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ENDOCRINE SURGEONS

Thirty-Seventh Annual Meeting

APRIL 10-12, 2016

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ENDOCRINE SURGEONS

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(Held in conjunction with ENDO 2017)
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2018

Raleigh/Durham, North Carolina
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2019

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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.

OLIVER COPE MERITORIOUS ACHIEVEMENT AWARD FOR THE AAES CONTINUED

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

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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"

1992

Rodney Pommier – New York, New York
"Eleven Year Experience with Adrenocortical Carcinoma"

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"

RESIDENT/FELLOW RESEARCH AWARD WINNERS & POSTER COMPETITION WINNERS CONTINUED

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"

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"

RESIDENT/FELLOW RESEARCH AWARD WINNERS & POSTER COMPETITION WINNERS CONTINUED

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"

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"

RESIDENT/FELLOW RESEARCH AWARD WINNERS & POSTER COMPETITION WINNERS CONTINUED

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"

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"

RESIDENT/FELLOW RESEARCH AWARD WINNERS & POSTER COMPETITION WINNERS CONTINUED

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"

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?"

RESIDENT/FELLOW RESEARCH AWARD WINNERS & POSTER COMPETITION WINNERS CONTINUED

2013

Kai-Pun Wong – Hong Kong
"A Prospective Evaluation of Surgeon-Performed Transcutaneous Laryngeal Ultrasonography in Assessing Vocal Cord Function Before and After Thyroidectomy"

Scott K. Sherman – Iowa City, Iowa
"Gastric Inhibitory Polypeptide Receptor: A Future Alternative to Somatostatin Type 2 Receptor Imaging and Treatment in Neuroendocrine Tumors?"

POSTER: Sara Murray – Madison, Wisconsin
"Timing of Symptom Improvement After Parathyroidectomy"

2014

Heather Wachtel – Philadelphia, Pennsylvania
"Long-term Blood Pressure Control in Patients Undergoing Adrenalectomy for Primary Hyperaldosteronism"

Jessica Maxwell – Iowa City, Iowa
"A Practical Method to Determine the Site of Unknown Primary in Metastatic Neuroendocrine Tumors"

POSTER: Ben James – Chicago, Illinois
"A Novel Ultra-Rapid PTH Assay to Distinguish Parathyroid from Non-Parathyroid Tissue"

2015

BEST CLINICAL TALK: Diana I. Ortiz, MD – Medical College of Wisconsin
"Cosyntropin Stimulation Testing On Postoperative Day 1 Allows for Selective Glucocorticoid Replacement Therapy in Patients Undergoing Adrenalectomy for Hypercortisolism: Results of a Novel, Multidisciplinary-Derived Institutional Protocolb"

BEST BASIC/TRANSLATIONAL TALK: Melanie A. McWade, MS – Vanderbilt University
"Fluorescence Detection of the Parathyroid Gland: Realizing the Potential for Intraoperative Guidance"

POSTER: Idit Dotan, MD – McGill University Health Center
"Bio-Conjugated Nanotechnology to Target Papillary Thyroid Cancer in Vitro"

POSTER: Uma Rajhbeharrysingh, MD – Oregon Health and Science University
"Ionized Calcium And The Utility Of Maxpth To Evaluate Gastric Bypass Patients and Others With Non-Renal Secondary Hyperparathyroidism"

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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 2014-2015:

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1982 **Houston, Texas**
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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

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

PAST MEETINGS CONTINUED

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 Chairs: Jay K. Harness & 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**
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2014 **Boston, Massachusetts**
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2015 **Nashville, Tennessee**
Local Arrangements Chair: Carmen Solorzano

SPECIAL SESSIONS

ALLIED HEALTH SESSION: UPDATE ON THYROID CANCER – MANAGEMENT, SURVEILLANCE AND FOLLOW UP

SUNDAY, APRIL 10, 2016 ■ 9:00 AM – 10:30 AM

Grand Ballroom VI-X

The Allied Health Session focuses on thyroid cancer management, surveillance, and follow up. Four advanced practice providers will discuss best practice strategies for evaluation of patients with thyroid nodules and recurrent thyroid cancer, including the use of ultrasound, biopsy, and molecular markers. We will review which thyroid cancers warrant observation, conservative, or aggressive treatment. We will also identify strategies to effectively communicate confusing or controversial information to patients to support informed patient decision-making regarding treatment options.

TARGET: Nurses, Nurse Practitioners and Physician Assistants

AAES Outcomes Program (AAESOP) Lunch Symposium

SUNDAY, APRIL 10, 2016 ■ 10:30 AM – 12:00 PM

Grand Ballroom VI-X

ADDITIONAL FEE FOR LUNCH

The session will involve a status update of the AAESOP and the research in progress including a review of the past year's talks and what is coming in the next year. Also in the session there will be a discussion on how to build your methodology toolkit. This discussion will include information on health services research software and which one is right for you, the do's and don't's of creating a registry, and a focus on patient-centered outcomes assessment and development of quality of life instruments. Finally, there will also be a special invited speaker from JHMI public health school on the importance of outcomes research.

Fostering Multidisciplinary Relationships Lunch Symposium

MONDAY, APRIL 11, 2016 ■ 12:30 PM – 2:00 PM

Grand Ballroom VI-X

ADDITIONAL FEE FOR LUNCH

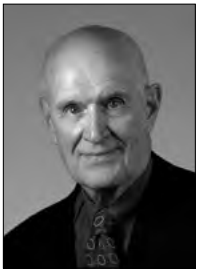
The session will focus on the benefits and challenges in developing a multidisciplinary approach in the evaluation and treatment of endocrine surgery patients. The speakers plan to address these issues from the perspective of the physician and clinical providers, patient, and institution.

HISTORICAL LECTURER

"The Diagnosis and Treatment of Thyroid Cancer: A Historical Perspective"

Samuel A. Wells, Jr., MD
National Cancer Institute

SUNDAY, APRIL 10, 2016 ■ 1:50 PM – 2:35 PM
Grand Ballroom VI-X



Dr. Wells graduated from the Emory University School of Medicine and subsequently completed a residency in general surgery at the Duke University School of Medicine. He spent six years in basic laboratory investigation at the Surgery Branch of the National Cancer Institute (NCI), initially as a Clinical Associate and later as a Senior Investigator, and also in the Institute of Tumor Biology of the Karolinska Institute in Stockholm, Sweden, as a Guest Investigator. From 1981 to 1998 he served as the Chair of the Department of Surgery at the Washington University School of Medicine. He was the principal investigator and founder of the NCI funded American College of Surgeons Oncology Group and served as its first Chair from 1997 until 2005. He was also the founding Executive Director of the International Thyroid Oncology Group. His major interest is endocrine oncology, primarily the basic and clinical investigation of medullary thyroid cancer and the type 2 multiple endocrine neoplasia (MEN) syndromes.

In 1993 and 1994 his group reported the discovery of the RET oncogene and its role in the initiation of MEN2A and MEN2B. This led to the practice of prophylactic thyroidectomy in children from MEN2 families who had inherited a mutated RET allele. More recently his group, in a phase III prospective, randomized, placebo controlled trial, demonstrated the efficacy of the tyrosine kinase inhibitor, vandetanib, in the treatment of patients with advanced medullary thyroid carcinoma. Vandetanib is the first molecular targeted therapeutic approved by the FDA for the treatment of a thyroid malignancy. Dr. Wells is currently an Adjunct Investigator in the Genetics Branch of the NCI.

HISTORICAL LECTURERS AT RECENT MEETINGS

2009 **Edwin L. Kaplan, MD**
University of Chicago
Radiation 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

2013 **Orlo H. Clark, MD**
University of California, San Francisco
Recognition of Endocrine Glands and Abnormalities by Artists and Surgeons

2014 **Patricia J. Numann, MD**
SUNY Upstate Medical University
Ode to an Indian Rhinoceros

2015 **Robert Beazley, MD**
Boston University School of Medicine
The Glands of Owen...Who Was Owen?

PRESIDENT'S INVITED LECTURER

"The Curative Potential of T-cell Transfer Immunotherapy for Patients with Metastatic Cancer"

Steven A. Rosenberg, MD, PhD
National Cancer Institute and George Washington University

MONDAY, APRIL 11, 2016 ■ 9:15 AM – 10:00 AM

Grand Ballroom VI-X

Dr. Rosenberg is Chief of Surgery at the National Cancer Institute in Bethesda, Maryland and a Professor of Surgery at the Uniformed Services University of Health Sciences and at the George Washington University School of Medicine and Health Sciences in Washington, D.C. Dr. Rosenberg received his B.A. and M.D. degrees at The Johns Hopkins University in Baltimore, Maryland and a Ph.D. in Biophysics at Harvard University. After completing his residency training in surgery in 1974 at the Peter Bent Brigham Hospital in Boston, Massachusetts, Dr. Rosenberg became the Chief of Surgery at the National Cancer Institute, a position he has held to the present time.

Dr. Rosenberg has pioneered the development of immunotherapy that has resulted in the first effective immunotherapies for selected patients with advanced cancer. His studies of cell transfer immunotherapy have resulted in durable complete remissions in patients with metastatic melanoma. He has pioneered the development of gene therapy and was the first to successfully insert foreign genes into humans. His studies of the adoptive transfer of genetically modified lymphocytes resulted in the regression of metastatic cancer in patients with melanoma, sarcomas and lymphomas.

Dr. Rosenberg has been the recipient of numerous awards. He received the Meritorious Service Medal for the U.S. Public Health Service in 1981 and again in 1986, the Friedrich Sasse Prize from the University of West Berlin, Germany in 1986, the Nils Alwell Prize from Stockholm, Sweden in 1987, the Distinguished Alumnus Award from The Johns Hopkins University in 1987, The Griffuel Prize for Research from the French Association for Research on Cancer in 1988 and the Milken Family Foundation Cancer Award in 1988. Dr. Rosenberg twice received the Armand Hammer Cancer Prize "for pioneering work in cancer research" in 1985 and 1988.

PRESIDENT'S INVITED LECTURER CONT.

In 1991, he received the Karnofsky Prize, the highest honor given by the American Society of Clinical Oncology. In 1998, he was awarded the Ellis Island Medal of Honor. He received the John Wayne Award for Clinical Research from the Society of Surgical Oncology in 1996, the Flance-Karl Award, the highest honor accorded by the American Surgical Association in 2002, in 2003 he received the annual prize for scientific excellence in medicine from the American-Italian Cancer Foundation. In 2005 he received the Richard V. Smalley, MD, Memorial Award, the highest honor given by the International Society for Biological Therapy of Cancer. In 2010 he received the Karl Landsteiner Prize from the American Association of Blood Banks.

In 2012 he won the Keio Medical Science Prize and in 2014, the Massry Prize. He received the Medal of Honor from the American Cancer Society in 2015. Dr. Rosenberg is a member of the American Society of Clinical Oncology and served on its Board of Directors. He is also a member of the National Academy of Medicine, the Society of University Surgeons, the American Surgical Association, the American Association for Cancer Research, and the American Association of Immunologists among others. Dr. Rosenberg is the author of over 1100 articles in the scientific literature covering various aspects of cancer research and has authored 8 books. A study published by the Institute for Scientific Information in May, 1999 revealed that Dr. Rosenberg was the most cited clinician in the world in the field of oncology for the 17 years between 1981 to 1998.

