Councilors may make recommendations to the members relating to electing Councilors;

C. Fill vacancies on the Council or on any of its committees;

D. Elect, appoint, or remove any officer or Councilor or member of any committee, or fix the compensation of any member of a committee;

E. Adopt, amend, or repeal the bylaws or the articles of incorporation;

F. Adopt a plan of merger or adopt a plan of consolidation with another corporation, or authorize the sale, lease, exchange or mortgage of all or substantially all of the property or assets of the corporation; or

G. Amend, alter, repeal, or take action inconsistent with any resolution or action of the Council when the resolution or action of the Council provides by its terms that it shall not be amended, altered, or repealed by action of a committee.

VII. AMENDMENTS

7.1 **AMENDMENTS.** These bylaws may be amended at the annual assembly of the membership provided a notice setting forth the amendment or a summary of the changes to be effected thereby is given to each member entitled to vote thereon in the manner and within the time provided in these bylaws for notice of the assembly. These bylaws may be amended at the annual assembly by a two-thirds affirmative vote of the members present. No amendment inconsistent with the Articles of Incorporation shall be effective prior to amendment of the Articles of Incorporation.

VIII. BOOKS AND RECORDS

8.1 **BOOKS AND RECORDS.** The corporation shall keep correct and complete books and records of account and shall also keep minutes of the proceedings of its members, Council and committees having any of the authority of the Council, and shall keep at the registered or principal office a record giving the names and addresses of the Council and members entitled to vote. All books and records of the corporation may be inspected by any Councilor or member entitled to vote, or his or her agent or attorney for any proper purpose at any reasonable time.

IX. PARLIAMENTARY AUTHORITY

9.1 **PARLIAMENTARY AUTHORITY.** The rules of parliamentary procedure in "Robert's Rules of Order, Revised", shall govern the proceedings of the assemblies of this corporation, subject to all other rules contained in the Articles of Incorporation and Bylaws and except that proxy voting shall be allowed in accordance with the Illinois General Not for Profit Corporation Act of 1986

X. SEVERABILITY

10.1 **SEVERABILITY.** Each of the sections, subsections and provisions hereof shall be deemed and considered separate and severable so that if any section, subsection or provision is deemed or declared to be invalid or unenforceable, this shall have no effect on the validity or enforceability of any of the other sections, subsections or provisions.

Geographical Membership Directory

2012 - 2013

Brazil

Curitiba
Vasconcelos, Evandro C.
Porto Alegre
Molinari, Alberto S.
Sao Paulo
Aun, Frederico

Canada

ALBERTA
Calgary
Chin-Lenn, Laura
Harvey, Adrian M.
Mack, Lloyd
Pasieka, Janice L.

BRITISH COLUMBIA
Vancouver
Bugis, Samuel P.
Melck, Adrienne L.
Schmidt, Nis

ONTARIO
Toronto
Devon, Karen M.
Rosen, Irving B.
Rotstein, Lorne E.
Urbach, David R.

QUEBEC
Montreal
Mitmaker, Elliot J.
Tabah, Roger J.

Chile

Santiago
Costa, Eduardo A.

Guatemala

Guatemala City
Penalonzo, Marco A.

Mexico

Merida
Fajardo-Cevallos, Rafael E.

Mexico City
Herrera, Miguel F.
Pantoja, Juan Pablo
Velazquez, David

USA

ALABAMA

Birmingham
Diethelm, Arnold G.
Porterfield, John R.
Smith, Gardner S.
Sperling, David

Mobile
Dyess, Donna Lynn

ARIZONA

Goodyear
Staren, Edgar D.

Phoenix
Flynn, Stuart D.
Harding, Richard J.
Powell, Anathea C.
Schlinkert, Richard T.

Scottsdale
Demeure, Michael J.
Van Lier Ribbink, Jeffrey A.

Tucson
Guerrero, Marlon A.

ARKANSAS

Little Rock
Kim, Lawrence T.
Mancino, Anne T.

CALIFORNIA

Beverly Hills
Katz, Alfred D.

Duarte
Yim, John H.

El Macero
Wolfman, Earl

Fresno
Maser, Christina L.

Hillsborough
Lim, Robert C.

La Jolla
Bouvet, Michael
Sanford, Arthur

Los Altos
Allo, Maria D.

Los Angeles
Giuliano, Armando E.
Haigh, Philip I.
Harari, Avital
Hines, Joe J.
Ituarte, Philip H. G.
Melanie, Goldfarb
Said, Meena
Yeh, Michael W.

Mountain View
Yip Lin, Dana T.

Orange
Harness, Jay K.

San Diego
Block, Melvin A.
Clark, Gary C.

San Francisco
Campbell, Michael J.
Cisco, Robin M.
Clark, Orlo H.
Debas, Haile T.
Duh, Quan-Yang
Galante, Maurice
Gosnell, Jessica E.
Hunt, Thomas K.
Shen, Wen T.
Yutan, Elaine U.

Santa Barbara
Latimer, Ronald G.

Santa Cruz
Lee, Louis C.

Santa Monica
Brunicardi, F. Charles

Stanford
Greco, Ralph S.
Norton, Jeffrey A.

Sylmar
Zuckerbraun, Lionel

Truckee-Morthstar
Danto, Lawrence A.

Ventura
Nguyen, Chau T.

Geographical Membership Directory

Walnut Creek
Rahbari, Reza
Woodland
Chen, Emery

COLORADO
Aurora
Albuja Cruz, Maria Belen B.
McIntyre, Jr., Robert C.
Raeburn, Christopher D.
Boulder
Brown, Dennistoun K.
Denver
Vanderveen, Kimberly
Littleton
Liechty, R. Dale

CONNECTICUT
Danbury
Neychev, Vladimir K.
Farmington
Stevenson, Christina E.
New Haven
Carling, Tobias
Udelsman, Robert

DELAWARE
McField, Daaron

DISTRICT OF COLUMBIA
Washington
Felger, Erin A.
Geelhoed, Glenn W.

FLORIDA
Bay Pines
Goodgame, J. Thomas
Bonita Springs
Freier, Duane T.
Patwardhan, Nilima
Coral Gables
Irvin, George L
Gainesville
Shaw, Christiana M.
Highland Beach
Hamburger, Stuart W.
Jacksonville
Adkisson, Cameron D.
Asbun, Horacio J.
Smith, Stephen L.
Miami
Lew, John I.
Miami Beach
Dembrow, Victor D.
Safety Harbor
Schmidt, Rick J
Stuart
Vopal, James J.
Tampa
Fabri, Peter J.
Han, Dale
Norman, James G.
Politz, Douglas E.

GEORGIA
Atlanta
Sharma, Jyotirmay
Weber, Collin J.
Augusta
Mansberger, Arlie R.
Terris, David J.
Yeh, Karen A.
Lawrenceville
McGill, Julie F.
Marietta
Underwood, Robert A.
Savannah
Yeager, E. Stephen

HAWAII
Honolulu
Morita, Shane

ILLINOIS
Aurora
Bloom, Allen D.
Chicago
Angelos, Peter
Cheatem, Donald M.
Cherenfant, Jovenel
Elaraj, Dina
Fredland, Allan J.
Grogan, Raymon H.
Kaplan, Edwin L.
Patel, Subhash
Pickleman, Jack
Sturgeon, Cord
Evanston
Moo-Young, Tricia A.
Prinz, Richard A.
Winchester, David J.
Lake Forest
Hann, Sang E.
Maywood
De Jong, Steven A.
Kabaker, Adam S.
North Chicago
Zdon, Michael J.
Oak Brook
Paloyan, Edward
Oaklawn
Hopkins, William M.

INDIANA
Indianapolis
Broadie, Thomas A.
Miskulin, Judiann

IOWA
Iowa City
Bhama, Anuradha R.
Gurll, Nelson J.
Howe, James R.
Lal, Geeta
Sugg, Sonia L.
Weigel, Ronald J.

KANSAS
Lake Quivira
Hermreck, Arlo S.

KENTUCKY
Lexington
Lee, Cortney Y.
Long, Kristin L.
Sloan, David A.
Louisville
Callender, Glenda G.
Goldstein, Richard E.
Quillo, Amy R.

LOUSIANA
Kenner
Wang, Yi Zarn
Woltering, Eugene A.
New Orleans
Jaffe, Bernard M.
Kandil, Emad

MAINE
Bangor
Starks, Michael R.
Portland
Goldfarb, Walter B.
MacGillivray, Dougald C.
Radke, Frederick R.
Wu, Leslie S.
Vinalhaven
Kinder, Barbara K.