PRESIDENT'S 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

PRESIDENT'S INVITED LECTURERS AT RECENT MEETINGS CONTINUED

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

PRESIDENT'S INVITED LECTURERS AT RECENT MEETINGS CONTINUED

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

2013 **Anders O.J. Bergenfelz, MD, PhD**
Lund University Hospital
Quality Control in Clinical Practice and Postgraduate Education in Endocrine Surgery

2014 **Yuri E. Nikiforov, MD, PhD**
University of Pittsburgh School of Medicine
Progress in Genomic Markers for Thyroid Cancer: How Does if Affect Patient Management?

2015 **Gary Hammer, MD, PhD**
University of Michigan
Translating Adrenal Stem Cells: Implications for Adrenal Disease

CONFERENCE INFORMATION

ACCREDITATION

LEARNING OBJECTIVES

This activity 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 completion 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. Understand the role of surgery and the latest therapeutic approaches for patients with adrenocortical carcinoma.

CONTINUING MEDICAL EDUCATION CREDIT INFORMATION

Accreditation

This activity has been planned and implemented in accordance with the Essential Areas and Policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of the American College of Surgeons and the American Association of Endocrine Surgeons. The American College of 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 **17.75** *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Of the *AMA PRA Category 1 Credits™* listed above, a maximum of **8.5** credits meet the requirements for Self-Assessment.

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In compliance with the 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.

CME CERTIFICATES AND EVALUATION FORMS

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Claim your CME credits here: **http://goldstarvoa.com/aaes**

The American Board of Surgery requirement for fulfillment of MOC Part 2 is the completion of a minimum of 90 hours of *AMA PRA Category 1 Credit™* over a three year cycle. At least 60 of the 90 hours must include a self-assessment activity–a written Q&A exercise (paper or online) that assesses the surgeon's understanding of the material presented during the CME program. A score of 75% or higher must be attained on the self-assessment exercise. Multiple attempts are permitted.

SUNDAY, APRIL 10, 2016	**CME**	**SA**
ALLIED HEALTH SESSION	1.50	0.00
LUNCH SYMPOSIUM: AAES Outcomes Program	1.25	0.00
SCIENTIFIC SESSION # 1	1.25	1.25
HISTORICAL LECTURER: The Diagnosis and Treatment of Thyroid Cancer: A Historical Perspective	0.75	0.00
INTERESTING CASES	2.50	0.00
Daily Total	**7.25**	**1.25**
MONDAY, APRIL 11, 2016		
CESQIP UPDATE	0.25	0.00
SCIENTIFIC SESSION # 2	1.00	1.00
PRESIDENT'S INVITED LECTURER: The Curative Potential of T-cell Transfer Immunotherapy for Patients with Metastatic Cancer	0.75	0.00
SCIENTIFIC SESSION # 3	1.00	1.00
PRESIDENTIAL ADDRESS: Of Mice and Men(in) and What I Have Learned from Both	1.00	0.00
LUNCH SYMPOSIUM: Fostering Multidisciplinary Relationships	1.25	0.00
SCIENTIFIC SESSION # 4	1.25	1.25
SCIENTIFIC SESSION # 5	1.00	1.00
Daily Total	**7.50**	**4.25**
TUESDAY, APRIL 12, 2016		
SCIENTIFIC SESSION # 6	1	1
SCIENTIFIC SESSION # 7	1	1
SCIENTIFIC SESSION # 8	1	1
Daily Total	**3**	**3**
Meeting Total	**17.75**	**8.50**

HOTEL INFORMATION

HOTEL INFORMATION

BALTIMORE MARRIOTT WATERFRONT

700 Aliceanna Street, Baltimore, MD 21202
T: 410-385-3000
W: http://www.marriott.com/hotels/travel/bwiwf-baltimore-marriott-waterfront

WEATHER

Temperatures in mid-April range from the mid 50s to the mid 60s. A more accurate weather forecast can be found closer to the date of the meeting at www.weather.com.

AIRPORT INFORMATION

The Baltimore Marriott Waterfront is located just 12 miles away from Baltimore/ Washington International Thurgood Marshall Airport (BWI) – www.bwiairport.com/en.

TRANSPORTATION FROM THE AIRPORT

Taxi Service: A one way taxi ride from the airport to the Baltimore Marriott hotel will cost approximately $45.

Lite Rail: The light rail train service is available to and from BWI airport. The closest station to the Baltimore Marriott Waterfront is Pratt St./Convention Center. Check rates and schedules here: http://mta.maryland.gov/light-rail.

CONTACTS

JOHN A. OLSON, JR., MD, PHD, Local Arrangements Chair
E: jolson@smail.umaryland.edu

AMERICAN ASSOCIATION OF ENDOCRINE SURGEONS

11300 W. Olympic Blvd., Suite 600, Los Angeles, CA 90064
T: 310-986-6452 ■ F: 310-437-0585 ■ E: meetings@endocrinesurgery.org
W: www.endocrinesurgery.org

AGENDA

AGENDA

FRIDAY, APRIL 8, 2016

6:30 am – 5:45 pm *Laurel Foyer*

Endocrine Surgery University Registration

7:00 am – 5:45 pm *Laurel A-C & D*

Endocrine Surgery University

An educational activity for Endocrine Surgery Fellows

COURSE DIRECTOR

Mira M. Milas, MD

Banner – *University Medical Center Phoenix*

COURSE FACULTY/PANELISTS

- Thomas Fahey, MD – *New York-Presbyterian/Weill Cornell*
- James Lee, MD – *Columbia University*
- Steven Libutti, MD – *Montefiore Medical Center*
- John A. Olson Jr., MD, PhD – *University of Maryland*
- Richard Prinz, MD – *Northshore University Health System*
- Rebecca Sippel, MD – *University of Wisconsin*
- Tracy Wang, MD, MPH – *Medical College of Wisconsin*
- Stuart Wilson, MD – *Medical College of Wisconsin*

6:30 pm – 8:30 pm *Laurel A-C*

ESU Dinner

Invitation Only

SATURDAY, APRIL 9, 2016

6:30 am – 12:00 pm *Laurel Foyer*
Endocrine Surgery University Registration

7:00 am – 12:00 pm *Laurel A-C & D*
Endocrine Surgery University
CONTINUED

1:00 pm – 6:00 pm *Elkridge Country Club*
AAES Anuual Golf Tournament

2:00 pm – 6:00 pm *Elkridge Country Club*
AAES Annual Tennis Tournament

2:00 pm – 6:00 pm *Laurel A-C*
AAES Executive Council Meeting

3:00 pm – 7:00 pm *Grand Ballroom Foyer*
Registration Open

6:30 pm – 8:30 pm *Pazo Restaurant*
Executive Council Dinner

8:30 pm – 10:30 pm *Pazo Restaurant*
Young Surgeons' Social Hour

SUNDAY, APRIL 10, 2016

7:30 am – 6:00 pm *Grand Ballroom Foyer*
Registration Open

8:00 am – 9:00 am *Atlantic*
Fellowship Accreditation Committee Meeting

8:00 am – 9:00 am *Bristol*
CESQIP Committee Meeting

8:00 am – 9:00 am *Chasseur*
CBS Committee Meeting

9:00 am – 10:30 am *Grand Ballroom I-V*
Poster Walk Around and Poster Judging

9:00 am – 10:30 am *Grand Ballroom VI-X*
ALLIED HEALTH SESSION: Update on Thyroid Cancer – Management, Surveillance and Follow Up
MODERATOR: James T. Broome, MD – *Saint Thomas Medical Partners - Endocrine Surgery Nashville*
SPEAKERS: Todd Chenell, NP – *Strong Memorial Hospital,* Beth Krzywda, NP – *Medical College of Wisconsin,* Michael Lopez, NP – *Johns Hopkins Hospital*, & Rita Mayle, RN – *University of Michigan*

10:30 am – 12:00 pm
Lunch on Own

OR

10:30 am – 12:00 pm *Grand Ballroom VI-X*
AAES Outcomes Program (AAESOP) Lunch Symposium
Additional Fee for Lunch
SPEAKERS: David C. Chang, PhD, MPH MBA – *Harvard Medical School*, Elizabeth G. Grubbs, MD, MPH – *MD Anderson Cancer Center*, Carrie C. Lubitz, MD – *Massachusetts General Hospital*, & Janice L. Pasieka, MD – *University of Calgary*

12:00 pm – 12:30 pm *Grand Ballroom VI-X*
AAES Opening Session

12:30 pm – 1:50 pm *Grand Ballroom VI-X*

SCIENTIFIC SESSION I: Parathyroid – Papers 1-6

MODERATORS: James Lee, MD – *Columbia University Medical Center* & Carrie C. Lubitz, MD – *Massachusetts General Hospital*

1:50 pm – 2:35 pm *Grand Ballroom VI-X*

HISTORICAL LECTURER: "The Diagnosis and Treatment of Thyroid Cancer: A Historical Perspective"

SPEAKER: Samuel A. Wells, Jr., MD – *National Cancer Institute*

2:35 pm – 3:00 pm *Grand Ballroom I-V*

Break, Exhibits, & Poster Viewing

3:00 pm – 5:30 pm *Grand Ballroom VI-X*

Interesting Cases

MODERATOR: Douglas L. Fraker, MD – *University of Pennsylvania Medical Center*

7:00 pm – 9:00 pm *National Aquarium*

AAES President's Reception

MONDAY, APRIL 11, 2016

7:00 am – 6:00 pm *Grand Ballroom Foyer*
Registration Open

7:00 am – 8:00 am *Grand Ballroom Foyer*
Continental Breakfast

7:00 am – 8:00 am *Dover A-B*
New Member Breakfast
Invitation Only

7:00 am – 8:00 am *Atlantic*
IT & Website Committee Meeting

7:00 am – 8:00 am *Bristol*
Education & Research Committee Meeting

8:00 am – 8:10 am *Grand Ballroom VI-X*
CESQIP Update
SPEAKER: William B. Inabnet III, MD – *Icahn School of Medicine at Mount Sinai*

8:10 am – 9:15 am *Grand Ballroom VI-X*
SCIENTIFIC SESSION II: Adrenal – Papers 7-10
MODERATORS: Mark S. Cohen, MD – *University of Michigan* & Brian D. Saunders, MD – *Penn State College of Medicine*

9:15 am – 10:00 am *Grand Ballroom VI-X*
PRESIDENT'S INVITED LECTURER: "The Curative Potential of T-cell Transfer Immunotherapy for Patients with Metastatic Cancer"
SPEAKER: Steven A. Rosenberg, MD, PhD – *National Cancer Institute and George Washington University*

10:00 am – 10:25 am *Grand Ballroom I-V*
Break, Exhibits, & Poster Viewing

10:00 am – 4:00 pm *Chasseur*
Norman W. Thompson Memorial Video Taping
You are invited to stop by to pay your respects and record a personalized memorial for Dr. Thompson.

10:25 am – 11:30 am *Grand Ballroom VI-X*
SCIENTIFIC SESSION III: Thyroid – Papers 11-14
MODERATORS: Brian Lang, MBBS, MD, FRACS – *University of Hong Kong* & Tricia Moo-Young, MD – *NorthShore University HealthSystems*

11:30 am – 12:30 pm *Grand Ballroom VI-X*
PRESIDENTIAL ADDRESS: "Of Mice and Men(in) and What I Have Learned from Both"
SPEAKER: Steven K. Libutti, MD – *Montefiore Medical Center*

12:30 pm – 2:00 pm
Lunch on Own

OR

12:30 pm – 2:00 pm *Grand Ballroom VI-X*
Fostering Multidisciplinary Relationships Lunch Symposium
Additional Fee for Lunch
MODERATORS: Amelia C. Grover, MD – *Virginia Commonwealth University* & Kaare J. Weber, MD – *White Plains Hospital*
SPEAKERS: Shaghayegh Aliabadi-Wahle, MD – T*he Oregon Clinic*, Gerard M. Doherty, MD – *Boston Medical Center*, Michael Lopez, NP – *Johns Hopkins Hospital*, & Alexander L. Shifrin, MD – *Jersey Shore University Medical Center*

2:00 pm – 3:15 pm *Grand Ballroom VI-X*
SCIENTIFIC SESSION IV: Thyroid – Papers 15-19
MODERATORS: Naris Nilubol, MD – *National Cancer Institute/National Institutes of Health* & Menno R. Vriens, MD, PhD – *University Medical Center Utrecht*

3:15 pm – 3:45 pm *Grand Ballroom I-V*
Break, Exhibits, & Poster Viewing

3:45 pm – 4:50 pm *Grand Ballroom VI-X*
SCIENTIFIC SESSION V: Adrenal/NET – Papers 20-23
MODERATORS: Peter Angelos, MD, PhD – *University of Chicago* & Jennifer Rosen, MD – *Washington Hospital Center*

4:50 pm – 5:50 pm *Dover A-C*
AAES Business Meeting
Active Members Only

6:30 pm – 7:30 pm *Grand Ballroom Foyer*
Gala Reception

7:30 pm – 10:30 pm *Grand Ballroom VI-X*
Banquet Dinner

TUESDAY, APRIL 12, 2016

6:30 am – 7:15 am *Bristol*
AAES Foundation Board Meeting

7:00 am – 12:05 pm *Grand Ballroom Foyer*
Registration Open

7:00 am – 8:00 am *Grand Ballroom Foyer*
Continental Breakfast

7:00 am – 8:00 am *Atlantic*
Fellowship Committee Meeting

8:00 am – 9:05 am *Grand Ballroom VI-X*
SCIENTIFIC SESSION VI: Thyroid/Education – Papers 24-27
MODERATORS: Philip I. Haigh, MD – *Kaiser Permanente Los Angeles Medical Center* & James Suliburk, MD – *Baylor College of Medicine*

9:05 am – 9:30 am *Grand Ballroom I-V*
Break, Exhibits, & Poster Viewing

9:30 am – 10:35 am *Grand Ballroom VI-X*
SCIENTIFIC SESSION VII: Thyroid – Papers 28-31
MODERATORS: David McAneny, MD – *Boston Medical Center* & Jennifer B. Ogilvie, MD –*New York University*

10:35 am – 11:00 am *Grand Ballroom I-V*
Break, Exhibits, & Poster Viewing

11:00 am – 12:05 pm *Grand Ballroom VI-X*
SCIENTIFIC SESSION VIII: Parathyroid – Papers 32-35
MODERATORS: David F. Schneider, MD, MS – *University of Wisconsin* & Samuel K. Snyder, MD – *Baylor Scott & White Clinic/Texas A&M U. Med. School*

12:05 pm
Meeting Adjourn

SCIENTIFIC PROGRAM

★ Denotes Resident/Fellow Research Award Competition Paper

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

SUNDAY, APRIL 10, 2016

9:00 am – 10:30 am *Grand Ballroom I-V*
Poster Walk Around & Poster Judging

9:00 am – 10:30 am *Grand Ballroom VI-X*
Allied Health Session: Update on Thyroid Cancer – Management, Surveillance and Follow Up
MODERATOR: James T. Broome, MD – *Saint Thomas Medical Partners - Endocrine Surgery Nashville*

- **Less Common, but More Difficult Thyroid Cancers** (Hurthle Cell and Medullary Thyroid Cancers)
  Rita Mayle, RN – *University of Michigan*
- **Preoperative Decisions for Thyroid Cancer** (Thyroid Ultrasound, Fine Needle Aspiration Biopsy - ATA Guidelines/Bethesda Classifications and Primary Surgical Options)
  Todd Chenell, NP – *Strong Memorial Hospital*
- **Postoperative Decisions - Management, Surveillance and Follow Up of Thyroid Cancer** (ATA and AACE Guidelines, Remnant Ablation and Therapy - I-131 Dosimetric versus Empiric Therapy, New Paradigms and Problems-Imaging Studies, Monitoring of Thyroglobulin (Tg) and Antibody Levels and Imaging)
  Beth Krzywda, NP – *Medical College of Wisconsin*
- **Persistent and Recurrent Thyroid Cancer: Evaluation and Clinical Decisions** (Observation versus Resection – Evolving Role of Tyrosine Kinase Therapy, Clinical Trials)
  Michael Lopez, NP – *Johns Hopkins Hospital*

10:30 am – 12:00 pm
Lunch on Own

OR

10:30 am – 12:00 pm *Grand Ballroom VI-X*

AAES Outcomes Program (AAESOP) Lunch Symposium

Additional Fee for Lunch

Introduction and Updates on AAESOP

Building Your Methodology Toolkit

- Health Services Research Software: Which One is Right for Me?
  Carrie C. Lubitz, MD – *Massachusetts General Hospital*
- Creating a Registry: Do's and Don't's
  Elizabeth G. Grubbs, MD, MPH – *MD Anderson Cancer Center*
- Patient-Centered Outcomes Assessment: Development of Quality of Life Instruments
  Janice L. Pasieka, MD – *University of Calgary*

James Bond vs Edward Snowden: Why Do Outcomes Research?

David C. Chang, PhD, MPH, MBA – *Associate Professor of Surgery, Harvard Medical School, Director of Healthcare Research and Policy Development*

12:00 pm – 12:30 pm *Grand Ballroom VI-X*

AAES Opening Session

Welcome & Memoriam – *Steven K. Libutti, MD*

Welcome to Baltimore – *John A. Olson, Jr., MD, PhD*

Introduction of New Members

Introduction to 2015 Paul LoGerfo Award Presentations – *Kepal Patel, MD*

2015 Paul LoGerfo Clinical Research Award Presentation – *Insoo Suh, MD*

2015 Paul LoGerfo Basic Science Research Award Presentation – *Brian Untch, MD*

Announcement of 2016 Paul LoGerfo Award Winner – *Kepal Patel, MD*

12:30 pm – 1:50 pm *Grand Ballroom VI-X*

SCIENTIFIC SESSION I: Parathyroid – Papers 1-6

MODERATORS: James Lee, MD – *Columbia University Medical Center* & Carrie C. Lubitz, MD – *Massachusetts General Hospital*

12:30 pm – 12:43 pm

★ **01:** SURGERY FOR ASYMPTOMATIC PRIMARY HYPERPARATHYROIDISM: A REVISED COST EFFECTIVENESS ANALYSIS INCORPORATING FRACTURE RISK REDUCTION
Kyle A Zanocco, MD, MS, James X Wu, MD, Michael W Yeh, MD – *UCLA*

12:43 pm – 12:56 pm

★ **02:** CURATIVE PARATHYROIDECTOMY FOR PRIMARY HYPERPARATHYROIDISM IMPROVES SLEEP QUALITY: A PROSPECTIVE STUDY

Justin La, BS, Tracy S Wang, MD, MPH, Abdulrahman Y Hammad, MD, Laura A Burgardt, BS, Kara M Doffek, BS, Azadeh A Carr, MD, Joseph L Shaker, MD, Ty B Carroll, MD, Douglas B Evans, MD, Tina W Yen, MD, MS – *Medical College of Wisconsin*

12:56 pm – 1:09 pm

★ **03:** THE INFLUENCE OF A NEGATIVE SESTAMIBI SCAN ON THE DECISION FOR PARATHYROID SURGERY BY THE ENDOCRINOLOGIST, THE SURGEON, AND THE PATIENT

Susana Wu, MD[1], Stephanie S Hwang, MD[2], Philip I Haigh, MD[1] – *[1]Kaiser Permanente Los Angeles Medical Center, [2]Scripps Clinic*

1:09 pm – 1:22 pm

★ **04:** DIFFERENCES IN SINGLE GLAND AND MULTIGLAND DISEASE ARE SEEN IN LOW BIOCHEMICAL PROFILE PRIMARY HYPERPARATHYROIDISM

James Y Lim, MD, Max C Herman, Lev Bubis, MD, Irene Epelboym, MD, John D Allendorf, MD, John A Chabot, MD, James A Lee, MD, Jennifer H Kuo, MD – *Columbia University*

1:22 pm – 1:35 pm

★ **05:** HOW LONG SHOULD WE FOLLOW PATIENTS AFTER "CURATIVE" PARATHYROIDECTOMY?

Irene Lou, MD[1], Courtney Balentine, MD, MPH[1], Samuel Clarkson, BA[1], David F Schneider, MD, MPH[1], Rebecca Sippel, MD[1], Herbert Chen, MD[2] – *[1]University of Wisconsin, [2]University of Alabama- Birmingham*

1:35 pm – 1:48 pm

06: PARATHYROIDECTOMY PRIOR TO KIDNEY TRANSPLANT REDUCES GRAFT FAILURE

Jennifer Malinowski, Ricarda Tomlin, J.d. Smith, Sanjay Kulkarni, **Glenda G Callender** – *Yale University*

1:50 pm – 2:35 pm *Grand Ballroom VI-X*

HISTORICAL LECTURER: "The Diagnosis and Treatment of Thyroid Cancer: A Historical Perspective"

SPEAKER: Samuel A. Wells, Jr., MD – *National Cancer Institute*

2:35 pm – 3:00 pm *Grand Ballroom I-V*

Break, Exhibits, & Poster Viewing

3:00 pm – 5:30 pm *Grand Ballroom VI-X*

Interesting Cases

MODERATOR: Douglas L. Fraker, MD – *University of Pennsylvania Medical Center*

MONDAY, APRIL 11, 2016

8:00 am – 8:10 am *Grand Ballroom VI-X*

CESQIP Update

SPEAKER: William B. Inabnet III, MD – *Icahn School of Medicine at Mount Sinai*

8:10 am – 9:15 am *Grand Ballroom VI-X*

SCIENTIFIC SESSION II: Adrenal – Papers 7-10

MODERATORS: Mark S. Cohen, MD – *University of Michigan* & Brian D. Saunders, MD – *Penn State College of Medicine*

8:10 am – 8:25 am

★ **07:** EXTENT OF ELEVATION OF SERUM ALDOSTERONE IN PATIENTS WITH PRIMARY ALDOSTERONISM: CAN WE FORGO ADRENAL VENOUS SAMPLING?

Kathryn E Coan, MD[1], Colleen M Kiernan, MD[2], Carmen C Solorzano, MD[2], Tina W F Yen1, James W Findling[1], Srividya Kidambi[1], Azadeh A Carr[1], Douglas B Evans[1], Tracy S Wang[1] – *[1]Medical College of Wisconsin, [2]Vanderbilt University Medical Center*

8:26 am – 8:41 am

★ **08:** SDHB MUTATION STATUS AND TUMOR SIZE, BUT NOT TUMOR GRADE, ARE IMPORTANT PREDICTORS OF OUTCOME IN PHEOCHROMOCYTOMA AND ABDOMINAL PARAGANGLIOMA.