MARYLAND
Baltimore
Alexander, H. Richard
Baltimore
Carter, Bradford
Dackiw, Alan P.B.
Gann, Donald S.
Marohn, Michael R.
Olson, Jr. A.
Prescott, Jason D.
Turner, Joel A.
Zeiger, Martha A.
Bethesda
Hughes, Marybeth S.
Kebebew, Electron
Nilubol, Naris
Phan, Giao Q.
Sadowski Veuthey, Samira M.
Chevy Chase
Mathur, Aarti
Stojadinovic, Alexander
Columbia
Turner, Douglas J.
Rockville
Treter, Sarah D.
Towson
Tufano, Ralph P.

MASSACHUSETTS
Auburndale
Silen, William
Boston
Beazley, Robert
Brooks, David C.
Doherty, Gerard M.
Gawande, Atul
Gaz, Randall D.
Hasselgren, Per-Olof J.
Hodin, Richard A.
Holm, Tammy M.
Lubitz, Carrie C.
McAneny, David
McKenzie, Travis J
Moore, Francis D.
Parangi, Sareh
Randolph, Gregory W.
Rosen, Jennifer E.
Ruan, Daniel T.
Stephen, Antonia E.
Brookline
Cady, Blake
Graham, Paul H.
Mowschenson, Peter
Burlington
Brams, David M.
Wei, John P.
Cambridge
Nehs, Matthew A.
Danvers
Narra, Vinod
Pittsfield
Curletti, Eugene L.
Springfield
Coe, Nicholas P.
Jabiev, Azad A.
Weston
Aliapoulios, Menelaos A.

MICHIGAN
Ann Arbor
Burney, Richard E.
Cerny, Joseph C.
Cohen, Mark S.
Fox, Amy C.
Gauger, Paul G.
Hughes, David T.
Park, Paul B.
Thompson, Norman W.
Bloomfield Hills
Saxe, Andrew W.
Detroit
Singer, Michael C.
Talpos, Gary B.
Lansing
McLeod, Michael K.
Midland
Sequeira, Melwyn J.

Royal Oak
Czako, Peter F.
Saginaw
Ghanem, Maher
Troy
Eichhorn-Wharry, Laura I.

MINNESOTA
Brooklyn Park
Kemp, Kourtney L.
Minneapolis
Delaney, John P.
Najarian, John S.
Rochester
Carney, J. Aidan
Dy, Benzon M.
Farley, David R.
Grant, Clive S.
Hay, Ian D.
Kundel, Anna
Richards, Melanie L.
Service, F. John
Thompson, Geoffrey B.
Young, William F.
St Paul
Sneider, Mark S.

MISSISSIPPI
Jackson
Parent, Andrew D.
Tupelo
Bowlin, John W.

MISSOURI
Columbia
Koivunen, Debra G.
Saint Louis
Brunt, L. Michael
Gillanders, William E.
Hall, Bruce L.
Moley, Jeff F.
Shieber, William

MONTANA
Kalispell
Sheldon, David G.

NEBRASKA
Papillion
Stanislav, Gregory

NEW JERSEY
Englewood
Barbul, Adrian
Morristown
Whitman, Eric D.
Neptune
Shifrin, Alexander L.
New Brunswick
Trooskin, Stanley Z.
Paterson
Budd, Daniel C.
Plainsboro
Kahn, Steven P.
Princeton
Roy, Rashmi
Vineland
Kushnir, Leon

NEW MEXICO
Albuquerque
Vazquez, Bianca J.
Rio Rancho
Miscall, Brian G.
Roswell
Quintana, Doris A.

NEW YORK
Albany
Beyer, Todd D.
Carsello, Carrie B.
Bronx
Lai, Victoria
Laird, Amanda M.
Libutti, Steven K.
Smith, Jonathan C.

Geographical Membership Directory

Bronxville
Ahmed, Leaque
Brooklyn
Bocker, Jennifer M.
Buffalo
Cance, William G.
Cooperstown
Ryan, M. Bernadette
Elmhurst
Arora, Shalini
Forest Hills
Harsono, Hasly
Ithaca
Foster, Cory L.
Lake Success
Dubner, Sanford
Sznyter, Laura A.
Middletown
Geha, Rula C.
New York
Allendorf, John D.
Brennan, Murray F.
Chabot, John A.
Fahey, Thomas J.
Ganly, Ian
Goff, Stephanie L.
Heller, Keith S.
Inabnet, William B.
Iyer, N. Gopalakrishna
Johnston, Michael G.
Kitano, Mio
Lee, James
Marti, Jennifer L.
Ogilvie, Jennifer B.
Owen, Randall P.
Patel, Snehal
Patel, Kepal N.
Shah, Jatin P.
Shaha, Ashok R.
Singh, Bhuvanesh
Strong, Vivian E.
Tuttle, R. Michael
Untch, Brian R.
Zarnegar, Rasa
Rochester
Moalem, Jacob
Scarsdale
Weber, Kaare J.
Syracuse
Kort, Kara C.
Numann, Patricia J.
Valhalla
Spanknebel, Kathryn