Yasmine Assadipour, MD[1], Samira M Sadowski, MD[2], Meghna Alimchandani, MD[2], Martha Quezado[2], Seth M Steinberg, PhD[2], Naris Nilubol, MD[2], Tamara Prodanov[2], Karel Pacak, MD[2], Electron Kebebew, MD[2] – *[1]National Cancer Institute, National Institutes of Health / Department of Surgery, The George Washington University Hospital, [2]National Cancer Institute, National Institutes of Health*

8:42 am – 8:57 am

★ **09:** ADRENOCORTICAL CARCINOMA WITH INFERIOR VENA CAVA TUMOR THROMBUS

Danuel V Laan, MD, Cornelius A Thiels, DO, Geoffrey B Thompson, MD, Melanie L Richards, MD, David R Farley, MD, Mark J Truty, MD, Travis J McKenzie, MD – *Mayo Clinic, Rochester MN*

8:58 am – 9:13 am

10: SURGICAL TREATMENT OF RECCURRENT ADRENOCORTICAL CARCINOMA IMPROVES OVERALL SURVIVAL

Guénolé Simon[1], François Pattou, MD, PhD[2], Eric Mirallié, MD[1], Jean-Christophe Lifante, MD, PhD[3], Claire Nominé, MD[4], Vincent Arnault, MD[5], Loic De Calan, MD[5], Cécile Caillard, MD[1], Laurent Brunaud, MD, PhD[4], Nathalie Laplace, MD[3], Robert Caiazzo, MD, PhD[2], **Claire Blanchard, MD**[1] – *[1]Clinique de Chirurgie Digestive et Endocrinienne, CHU Nantes, France, [2]Chirurgie Générale et Endocrinienne, CHU Lille, France, [3]Service de Chirurgie Endocrinienne et Générale, CHU Lyon, France, [4]Service de Chirurgie Digestive, Hépatobiliaire, Pancréatique, Endocrinienne et Cancérologique, CHU Nancy, France, [5]Service de Chirurgie Digestive Endocrinienne et Bariatrique, et Transplantation Hépatique, CHU Tours, France*

9:15 am – 10:00 am *Grand Ballroom VI-X*

PRESIDENT'S INVITED LECTURER: "The Curative Potential of T-cell Transfer Immunotherapy for Patients with Metastatic Cancer"

SPEAKER: Steven A. Rosenberg, MD, PhD – *National Cancer Institute and George Washington University*

10:00 am – 10:25 am *Grand Ballroom I-V*

Break, Exhibits, & Poster Viewing

10:25 am – 11:30 am *Grand Ballroom VI-X*

SCIENTIFIC SESSION III: Thyroid – Papers 11-14

MODERATORS: Brian Lang, MBBS, MD, FRACS – *University of Hong Kong* & Tricia Moo-Young, MD – *NorthShore University HealthSystems*

10:25 am – 10:40 am

★ **11:** THE IMPACT OF INCREASED EXTENT OF SURGERY ON SURVIVAL IN PATIENTS WITH MEDULLARY THYROID CANCER

Reese W Randle, MD, Courtney J Balentine, MD, MPH, Rebecca S Sippel, MD, David F Schneider, MD, MS, Susan C Pitt, MD, MPHS – *University of Wisconsin- Madison*

10:41 am – 10:56 am

★ **12:** COST-EFFECTIVENESS OF ACTIVE SURVEILLANCE VERSUS HEMITHYROIDECTOMY FOR MICROPAPILLARY THYROID CANCER

Shriya Venkatesh, BS[1], Jesse D Pasternak, MD[2], Toni Beninato, MD[1], Frederick T Drake, MD[1], Wouter P Kluijfhout, MSc[1], Chienying Liu, MD[3], Jessica E Gosnell, MD[1], Wen T Shen, MD[1], James G Kahn[4], Orlo H Clark, MD[1], Quan-Yang Duh, MD[1], Insoo Suh, MD[1] – *[1]Endocrine Surgery Section, Department of Surgery, University of California, San Francisco, CA, [2]Department of Surgery, University Health Network, Toronto, ON, [3]Division of Endocrinology, Department of Medicine, University of California, San Francisco, CA, [4]Philip R. Lee Institute for Health Policy Studies, Department of Epidemiology and Biostatistics, University of California, San Francisco, CA*

10:57 am – 11:12 am

★ **13:** ANALYSIS OF FEATURES IN THYROID NODULES WITH RAS MUTATIONS THAT MAY GUIDE EXTENT OF THYROIDECTOMY

Snehal G Patel, MD, Sally E Carty, MD, Kelly L McCoy, MD, N. Paul Ohori, MD, Yuri E Nikiforov, MD, PhD, Linwah Yip, MD – *UPMC*

11:13 am – 11:28 am

★ **14:** COMPUTERIZED CYTOMETRY AND WAVELET ANALYSIS OF FOLLICULAR LESIONS FOR DETECTING MALIGNANCY - A COMPARATIVE STUDY IN THYROID CYTOLOGY

Hayim Gilshtein, MD, Michal Mekel, Leonid Malkin, MD, Ofer Ben-Izhak, MD, Edmond Sabo – *Rambam Health Care Campus*

11:30 am – 12:30 pm *Grand Ballroom VI-X*

PRESIDENTIAL ADDRESS: "Of Mice and Men(in) and What I Have Learned from Both"
SPEAKER: Steven K. Libutti, MD – *Montefiore Medical Center*

12:30 pm – 2:00 pm *Grand Ballroom VI-X*

Fostering Multidisciplinary Relationships Lunch Symposium
Additional Fee for Lunch
MODERATORS: Amelia C. Grover, MD – *Virginia Commonwealth University* & Kaare J. Weber, MD – *White Plains Hospital*

- **Benefits to the Patient and Physician in a Multidisciplinary Model**
  Alexander L. Shifrin, MD – *Jersey Shore University Medical Center*
- **Challenges to Patient and Physician in a Multidisciplinary Model**
  Shaghayegh Aliabadi-Wahle, MD – *The Oregon Clinic*
- **The Multidisciplinary Model's Benefits to the Institution**
  Gerard M. Doherty, MD – *Boston Medical Center*
- **Role of Nurse Practitioners and Other Advanced Practice Professional in an Endocrine Multidisciplinary Care Model**
  Michael Lopez, NP – *Johns Hopkins Hospital*

2:00 pm – 3:15 pm *Grand Ballroom VI-X*

SCIENTIFIC SESSION IV: Thyroid – Papers 15-19
MODERATORS: Naris Nilubol, MD – *National Cancer Institute/National Institutes of Health* & Menno R. Vriens, MD, PhD – *University Medical Center Utrecht*

2:00 pm – 2:15 pm
15: SYNERGISTIC EFFECTS OF BRAF AND PROTEASOME INHIBITORS FOR TREATING AGGRESSIVE THYROID CANCER
Koji Tsumagari, MD, PhD, Zakaria Abd Elmageed, PhD, Emad Kandil, MD – *Tulane University School of Medicine*

2:15 pm – 2:30 pm
★ **16:** A NOVEL HEAT SHOCK PROTEIN 90 INHIBITOR OVERCOMES RECEPTOR TYROSINE KINASE RESISTANCE IN DIFFERENTIATED THYROID CANCER
Peter T White, MD[1], Chitra Subramanian, PhD, MBA[1], Hashim Motiwala, PhD[1], Huaping Zhao, PhD[2], Brian S Blagg, PhD[2], Mark S Cohen, MD[1] – *[1]University of Michigan, [2]University of Kansas*

2:30 pm – 2:45 pm

★ **17:** APPLICATION OF THE NEW 2015 AMERICAN THYROID ASSOCIATION GUIDELINES ON WELL DIFFERENTIATED THYROID CANCER LEADS TO A SUBSTANTIAL RATE OF COMPLETION TOTAL THYROIDECTOMY TO ENABLE RADIOACTIVE IODINE TREATMENT
Wouter P Kluijfhout, MSc[1], Toni Beninato, MD[1], Frederick Thurston Drake, MD[1], Julie S Kwon[1], James Lim[1], Wen T Shen, MD[1], Jessica E Gosnell, MD[1], Insoo Suh, MD[1], Chienying Liu, MD[2], Quan-Yang Duh, MD[1] – *[1]Department of Surgery, University of California San Francisco, [2]Division of Endocrino*logy, Department of Medicine, University of California San Francisco

2:45 pm – 3:00 pm

18: PROGNOSTIC ASSESSMENT OF RECURRENCE AND RADIOACTIVE IODINE (RAI) RESISTANCE IN ADULT AND PEDIATRIC PATIENTS USING MUTATIONAL ANALYSIS OF METASTATIC LYMPH NODES FROM DIFFERENTIATED THYROID CARCINOMAS
Alexander L Shifrin, MD, FACS, FACE[1], Michele Fischer, BS[1], Trevor Paul, BS[1], Katherine Gheysens, BS[1], Prachi Baodhankar, BS[1], Joanna Song-Yang, MS[2], Samantha Taylor, MS[2], Alidad Mireskandari, PhD[2], Gyanendra Kumar, PhD[2], Brian Erler, MD, PhD[1] – *[1]Jersey Shore University Medical Center, [2]Interpace Diagnostics LLC*

3:00 pm – 3:15 pm

19: MALIGNANCY PREVALENCE RATE EFFECT ON GENE EXPRESSION CLASSIFIER TESTING OF THYROID NODULES WITH INDETERMINATE CYTOPATHOLOGY
Fadi Murad, BS, MD, Ahmed Deniwar, MD, Talik Malik, MD, Parisha Bhatia, MD, Andrew Sholl, MD, Krzysztof Moroz, MD, **Zaid Al-qurayshi, MD, MPH**, Emad Kandil, MD, MBA, FACE, FACS – *Tulane University School of Medicine*

3:15 pm – 3:45 pm *Grand Ballroom I-V*

Break, Exhibits, & Poster Viewing

3:45 pm – 4:50 pm *Grand Ballroom VI-X*

SCIENTIFIC SESSION V: Adrenal/NET – Papers 20-23
MODERATORS: Peter Angelos, MD, PhD – *University of Chicago* & Jennifer Rosen, MD – *Washington Hospital Center*

3:45 pm – 4:00 pm

★ **20:** SUPPRESSION OF CYTOCHROME P450 4B1: AN EARLY EVENT IN ADRENOCORTICAL TUMORIGENESIS
Timothy D Murtha, MD, Reju Korah, PhD, Tobias Carling, MD, PhD – *Yale University School of Medicine*

4:01 pm – 4:16 pm

21: OUTCOME OF ADRENALECTOMY FOR SUBCLINICAL HYPERCORTISOLISM AND CUSHING'S SYNDROME

Marco Raffaelli, MD, Carmela De Crea, MD, Gerardo D'Amato, MD, Pierpaolo Gallucci, MD, Celestino P Lombardi, MD, Rocco Bellantone, MD – *U.O. Chirurgia Endocrina e Metabolica - Policlinico Universitario A. Gemelli - UniversitÃ Cattolica del Sacro Cuore - Roma*

4:17 pm – 4:32 pm

★ **22:** PEDIATRIC PATIENTS WITH PHEOCHROMOCYTOMA AND PARAGANGLIOMAS SHOULD HAVE ROUTINE PREOPERATIVE GENETIC TESTING FOR COMMON SUSCEPTIBILITY GENES AND IMAGING TO DETECT EXTRA-ADRENAL AND METASTATIC TUMORS

Bruna Babic, MD[1], Rachel Aufforth, MD[1], Yasmine Assadipour, MD[1], Samira Sadowski, MD1, Martha Quezado, MD[2], Dhaval Patel, MD1, Naris Nilubol, MD[1], Tamara Prodanov[3], Karel Pacak, MD[3], Electron Kebebew, MD[1] – *[1]National Institute of Health, National Cancer Institute, Endocrine Oncology Branch, [2]National Institute of Health, National Cancer Institute, [3]National Institute of Health, National Institute of Child Health and Human Development*

4:33 pm – 4:48 pm

★ **23:** THE UTILITY OF IDENTIFYING PRIMARY TUMORS IN PATIENTS PRESENTING WITH METASTATIC GASTROENTEROHEPATIC NEUROENDOCRINE TUMORS