NORTH CAROLINA
Apex
Leight, George S.
Asheville
Humble, Ted H.
Chapel Hill
Croom, Robert D.
Thomas, Jr., Colin G.
Charlotte
Kercher, Kent
Pederson, Lee
Wagner, Kristin E.
Cornelius
Starling, James R.
Durham
Roman, Sanziana A.
Scheri, Randall P.
Sosa, Julie Ann A.
Tyler, Douglas S.
Wells, Jr., Samuel A.
Greenville
Pofahl, Walter E.
Pories, Walter J.
Raleigh
Faust, Kirk B.
Wilmington
Versnick, Mark A.
Winston Salem
Albertson, David A.
Cannon, Jennifer
Gallagher, Scott F.
Randle, Reese W.

OHIO
Akron
Horattas, Mark C.
Cincinnati
Steward, David L.
Cleveland
Berber, Eren
Esselstyn, Caldwell B.
Jin, Judy
Mansour, Edward G.
McHenry, Christopher R.
Metzger, Rosemarie
Mitchell, Jamie C.
Press, Danielle M.
Shin, Joyce Jung-Mee
Siperstein, Allan
Wilhelm, Scott M.
Columbus
Ellison, Christopher
Farrar, William B.
Sigmond, Benjamin R.
Worthington
Arrese, David

OREGON
Portland
Aliabadi, Shaghayegh
Jamison, Richard L.
Milas, Mira M.
Pommier, Rodney F.
Raaf, John H.
Sheppard, Brett C.
Yu, Kelvin C.

PENNSLYVANIA
Abington
Borman, Karen R.
Kukora, John S.
Allentown
Hartzell, George W.
McDonald, Marian P.
Danville
Pellitteri, Phillip K.
Strodel, William E.
Harrisburgh
Yang, Harold C.
Hershey
Boltz, Melissa M.
Chesnut, Charles H.
Hershey
James, Benjamin C.
Kauffman, Jr., Gordon L.
Saunders, Brian D.
Palmyra
Shereef, Serene
Philadelphia
Cohn, Herbert E.
Fraker, Douglas L.
Griffen, Ward O.
Kairys, John C.
Kelz, Rachel
LiVolsi, Virginia
Milan, Stacey A.
Ridge, John A.
Wachtel, Heather
Yeo, Charles J.
Pittsburgh
Bartlett, David L.
Carty, Sally E.
Chen, Naomi H.
McCoy, Kelly L.
Stang, Michael T.
Yip, Linwah
Saxonburg
Stremple, John
Sayre
Trostle, Doug R.

PUERTO RICO
San Juan
Mendez, William

RHODE ISLAND
Providence
Baldwin, Keith M.
Mazzaglia, Peter J.
Monchik, Jack M.

SOUTH CAROLINA
Charleston
Carneiro-Pla, Denise
Cole, David J.
Columbia
Broughan, Thomas A.
Brown, J. Jeffrey J.
Greenville
Lokey, Jonathan S.
Rock Hill
Dhiman, Shamly V.
Seabrook Island
van Heerden, Jon A.
Spartanburg
Orr, Richard K.

TENNESSEE
Chattanooga
Roe, Michael
Knoxville
Nelson, Jr., H. Sperry
Zirkle, Kevin
Nashville
Abumrad, Naji N.
Broome, James T.
Solorzano, Carmen C.
Williams, Kathleen C.
Signal Mountain
Giles, Wesley H.
Tazewell
Wilmoth, Robert J.

TEXAS
Austin
Kroeker, Teresa R.
Dallas
Andrea, Alexander M.
Holt, Shelby A.
Landry, Christine S.
Nwariaku, Fiemu E.
Steckler, Robert M.
Woodruff, Stacey L.
Houston
Abadin, Shabir Husain S.
Brandt, Mary L.
Clayman, Gary
Grubbs, Elizabeth G.
Jackson, Gilchrist L.
Lee, Jeffrey E.
Lopez, Monica E.
Morris, Lilah F.
Perrier, Nancy D.
Suliburk, James W.
San Antonio
Santillan, Alfredo A.
Temple
Lairmore, Terry C.
Quinn, Courtney E.
Snyder, Samuel K.
Wichita Falls
Sutton, Beth H.