Kendall J Keck, MD[1], Jessica Maxwell, MD, MBA[1], Yusuf Menda, MD[2], Andrew Bellizzi, MD[3], Joseph Dillon, MD[4], Thomas O'Dorisio, MD[4], James Howe, MD[5] – *[1]University of Iowa Hospitals and Clinics Department of Surgery, [2]University of Iowa Hospitals and Clinics Department of Radiology, [3]University of Iowa Hospitals and Clinics Department of Pathology, [4]University of Iowa Hospitals and Clinics Department of Internal Medicine, [5]University of Iowa Carver College of Medicine*

4:50 pm – 5:50 pm *Dover A-C*

AAES Business Meeting

Active Members Only

TUESDAY, APRIL 12, 2016

8:00 am – 9:05 am *Grand Ballroom VI-X*

SCIENTIFIC SESSION VI: Thyroid/Education – Papers 24-27

MODERATORS: Philip I. Haigh, MD – *Kaiser Permanente Los Angeles Medical Center* & James Suliburk, MD – *Baylor College of Medicine*

8:00 am – 8:15 am

24: EXPERT SURGEON CONSENSUS OF RESIDENT PROFICIENCY WITH COMMON ENDOCRINE OPERATIONS

Roy Phitayakorn[1], Rachel Kelz, MD[2], Rebecca Sippel[3], Emil R Petrusa[1], Cord Sturgeon[4], Kepal Patel[5], Nancy D Perrier[6] – *[1]The Massachusetts General Hospital, [2]University of Pennsylvania,[3]University of Wisconsin, [4]Northwestern Feinberg School of Medicine, [5]NYU Langone Medical Center, [6]MD Anderson - University of Texas*

8:16 am – 8:31 am

★ **25:** ENDOCRINE SURGERY FELLOWSHIP GRADUATES PAST, PRESENT, AND FUTURE: EIGHT YEARS OF EARLY JOB MARKET EXPERIENCES AND WHAT PROGRAM DIRECTORS AND TRAINEES CAN EXPECT.

Vikram D Krishnamurthy, MD, Jesse Gutnick, MD, Rachel Slotcavage, MD, Judy Jin, MD, Eren Berber, MD, Alan Siperstein, MD, Joyce J Shin, MD – *The Cleveland Clinic*

8:32 am – 8:47 am

★ **26:** COMPARATIVE ANALYSIS OF RAI VS. THYROIDECTOMY FOR DEFINITIVE TREATMENT OF GRAVES' DISEASE

Vincent Wu, MD, Allison Lorenzen, MD, Anna Beck, MD, James Howe, MD, Sonia Sugg, MD, Vincent Reid, MD, Janet Pollard, MD, Geeta Lal, MD, Ronald Weigel, MD, PhD, MBA – *University of Iowa*

8:48 am – 9:03 am

27: OVEREXPRESSION OF SLC2A GENE (ENCODING GLUCOSE TRANSPORTER) IS RELATED TO POOR SURVIVAL OUTCOME IN PAPILLARY THYROID CARCINOMA: AN ANALYSIS OF THE CANCER GENOME ATLAS DATA

Young Jun Chai[1], Jin Wook Yi[2], Hyunsuk Suh[3], Hyeong Won Yu[2], Joon-Hyop Lee[2], Hyungju Kwon[2], Ra-Yeong Song[2], Su-jin Kim[2], June Young Choi[2], Kyu Eun Lee[2] – *[1]Department of Surgery, Seoul National University Boramae Medical Center, [2]Department of Surgery, Seoul National University Hospital and College of Medicine, [3]Department of Surgery, Mount Sinai Beth Israel Hospital, Icahn School of Medicine at Mount Sinai, New York*

9:05 am – 9:30 am *Grand Ballroom I-V*

Break, Exhibits, & Poster Viewing

9:30 am – 10:35 am *Grand Ballroom VI-X*

SCIENTIFIC SESSION VII: Thyroid – Papers 28-31

MODERATORS: David McAneny, MD – *Boston Medical Center* & Jennifer B. Ogilvie, MD –*New York University*

9:30 am – 9:45 am

★ **28:** DOES EPSTEIN BARR VIRUS (EBV) INFLUENCE THE DEVELOPMENT OF THYROID CANCER?

Sean Golden, BA[1], Xiao-Min Yu, MD, PhD[1], Scott Odorico[1], Vansh Jain[1], Ana Marin[1], Shannon Kenney, MD[2], Herbert Chen, MD[3] – *[1]University Of Wisconsin, Department Of Surgery, [2]University of Wisconsin, Department of Oncology, [3]University of Alabama at Birmingham, Department of Surgery*

9:46 am – 10:01 am

29: INDOCYANINE GREEN FLUORESCENCE ANGIOGRAPHY (ICGA) FOR QUANTITATIVE EVALUATION OF IN-SITU PARATHYROID GLAND PERFUSION AND FUNCTION AFTER TOTAL THYROIDECTOMY

Brian H Lang[1], Carlos Wong, PhD[1], Kai-Pun Wong[1], Kin-Pan Au[1], Hing Tsun Hung[1], Young J Chai, MD[2], Ka Lun Mak[1] – *[1]University of Hong Kong, [2]Seoul National University*

10:02 am – 10:17 am

★ **30:** EARLY SURGICAL MANAGEMENT OF HPT OFFERS GREATER BONE RECOVERY IN MEN1 PATIENTS AND IN SHPT PATIENTS

Angelica Silva, MD, Danica Vodopivec, MD, Ioannis Christakis, MD, Kelly Schwarz, MS, Genevieve Lyons, MSPH, Kristin Long, MD, Steven Waguespack, MD, FAAP, FACE, Naifa Busaidy, MD, FACP, FACE, Mimi Hu, MD, Elizabeth Grubbs, MD, Paul Graham, MD, Jeffrey Lee, MD, Nancy Perrier, MD – *MD Anderson Cancer Center*

10:18 am – 10:33 am

★ **31:** THE IDENTIFICATION OF NOVEL BIOMARKERS FOR THERAPEUTIC AND DIAGNOSTIC GOALS IN ANAPLASTIC THYROID CARCINOMA USING FUNCTIONAL GENOMIC MRNA PROFILING

Pascal Jonker, Rudolf S.N. Fehrmann, MD, PhD, Go van Dam, MD, PhD, Schelto Kruijff, MD, PhD – *University Medical Center Groningen*

10:35 am – 11:00 am *Grand Ballroom I-V*

Break, Exhibits, & Poster Viewing

11:00 am – 12:05 pm *Grand Ballroom VI-X*

SCIENTIFIC SESSION VIII: Parathyroid – Papers 32-35

MODERATORS: David F. Schneider, MD, MS – *University of Wisconsin* & Samuel K. Snyder, MD – *Baylor Scott & White Clinic/Texas A&M U. Med. School*

11:00 am – 11:15 am

★ **32:** "NORMOHORMONAL PRIMARY HYPERPARATHYROIDISM" IS A DISTINCT DISEASE PROCESS FROM CLASSIC PRIMARY HYPERPARATHYROIDISM

Megan K Applewhite, MD, MA[1], Jennifer Tseng, MD[1], Michael G White, MD[1], Maryam K Mohammed, BA[1], Frederic Mercier, MD[1], Edwin L Kaplan, MD[1], Peter Angelos, MD, PhD[1], Tamara Vokes, MD[2], Raymon H Grogan, MD[1] – *[1]Department of Surgery, Endocrine Surgery Research Program, University of Chicago, Chicago, IL, [2]Department of Endocrinology, University of Chicago, Chicago, IL*

11:16 am – 11:31 am

★ **33:** IS INTRAOPERATIVE PARATHYROID HORMONE TESTING IN PATIENTS WITH NORMOHORMONAL PRIMARY HYPERPARATHYROIDISM USEFUL?

Gina Trinh[1], Salem I Noureldine, MD[2], Jonathon O Russell, MD[2], Nishant Agrawal, MD[2], Jason D Prescott, MD, PhD[2], Martha A Zeiger, MD[2], Ralph P Tufano, MD, MBA[2] – *[1]Queen's University School of Medicine, [2]Johns Hopkins University School of Medicine*

11:32 am – 11:47 am

34: HEIGHT OF SERUM CALCIUM NOT CORRELATED WITH SYMPTOMS OR SEVERITY OF PRIMARY HYPERPARATHYROIDISM

Deva Boone, MD, Douglas Politz, MD, Jose Lopez, MD, Jamie Mitchell, MD, Kevin Parrack, MD, James aNorman, MD – *Norman Parathyroid Center*

11:48 am – 12:03 pm

35: CAN WE CONSIDER IMMEDIATE COMPLICATIONS AFTER THYROIDECTOMY AS A QUALITY METRIC OF SURGERY?

Jean-Christophe Lifante, MD, PhD[1], Cécile Payet[2], Fabrice Menegaux, MD[3], Frédéric Sebag, MD[4], François Pattou, MD, PhD[5], Jean-Louis Kraimps, MD[6], Jean-Louis Peix, MD[1], Cyrille Colin, MD, PhD[1], Antoine Duclos, MD, PhD[1] - *[1]Claude Bernard Lyon 1 University, Hospices Civils De Lyon, [2]Hospices Civils De Lyon, [3]Assistance Publique Des Hopitaux De Paris, [4]Assistance Publique Des Hopitaux De Marseille, [5]Universite Lille 2, [6]Centre Hospitalier Regional Universitaire De Poitiers*

12:05 pm

Meeting Adjourn

ABSTRACTS

★ *Denotes Resident/Fellow Research Award Competition Paper*

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

NOTES

★ 01. SURGERY FOR ASYMPTOMATIC PRIMARY HYPERPARATHYROIDISM: A REVISED COST EFFECTIVENESS ANALYSIS INCORPORATING FRACTURE RISK REDUCTION

Kyle A Zanocco, MD, MS, James X Wu, MD, Michael W Yeh, MD

UCLA

BACKGROUND: Recent data demonstrate reduced fracture risk after surgery for asymptomatic primary hyperparathyroidism (PHPT). In prior analyses, the cost-effectiveness of parathyroidectomy was driven by subjective improvements in quality of life. We performed a revised cost-effectiveness analysis comparing parathyroidectomy versus observation while incorporating fracture risk reduction.

METHODS: A Markov transition-state model was created comparing parathyroidectomy and guideline-based medical observation for a 60 year-old patient with mild asymptomatic PHPT. Costs were estimated using published Medicare Maximum Allowable Charges and reimbursement data from the Nationwide Inpatient Sample database. Treatment strategy outcomes, including risk of fracture, progression to observation ineligibility, and surgical complications were identified by literature review. Literature-derived quality adjustment factors were used to weight all possible outcomes, yielding quality-adjusted life years (QALYs) as the measure of effectiveness for each strategy. A 3% discount rate was applied to all future costs and quality of life adjustments. The optimal strategy was defined as the most effective strategy that did not exceed an incremental cost-effectiveness ratio of $100,000/QALY. One-way and multivariable sensitivity analyses were performed to examine the effect of uncertainty on the model. A Monte Carlo simulation was run by sampling each variable within a triangular-weighted distribution of possible values during 10,000 consecutive iterations.

RESULTS: Parathyroidectomy was the dominant strategy (less costly and more effective) with an incremental cost savings of $1,522 and an incremental effectiveness of 0.159 QALYs compared to observation. In sensitivity analysis, parathyroidectomy was dominant when the relative risk reduction of fracture with surgery was at least 10%, the cost of fracture was at least $3,120, or the probability of recurrent laryngeal nerve injury was less than 12.5%. Parathyroidectomy remained the optimal strategy for life expectancies greater than three years. Monte Carlo simulation showed parathyroidectomy to be the optimal strategy in 9,945 out of 10,000 hypothetical patients.