VERMONT
Shelburne
Foster, Jr., Roger S.

VIRGINIA
Charlottesville
Hanks, John B.
Smith, Philip W.
Richmond
Grover, Amelia C.
Merrell, Ronald C.
Newsome, Jr., H.

WASHINGTON
Seattle
Reimel, Beth Ann
Spokane
Sinha, Renu

WEST VIRGINIA
Charleston
Richmond, Bryan K.
Morgantown
Mitchell, Bradford K.
Ross, Arthur J.

WISCONSIN
La Crosse
Kisken, William A.
Madison
Alhefdhi, Amal Y.
Chen, Herbert
Greenblatt, David Y.
Kunnimalaiyaan, Muthusamy
Mack, Eberhard A.
Matzke, Gregory M.
Oltmann, Sarah C.
Schneider, David F
Sippel, Rebecca S.
Wenger, Ronald D.
Milwaukee
Campbell, Bruce H.
Carr, Azadeh A.
Cayo, Ashley K.
Evans, Douglas B.
Wang, Tracy S.
Wilson, Stuart D.
Yen, Tina Wei-Fang

CORRESPONDING COUNTRIES OF THE AAES

Australia

Beecroft
Reeve, Thomas S.
Frankston
Serpell, Jonathan W.
Kew Vic
Tasevski, Robert
St Leonards
Delbridge, Leigh W.
Sydney
Sidhu, Stan
Sywak, Mark

Austria

Vienna
Niederle, Bruno

Belgium

Aalst
Van Slycke, Sam
Liege
Defechereux, Thierry

China

Hong Kong
Lo, Chung-Yau
Shanghai City
Fan, Youben

Croatia

Zagreb
Bura, Miljenko

France

Francheville
Peix, Jean-Louis
Lille Cedex
Carnaille, Bruno M.
Marseilles
Henry, Jean-Francois
Sebag, Frederic N.
Poitiers
Kraimps, Jean-Louis
Strasbourg
Mutter, Didier
Vandoeuvre les nancy
Brunaud, Laurent

Germany

Duisburg
Simon, Dietmar
Dusseldorf
Roeher, Hans-Dietrich
Essen
Walz, Martin K.
Halle
Dralle, Henning
Mainz
Musholt, Thomas J.
Rostock
Klar, Ernst
Ulm
Weber, Theresia

Greece

Athens
Kouvaraki, Maria
Linos, Dimitrios A.
Moraitis, Dimitrios G.

India

Lucknow
Agarwal, Gaurav
Mishra, Saroj K.

Israel

Hadera
Krausz, Michael M.
Hertzlia
Schachter, Pinhas P.
Jerusalem
Mazeh, Haggi

Italy

Genoa
Minuto, Michele N.
Padova
Iacobone, Maurizio
Padua
Favia, Gennaro
Pisa
Miccoli, Paolo
Roma
Bellantone, Rocco D.A.
Lombardi, Celestino P.
Raffaelli, Marco

Japan

Shibuya-ku
Takami, Hiroshi E.
Fukushimaku
Imamura, Masayuki
Kobe
Miyauchi, Akira
Nagoya
Imai, Tsuneo
Oita
Noguchi, Shiro
Tokyo
Iihara, Masatoshi
Obara, Takao

Netherlands

Utrecht
Vriens, Menno R.

Norway

Bergen
Brauckhoff, Michael

Poland

Krakow
Barczynski, Marcin

Russian Federation

Saint Petersburg
Romanchishen, Anatoly F.

Saudi Arabia

Riyadh
Al Sobhi, Saif S.
Serbia
Belgrade
Paunovic, Ivan R.

South Korea

Seoul
Lee, Kyu Eun
Youn, Yeo-Kyu

Spain

Barcelona
Moreno Llorente, Pablo
Madrid
Duran Poveda, Manuel
Sevilla
Sanchez-Blanco, J.M.

Sweden

Linkoping
Gimm, Oliver
Stockholm
Hamberger, Bertil
Uppsala
Akerstrom, Göran
Skogseid, Britt M.

Taiwan

Taipei
Hsin Tu, Shig
Lee, Chen-Hsen

Turkey

Istanbul
Duren, Mete
Tezelman, Serdar T.

Ukraine

Kiev
Kvachenyuk, Andrey N.

United Kingdom

London
Frilling, Andrea
Oxfordshire
Dudley, Nicholas E.

2013 MEMBER CONTACT INFORMATION

IMPORTANT!