CONCLUSION: When fracture risk reduction is considered, parathyroidectomy for mild asymptomatic PHPT shifts from being a cost-effective strategy (increased quality of life with an acceptable additional cost) to a dominant strategy (increased quality of life with lower cost) when compared to observation.

NOTES

★ 02. CURATIVE PARATHYROIDECTOMY FOR PRIMARY HYPERPARATHYROIDISM IMPROVES SLEEP QUALITY: A PROSPECTIVE STUDY

Justin La, BS, Tracy S Wang, MD, MPH, Abdulrahman Y Hammad, MD, Laura A Burgardt, BS, Kara M Doffek, BS, Azadeh A Carr, MD, Joseph L Shaker, MD, Ty B Carroll, MD, Douglas B Evans, MD, Tina W Yen, MD, MS

Medical College of Wisconsin

BACKGROUND: Few studies have examined the effect of primary hyperparathyroidism (pHPT) and parathyroidectomy on sleep quality. This study assessed changes in sleep disturbances in pHPT patients after curative parathyroidectomy.

METHODS: A single institution, prospective study, conducted between 6/2013 and 9/2015, enrolled adult patients who underwent parathyroidectomy for pHPT or thyroidectomy for benign euthyroid disease (control group). The Pittsburgh Sleep Quality Index (PSQI), a 19-item validated questionnaire, was administered preoperatively and at 1- and 6-months postoperatively. 'Poor' sleep quality was defined as a PSQI score >5. A clinically significant improvement in sleep quality was defined as ≥3-point decrease.

RESULTS: 156 patients (110 parathyroid and 46 thyroid) completed the preoperative survey and at least one postoperative survey. The response rates at 1- and 6-months were 97% and 74% (parathyroid group), and 92% and 63% (thyroid group), respectively. Preoperatively, parathyroid patients had worse sleep quality than thyroid patients (mean PSQI score 8.1 vs. 5.3, p<0.001); 75 (68%) parathyroid and 24 (52%) thyroid patients had poor sleep quality (p=0.06). Postoperatively, only parathyroid patients had a statistically significant improvement in sleep quality, resulting in no difference in PSQI scores between the parathyroid and thyroid groups at 1- (6.3 vs. 5.2; p=0.11) or 6-months (5.4 vs. 4.5; p=0.21). There was no difference in the proportion of patients with poor sleep quality between the two groups at 1- (50% vs. 38%; p=0.21) and 6- months (37% vs. 24%; p=0.21). The proportion of patients with a clinically significant improvement in PSQI scores was higher in the parathyroid (vs. thyroid) group at both 1- (36% vs. 10%, p<0.01) and 6-months (42% vs. 14%, p<0.01). Among the factors examinedin the parathyroid group(age, gender, preoperative and postoperative calcium, PTH, 25-OH vitamin D levels), patients with lower 25-OH vitamin D levels were more likely to have a clinically significant improvement in sleep quality compared to those that did not (28.1 vs. 36.3; p=0.03). All patients assessed at each postoperative time point were normocalcemic.

CONCLUSIONS: Two-thirds of patients with pHPT report poor sleep quality. Following curative parathyroidectomy, one-third demonstrate improvement, which typically occurs within the first month after surgery.

NOTES

★ 03. THE INFLUENCE OF A NEGATIVE SESTAMIBI SCAN ON THE DECISION FOR PARATHYROID SURGERY BY THE ENDOCRINOLOGIST, THE SURGEON, AND THE PATIENT

Susana Wu, MD[1], Stephanie S Hwang, MD[2], Philip I Haigh, MD[1]

[1]Kaiser Permanente Los Angeles Medical Center,[2]Scripps Clinic

BACKGROUND: It has been observed that negative sestamibi scans (SS) may impact practice patterns in patients with primary hyperparathyroidism (PHPT). However, there is no published data on the issue. The objective was to elucidate the influence of negative SS on referrals by endocrinologists for parathyroidectomy and surgeon decision-making.

METHODS: All patients with PHPT were identified within a region-wide health care system over a 2-year period. Data including age, calcium, PTH, renal function, bone density, and SS results were collected from the EMR of all patients. The electronic referral system was used to track consultations with endocrinologists and surgeons. Multivariable logistic regression analysis was done to model factors involved in endocrinologist recommendations (referral or no referral to surgery) and surgeon recommendations (parathyroidectomy or no parathyroidectomy).

RESULTS: There were 539 patients with PHPT identified, and 454 were seen by endocrinologists. Of these, 260 patients had SS done (120 negative and 140 positive) and 201 (77%) patients were referred to surgeons. Compared to positive SS, negative SS was independently associated with no referral to surgeons, after adjusting for age, calcium, PTH, GFR, and bone density (OR=0.40; 95% CI 0.21-0.75). Surgeons saw an additional 54 patients without SS referred from endocrinologists or primary care physicians and SS were then ordered. Surgeons recommended parathyroidectomy in 236 of the 255 patients. Negative SS was independently associated with no recommendation for surgery (OR=0.32; 95% CI 0.11-0.91) Surgeons initially scheduled and completed parathyroidectomies in 211/255 patients. Surgical cases were cancelled by 39 patients: 15 because of change of mind, postponement or unknown, and 19 because they sought second opinions. Negative SS were associated with patients cancelling surgery (62% vs 39%, p=0.003)

CONCLUSIONS: Negative sestamibi scans influence decision-making in the treatment of patients with PHPT. Endocrinologists commonly order sestamibi scans and if negative they are less likely to refer to surgeons. Surgeons are also influenced by sestamibi scans and if negative are less likely to recommend parathyroidectomy. Patients also are more likely to cancel surgery and/or seek second surgical opinions if sestamibi scans are negative.

NOTES

★ 04. DIFFERENCES IN SINGLE GLAND AND MULTIGLAND DISEASE ARE SEEN IN LOW BIOCHEMICAL PROFILE PRIMARY HYPERPARATHYROIDISM

James Y Lim, MD, Max C Herman, Lev Bubis, MD, Irene Epelboym, MD, John D Allendorf, MD, John A Chabot, MD, James A Lee, MD, Jennifer H Kuo, MD

Columbia University

BACKGROUND: Primary hyperparathyroidism is one of the most common endocrine disorders with an estimated prevalence of 0.1-0.5% in the United States. Although typically characterized by high calcium and high parathyroid hormone levels, two additional biochemical profiles have emerged, normocalcemic and normohormonal subtypes. There is very limited data available describing the characteristics of these subtypes. We reviewed our surgical experience of normocalcemic and normohormonal primary hyperparathyroid patients and compared them to the classic primary hyperparathyroid patients.

METHOD: This is a single institution, retrospective cohort review of all patients who underwent parathyroidectomy from 2006-2012. Patients were excluded if they underwent surgery for secondary hyperparathyroidism, tertiary hyperparathyroidism, or parathyroid carcinoma. Preoperative and intraoperative variables were analyzed. Six month and twelve month follow-up labs were obtained. Univariable analysis was performed with ANOVA and Chi-square analysis. A logistic regression was performed to identify significant independent predictor variables for multigland disease.

RESULTS: 581 patients underwent parathyroidectomy for primary hyperparathyroidism. There were 411 patients with classic primary hyperparathyroidism, 73 patients with normohormonal primary hyperparathyroidism, and 97 with normocalcemic primary hyperparathyroidism. On univariable analysis, age, severity of bone disease, and presence of kidney stones were similar in all three patient groups. Preoperative calcium and parathyroid hormone levels were significantly different between the groups. Normocalcemic primary hyperparathyroidism was associated with multigland disease in 44 (45%, $p<0.001$) patients as compared to the normohormonal (7, 9.6%) and classic (36, 8.8%) biochemical profile groups. On logistic regression, the only significant independent predictor for multigland disease was the normocalcemic subtype. Six and 12 month follow-up data show cure rates of >98% in all three groups.

CONCLUSION: Our series shows that the presentation of single or multiglandular disease is different for low biochemical profiles of primary hyperparathyroidism. Given the high incidence of multiglandular disease in the normocalcemic patient population, surgeons should plan to perform a bilateral neck exploration or have a low threshold to convert from a focused parathyroidectomy. Normohormonal disease appears to be similar to classic disease patients with >90% presenting with single adenomas. Excellent cure rates can be surgically obtained in all three groups of primary hyperparathyroidism patients.

NOTES

★ 05. HOW LONG SHOULD WE FOLLOW PATIENTS AFTER "CURATIVE" PARATHYROIDECTOMY?

Irene Lou, MD[1], Courtney Balentine, MD, MPH[1], Samuel Clarkson, BA[1], David F Schneider, MD, MPH[1], Rebecca Sippel, MD[1], Herbert Chen, MD[2]

[1]University of Wisconsin,[2]University of Alabama- Birmingham

BACKGROUND: Parathyroidectomy for primary hyperparathyroidism (HPT) is reported to be extremely effective. Patients are considered cured with normal serum lab values six months after surgery, but little is known about recurrence risk during long-term follow-up. The goal of this study was to evaluate the risk of HPT recurrence in the 10 years following parathyroidectomy.

METHOD: We retrospectively identified patients undergoing initial parathyroidectomy for sporadic HPT between 11/1/2000-6/30/2005. Recurrence was defined as a serum calcium > 10.2mg/dL after 6-months from parathyroidectomy. Kaplan-Meier estimates were used to evaluate time to recurrence and multivariate analysis was performed using Cox proportional hazards model to determine predictors of recurrence.

RESULTS: 196 patients underwent a curative parathyroidectomy at least 10 years ago with adequate follow-up data. The 10-year recurrence rate was 14.8%, and the median time to recurrence was 6.3 years [IQR 3.4-10.8 years]. We found that 41.4% of patients recurred by 5 years, and 65.5% by 10 years. Interestingly, 34.5% of all recurrences appeared 10 or more years after initial surgery. Kaplan-Meier analysis revealed no difference in recurrence based on operative approach (p=0.448). 5 year disease-free survival in patients undergoing unilateral minimally-invasive parathyroidectomy (MIP) was 91.8% versus 97.9% in the bilateral open group. However, at 10 years, disease-free survival for the MIP group was 87.9% versus 87.4% in the open group.

We also identified predictors of recurrence and found that double adenomas (DA) had a higher recurrence rate than single adenomas (p=0.003) but not hyperplasia (p=0.075). Additionally, a drop in intraoperative parathyroid hormone (IoPTH) less than 70% was predictive of disease recurrence (p=0.011). Multivariate analysis found older age was protective against recurrence (HR 0.95, 95% CI 0.91-0.98, p=0.004) while DA (HR 5.26, 95% CI 1.65-16.77, p=0.005) was an independent predictor of recurrence.

CONCLUSIONS: Regardless of surgical approach, the long-term recurrence rate for HPT after "curative" parathyroidectomy is likely higher than previously reported. With over 1/3 of recurrences at our institution occurring 10 or more years after the initial operation, long-term follow-up is essential for these patients.

NOTES

06. PARATHYROIDECTOMY PRIOR TO KIDNEY TRANSPLANT REDUCES GRAFT FAILURE

Jennifer Malinowski, Ricarda Tomlin, J.d. Smith, Sanjay Kulkarni, **Glenda G Callender**

Yale University

BACKGROUND: Uremic hyperparathyroidism (UHPT) is common in patients with end-stage renal disease. Uncorrected UHPT has been associated with delayed graft function (DGF) following kidney transplant (KTX). Current Kidney Disease Improving Global Outcomes (KDIGO) guidelines recommend maintaining parathyroid hormone (PTH) ≤9x normal in pre-KTX patients with UHPT. This study explores the effect of elevated PTH and pre-operative parathyroidectomy on outcomes after KTX.