Please indicate any changes and be sure to include your current email address

Name: _____

Mailing Address: _____

_____

_____

_____

Institution: _____

Birthdate: _____

Spouse: _____

Phone: _____

Fax: _____

Email: _____

SUBMIT TO *REGISTRATION DESK

or to AAES Headquarters via
Email: **information@endocrinesurgery.org**

OR

Telephone: **913-402-7102**
Fax: **913-273-9940**

IN MEMORIAM

John C. McDonald
Shreveport, LA

Lawrence W. O'Neal
St. Louis, MO

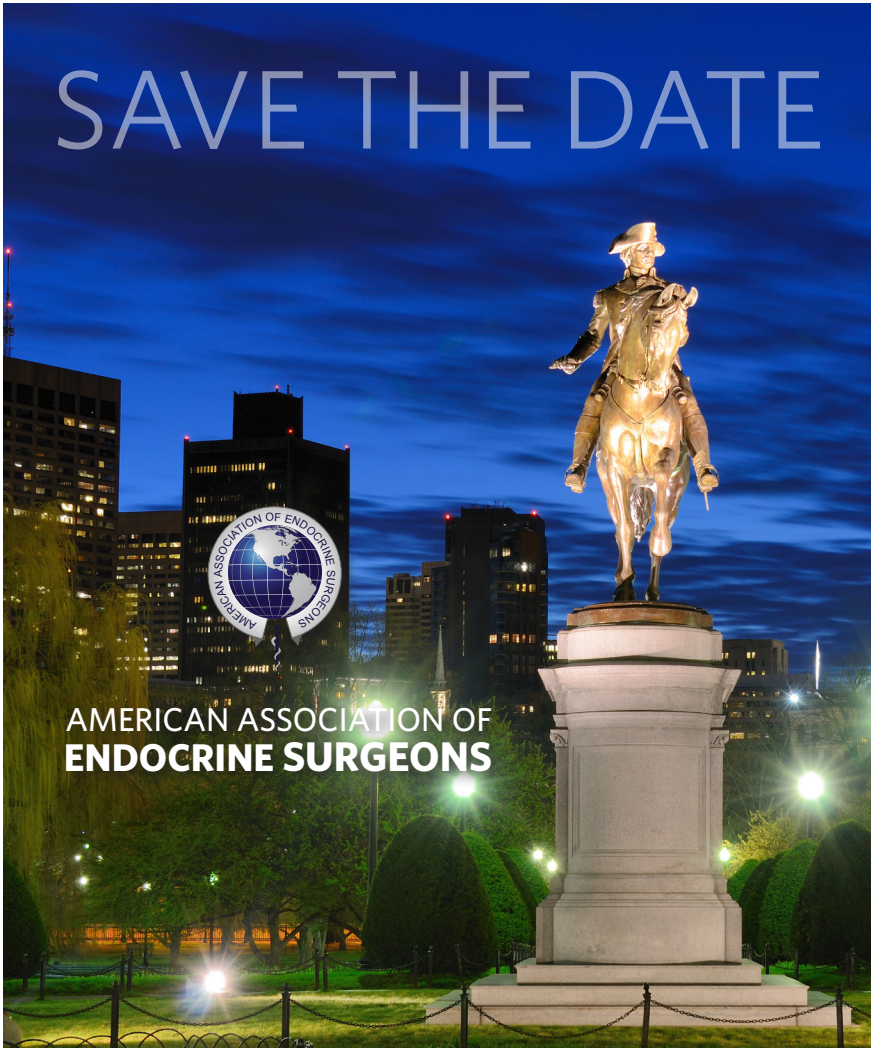
Please contact us regarding any additional updates.

American Association of Endocrine Surgeons
5019 W. 147th Street
Leawood, KS 66224

Telephone: 913-402-7102
Fax: 913-273-9940
Email: information@endocrinesurgery.org

NOTES

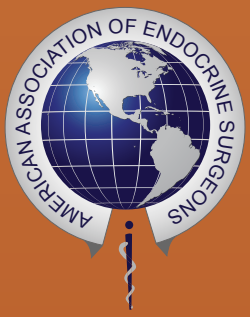
NOTES



2014 Annual Meeting

April 27-29, 2014 | Boston, Massachusetts

Boston Park Plaza



THE AMERICAN ASSOCIATION OF

ENDOCRINE SURGEONS

5019 W. 147th Street
Leawood, KS 66224

Telephone: 913.402.7102 | Fax: 913.273.9940
Email: information@endocrinesurgery.org
www.endocrinesurgery.org