METHODS: Retrospective review was performed of medical records of adult patients who underwent KTX between 1/1/2005-12/31/2014 at a single institution. Relevant biochemical values were analyzed pre-KTX, and at 30 days, 6 months, and 1 year post-KTX. Outcomes included post-KTX calcium and PTH levels, estimated glomerular filtration rate at 1 year (eGFR), DGF, graft failure, and complications, including acute rejection and chronic nephropathy. Significant results from univariate analyses were used as covariates in multivariate analyses.

RESULTS: 913 patients underwent KTX from 2005-2014. Most patients were white (59.4%) and male (65.2%), with median age 53 (range 18-83) years. Graft survival 1 year post-KTX was 97.8%. Overall, 451(49.4%) patients had a pre-KTX diagnosis of UHPT, with median baseline PTH of 206 pg/ml versus 159 pg/ml for those without UHPT (p=0.02). Pre-KTX diagnosis of UHPT was associated with higher calcium and phosphorus levels at all post-KTX time points (p<0.01), and with complications in the first year post-KTX (OR 1.44; 95% CI: 1.11, 1.87), but not with DGF or graft failure. Pre-KTX PTH ≥6x normal was associated with post-KTX graft failure (p<0.05). Post-KTX PTH ≥4x normal was associated with complications in the first year post-KTX (p<0.05). 48 (10.6%) patients with UHPT underwent pre-KTX parathyroidectomy, with median pre-KTX PTH of 218 pg/ml versus 180 pg/ml for those who did not. Pre-KTX parathyroidectomy in patients with UHPT was associated with lower risk of graft failure (OR: 0.547; 95% CI: 0.327, 0.913) but not DGF, complications, calcium or eGFR.

CONCLUSION: Management of UHPT remains challenging. Pre-KTX parathyroidectomy should be considered to reduce PTH levels, as this appears to reduce graft failure in the post-KTX period. Pre-KTX parathyroidectomy may even benefit patients whose PTH levels fall within the target range of current KDIGO guidelines.

NOTES

★ 07. EXTENT OF ELEVATION OF SERUM ALDOSTERONE IN PATIENTS WITH PRIMARY ALDOSTERONISM: CAN WE FORGO ADRENAL VENOUS SAMPLING?

Kathryn E Coan, MD[1], Colleen M Kiernan, MD[2], Carmen C Solorzano, MD[2], Tina W F Yen[1], James W Findling[1], Srividya Kidambi[1], Azadeh A Carr[1], Douglas B Evans[1], Tracy S Wang[1]

[1]Medical College of Wisconsin,[2]Vanderbilt University Medical Center

BACKGROUND: In patients with primary aldosteronism (PA), higher plasma aldosterone concentration (PAC; 25-75 ng/dL) have been associated with aldosterone-producing adenomas (APA). This study sought to determine if high PAC alone could confirm the hyperfunctional status of the imaged adrenal nodule in patients who underwent adrenalectomy for PA.

METHODS: We performed a retrospective review of 108 patients from 3 institutions who underwent adrenalectomy for PA. Adrenal imaging included CT or MRI; a threshold PAC of >30 ng/dL was utilized to confirm the imaged, hyperfunctional adrenal nodule(s). Persistent PA was defined as an elevated aldosterone, hypertension, and hypokalemia after adrenalectomy.

RESULTS: The median age was 49 years (range,25-69); median PAC was 29 (range,9-125). The PAC was >30 (median,45; range,31-126) in 49 (45%) patients and ≤30 in 59 (55%) patients (median,21; range,9-30). There were no differences in age, sex, or tumor size between the 2 groups. For the 98 (91%) patients with unilateral nodules, median tumor size was 1.3 cm (range,0.5-3) and 47 (48%) had a PAC >30. Adrenal venous sampling (AVS) was performed in 68/98 (69%) patients with unilateral nodules, and suggested contralateral localization in 3, including 1/33 patients with a PAC >30. AVS was performed in all 10 patients with bilateral nodules and localized to the larger nodule (median,1.8 cm; range,0.7-3.5) in 8, including 2 patients with PAC >30. For the 81 (75%) patients with accurate follow-up (median,7 months; range,<1-117), 6 (8%) had persistent disease. Of these, 3 patients had bilateral nodules and 5 patients had a preoperative PAC <30. AVS suggested unilateral disease in 5 patients; 1 patient did not undergo AVS. Of the 30 patients with unilateral nodules, PAC >30, and follow-up, 29 (97%) were cured following adrenalectomy.

CONCLUSION: In this consecutive series of patients who underwent adrenalectomy for PA, a unilateral adrenal nodule and PAC >30 confirmed laterality of APA in 32/33 (97%) patients. Although institutional accuracy of AVS will vary, AVS may not be necessary prior to adrenalectomy in these patients. However, this study confirms the necessity of AVS in patients with bilateral nodules, irrespective of PAC, as the larger nodule may not represent the hyperfunctional gland.

NOTES

★ 08. SDHB MUTATION STATUS AND TUMOR SIZE, BUT NOT TUMOR GRADE, ARE IMPORTANT PREDICTORS OF OUTCOME IN PHEOCHROMOCYTOMA AND ABDOMINAL PARAGANGLIOMA.

Yasmine Assadipour, MD[1], Samira M Sadowski, MD[2], Meghna Alimchandani, MD[2], Martha Quezado[2], Seth M Steinberg, PhD[2], Naris Nilubol, MD[2], Tamara Prodanov[2], Karel Pacak, MD[2], Electron Kebebew, MD[2]

[1]National Cancer Institute, National Institutes of Health / Department of Surgery, The George Washington University Hospital,[2]National Cancer Institute, National Institutes of Health

BACKGROUND: There is no widely used staging or prognostic scoring system for pheochromocytomas (PC) and abdominal paragangliomas (PGL), and there is limited data on prognostic factors for PC/PGL. A staging/prognostic system has long been desired to better categorize PC/PGL, which can be very aggressive in the setting of SDHB mutations, with high recurrence, metastases, and mortality. Use of pathology findings as part of a scoring system has been proposed by some.

METHODS: A retrospective analysis was conducted in 84 patients with PC/PGL with germline genetic testing data, clinical characteristics, treatment course, and outcomes analyzed in all patients. Tumor samples were analyzed for Ki67/MIB1% staining and mitotic index (MI).

RESULTS: 84 patients underwent surgery for PC/PGL. 35 patients had sporadic disease and 49 had germ line SDHB mutation. Local recurrence and distant metastases were significantly more frequent in patients with SDHB mutation compared to patients without mutation (47.6% vs. 9.1%, p<0.001, and 56.3% vs. 9.1%, p<0.001, respectively). Patients with SDHB mutation presented at a younger age compared to patients without SDHB mutation (33.0 vs. 49.6 years old, p<0.001). Among 65 patients undergoing R0 primary tumor resection, patients with SDHB mutation trended towards shorter disease free interval (DFI) (34.9 vs. 58.0 months, p=0.086).

SDHB mutation status, greatest tumor diameter, and requiring open approach were associated with local recurrence (p=0.006, p<0.001, p<0.001). SDHB mutation status, tumor diameter, PGL, and requiring open approach were associated with distant metastases (p<0.001, p<0.001, p=0.004, p<0.001). By logistic regression, SDHB mutation status and tumor diameter were independent risk factors for local recurrence (p=0.048, p=0.04) and distant metastases (p=0.004, p<0.001).

Ki67% and MI of primary tumors were not associated with SDHB mutation status (p=0.09, p=0.55), local recurrence (p=0.5, p=0.07), metastases (p=0.13, p=0.27), or DFI (p=0.40, p=0.25).

CONCLUSIONS: SDHB status and primary tumor size are more predictive of patient outcomes than Ki67% or MI. Germline mutation status should be tested in all patients with PGL and large PC. Knowledge of SDHB status is necessary to accurately predict outcomes and improve care of patients with PC and abdominal PGL, and should be part of any clinically relevant prognostic scoring system.

NOTES

★ 09. ADRENOCORTICAL CARCINOMA WITH INFERIOR VENA CAVA TUMOR THROMBUS

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BACKGROUND: The safety, efficacy, and prognostic implications of resection of adrenocortical carcinoma (ACC) with inferior vena cava tumor thrombus (IVC-TT) are poorly described.

METHODS: A retrospective review of a prospectively collected database was performed, including all patients from 1985-2015 who had attempt at surgical resection of stage IV non-metastatic ACC. Using Chi-square, Fisher's exact and Wilcoxon rank sum test, we compared patients with and without IVC-TT, examining perioperative characteristics, completeness of resection, mortality, disease free interval, and overall survival. Kaplan-Meier survival analyses were performed.

RESULTS: We identified 65 patients who underwent attempt at resection of stage IV ACC (28 patients with IVC-TT, 37 without). Mean age was 51 years (±14.5) with 52% being female. Median operative time differed between groups (321 minutes IVC-TT vs 190 minutes non-IVC-TT, p=0.03). R0 resection was similar between groups (57% IVC-TT vs 70% non-IVC-TT, p=0.33). The rate of adjuvant therapy did not differ between groups. Short term postoperative morbidity was not different between groups. Blood transfusion was more frequent in the IVC-TT group (85% vs 50%, p=0.04). Thirty day mortality was similar between groups as was overall survival from 0-23 months. At 24 months overall survival was less in the IVC-TT group (59% vs 30%, p=0.04). Differential survival through 5 years follow-up favored the non-IVC-TT group (36% vs 0%, p=0.001). Sub-group analysis including only patients with R0 resection demonstrates similar survival between groups up to 36-months. At 36-months follow up of the R0 patients, survival favored the non-IVC-TT group (65% vs 29%, p= 0.047) and continued through 5-years follow-up (40% vs 0%, p=0.049).

CONCLUSIONS: Attempt at R0 resection of ACC with IVC-TT seems justified given the lack of efficacious alternative therapy, particularly as short term safety and survival are similar to patients without IVC-TT. However, survival beyond 36-months is limited in patients with IVC tumor thrombus and none survived beyond 5-years. Patients being evaluated for resection in the setting of IVC-TT should be carefully selected and counseled.

NOTES

10. SURGICAL TREATMENT OF RECCURRENT ADRENOCORTICAL CARCINOMA IMPROVES OVERALL SURVIVAL

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BACKGROUND: Adrenocortical carcinoma (ACC) is a rare malignant tumor with a poor prognosis. Recurrence (local or distant metastases) often (up to 50%) occurs despite apparent initial complete resection. The aim of this study was to compare, in terms of survival, results of surgical and non-surgical managements of recurrent ACC.

METHOD: A retrospective review of patients with at least one recurrence, diagnosed between 1980 and 2014, after initial resection of an ACC, was performed in five French University Hospitals. Patients with R2 resections of the primary tumor were excluded. Overall survival and disease-free survival after surgery or medical management for recurrence were evaluated.

RESULTS: Fifty-nine patients were included, 29 underwent surgery and 30 had non-operative treatment. Eight patients (28%) had 2 or more surgeries for recurrences. Patients in operative and non-operative groups were similar for age (49 years vs 53 years, p=0.34), sex (63% female vs 79% female, p=0.25), Weiss score (6 vs 7, p=0.23), Ki67 index (23% vs 24%, p=0.86), tumor size (99.2mm vs 115.5mm, p=0.14), ENSAT grade (65% grade 1 and 2 vs 41%, p=0.07) and R0 resection status of the primary tumor (83% vs 71%, p=0.35) at initial surgery. Patients operated on for recurrence had more often local recurrence (75% vs 0%, p<0.001) and more often a unique site of recurrence (97% vs 45%, p<0.001) than non-operated patients. Overall median survival (OS) after the first recurrence was 91 months (95% CI = 6-176) in operated patients versus 15 months (6-24) in non-operated ones (p<0.001). The overall median survival after resection of the primary tumor was 133 months (14-252) in patients operated on for recurrence versus 32 months (21-43) in non-operated patients (p<0.001). Univariate analysis showed that a Ki67<25%, an ENSAT grade <4, a local recurrence (site of adrenalectomy), a delay to first recurrence >12months and a surgery for recurrence increased significantly the OS (p<0.05). These items were not significant in multivariate analysis.

CONCLUSION: Patients with recurrent ACC benefit from surgery with a significant survival improvement. Surgical management of recurrent ACC improves overall survival in a selected population.

NOTES

★ 11. THE IMPACT OF INCREASED EXTENT OF SURGERY ON SURVIVAL IN PATIENTS WITH MEDULLARY THYROID CANCER

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BACKGROUND: The diagnosis and treatment of patient's with medullary thyroid cancer (MTC) has improved significantly over the past three decades.Therefore we aimedto study changes in the extent of surgical therapy and its impact on the survival of patients with MTC.

METHODS: We utilized the Surveillance, Epidemiology, and End Results registry to identify patients with MTC diagnosed between 1983 and 2012. Primary outcomes were the type of surgery and survival. Statistical analysis was performed using SAS with chi-square, t-tests, and the log rank test.

RESULTS: We identified 1,373 patients with MTC treated between 1983-1992 (24.4%), 1993-2002 (30.7%), and 2003-2012 (43.4%). Over the 30-year period, the percent of patients with T1a tumors (≤1cm) increased significantly (10.8%, 23.0%, and 25.5%, from 1983-1992, 1993-2002, and 2003-2012, respectively, p=0.001), while those with T2 tumors (>2cm but ≤4cm) decreased (43.9%, 33.7%, and 30.7%, respectively, p=0.01). Despite smaller tumor size at diagnosis, no differences were observed in the proportion of patients with local, regional, or distant MTC. On the other hand, the extent of surgery increased over the study period. More patients underwent total thyroidectomies (TT) (81.4%, 82.0%, and 85.0%, respectively p<0.001) and, the proportion of TT patients who concurrently had lymph nodes (LN) resected increased (58.7%, 69.0%, and 78.5%, respectively, p<0.001). Lymphadenectomies also became more extensive. The mean number of LNs resected increased from 5.4 to 10.9 to 16.5 over the three decades (p<0.001), and the ratio of positive to resected LNs decreased (0.23, 0.08, and 0.08, respectively, p=0.05). Examination of 5-year disease specific survival (DSS) demonstrated improvement in the most recent decade where surgical therapy was the most aggressive: 86.7%, 85.4%, and 92.6%, respectively (p=0.06). When analyzed by extent of disease, the improvement in overall 5-year DSS was due patients with regional LN metastasis (83.2%, 83.3%, and 95.9%, p=0.01). Patients with localized MTC also had 100% survival in the most recent decade, 2003-2012.

CONCLUSION: Over the past 30 years, surgical treatment of patients with MTC has become more aggressive particularly with respect to the extent of thyroidectomy and lymphadenectomy. This more comprehensive surgical approach improves the survival of patients with regional LN metastases.

NOTES

★ 12. COST-EFFECTIVENESS OF ACTIVE SURVEILLANCE VERSUS HEMITHYROIDECTOMY FOR MICROPAPILLARY THYROID CANCER

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BACKGROUND: The diagnosis and management of low-risk micropapillary thyroid cancer <1cm in size (mPTC) has become a subject of increasing controversy and discussion. Recent data has shown that non-operative active surveillance (AS) of mPTC is a viable alternative to hemithyroidectomy. To help surgeons and patients decide between observation versus surgery, we conducted a cost-effectiveness analysis of the two strategies.

METHODS: We constructed Markov models for AS and hemithyroidectomy. The reference case was an otherwise healthy 40-year-old female patient with recently diagnosed mPTC, without high risk features, undergoing either strategy for 15 years. Costs and health utilities (quality of life estimates) were determined using Medicare data and an extensive literature review. The willingness to pay (WTP) threshold was set at $50,000 per quality adjusted life year (QALY).

RESULTS: In the reference case scenario, hemithyroidectomy was associated with $6,807 in increased cost, but also with an increase in efficacy of 1.09 QALYs, resulting in an incremental cost-effectiveness ratio (ICER) of $6,233; therefore, hemithyroidectomy was the more cost-effective strategy compared to AS. On one-way sensitivity analysis, predicted life expectancy as well as the health utility associated with AS were the variables most affecting the analysis. Hemithyroidectomy was more cost-effective if the patient had a remaining life expectancy of >5 years, and the health utility associated with AS was ≥0.97 (where 1 is a state of perfect health and quality of life).

CONCLUSIONS: Hemithyroidectomy is more cost-effective than AS for patients with at least 5 years of remaining life expectancy, and who would associate non-operative management with even a modest decrement to quality of life. In patients with shorter life expectancy as well as those who would associate non-operative management with negligible quality of life effect, AS is the dominant strategy.

NOTES

★ 13. ANALYSIS OF FEATURES IN THYROID NODULES WITH RAS MUTATIONS THAT MAY GUIDE EXTENT OF THYROIDECTOMY

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BACKGROUND: Preoperative detection of*RAS*mutations can help risk stratify indeterminate nodules, but*RAS*may be identified in both benign and malignant thyroid neoplasms. Our aim is to identify preoperative variables that associate with histologic outcome in*RAS*nodules.

METHODS: FNA biopsy results classified in 1 of 3 indeterminate cytology categories (AUS/FLUS, FN/SFN, or suspicious) were prospectively tested for codon 12, 13, and 61*N*-,*H*-, and*K*-*RAS*mutations. Clinicopathological data from consecutive cases (9/13-6/15) were reviewed. Clinical sensitivity for mutational allelic frequency was set at 10%.

RESULTS: In total, 98 nodules in 95 patients had preoperative*RAS*detected (48%*NRAS*, 31%*HRAS*, and 22%*KRAS*). For the 85 patients who had surgery (68% total thyroidectomy, 29% lobectomy),*RAS*-positive nodules were malignant in 75% and bilateral cancer was diagnosed in 29%. Follicular-variant PTC was the most common subtype (83%) and other histologies included classic PTC (11%) and poorly-differentiated/anaplastic (6%).*HRAS*mutations were associated with the highest risk of histologic cancer (88%) followed by*NRAS*(72%), and*KRAS*(58%) mutations. When*RAS*was detected at low-level (<10%) allelic frequency, the cancer risk was the same as for*RAS*detection above clinical threshold (62% v. 79%, p=0.1). On univariable analysis, patient age (p=0.07), gender (p=0.4),*RAS*isoform (p=0.08), allelic frequency (p=0.7), nodule size (p=0.8), cytology category (p =0.2), and presence of bilateral nodules on preoperative ultrasound (p=0.4) were not predictive of malignancy. However, multifocality (>1 nodule on ultrasound) was a predictor of malignancy on both univariable (p=0.001) and multivariable analysis (OR 14.1, CI 1.2-8.8, p=0.02). Single focus low-risk encapsulated follicular-variant PTC or benign disease occurred in 59% of patients with a unifocal nodule on preoperative ultrasound.

CONCLUSION: Preoperative detection of any*RAS*mutation has a 75% risk of cancer. The risk remains high even when*RAS*is detected at <10% allelic frequency, and does not vary significantly by isoform. Multifocality on ultrasound is a preoperative variable that predicts histologic malignancy. At least half of patients with a unilateral*RAS*-positive nodule may be adequately treated by initial lobectomy.

NOTES

★ 14. COMPUTERIZED CYTOMETRY AND WAVELET ANALYSIS OF FOLLICULAR LESIONS FOR DETECTING MALIGNANCY - A COMPARATIVE STUDY IN THYROID CYTOLOGY

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BACKGROUND: The cytological diagnosis of follicular tumors of thyroid bares much uncertainty, and the final diagnosis of follicular carcinoma is mostly done on histological specimens that show capsular and/or vascular tumor invasion. We hypothesized that digital algorithms on cytological specimens may help discriminate between malignant and benign follicular tumors. We tested two digital methods: computerized cytometry which is semiautomatic versus wavelets analysis which is an automated approach.

METHODS: Cytological reports from patients who subsequently underwent thyroid surgery in a single tertiary referral center between July 2010 and June 2015 were retrieved. The corresponding cytological slides from patients with a preoperative diagnosis of indeterminate follicular lesion or follicular neoplasms were included in the analysis. Patients were divided according to histopathological diagnosis into benign or malignant. Cytological images were digitized. The image Pro Plus software was used for segmenting the nuclei and performing classical cytometry. Variables including nuclear size, shape and texture were extracted. The MATLAB software was used for the automatic wavelets analysis.

RESULTS: Cytology slides of 38 patients with a preoperative diagnosis of follicular lesion were available for analysis. Of those, 7 patients had a histological diagnosis of malignancy (5 follicular carcinoma and 2 follicular variant of papillary carcinoma). Using classical cytometry, a combined discriminant score using nuclear texture (clumpiness), diameter and convexity, revealed a sensitivity and a specificity of over 95% for the diagnosis of malignant lesions. In parallel to this classical cytometry, an alternative wavelets analysis was automatically performed on the images without human intervention. Subsequently, an artificial intelligence based neural network (NNET) model was applied, using multiple parameters derived from the wavelets analysis. The NNET model was able to correctly classify 81% of the malignant and 98% of the benign tumors.

CONCLUSIONS: Using classical cytometry, a combination of descriptors of nuclear size, shape and texture, differentiated well between benign and malignant follicular lesions of the thyroid. Further, we showed that a fully automated wavelets analysis combined with a NNET classifier reached a significantly high accuracy in classifying the follicular lesions of the thyroid, in cytological smears.

NOTES

15. SYNERGISTIC EFFECTS OF BRAF AND PROTEASOME INHIBITORS FOR TREATING AGGRESSIVE THYROID CANCER

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BACKGROUND: The BRAFV600E mutation, which leads to the constitutive activation of MAPK pathway, is found in 50% of papillary thyroid cancers (PTCs) and PTC-derived anaplastic thyroid cancers. Targeted BRAF kinase inhibitors such as vemurafenib have shown promising results in clinical trials, however resistance to targeting BRAFV600E is often developed. Oncogenic proteins including BRAF can induce NF-kappaB (NF-kB) activation in thyroid cancer. We propose to demonstrate the synergetic effect of treating aggressive thyroid cancers with simultaneous targeting of the BRAFV600E mutation and NF-kB signaling pathways using two clinically approved inhibitors.

METHODS: We examined the effects of the BRAFV600E inhibitor (Vemurafenib) and the proteasome inhibitor targeting NF-kB (Bortezomib), individually or in combination in vitro using human thyroid cancer cell line (SW1736 and DRO). We measured the effects of these inhibitors on cell proliferation (WST-8) and cell cycle progression, apoptosis (with flowcytometry). We also used a xenograft thyroid cancer model and monitored tumor size and immunohistochemical changes (Ki-67) in the tumor tissues with the treatment.

RESULTS: Combination of Vemurafenib and Bortezomib compared to monotherapy (Vemurafenib or Bortezomib) showed inhibition of cell growth (46% vs 14% and 16%, $p<0.05$), induction of cell cycle arrest, and induction of apoptosis (61% vs 15 and 18%, $p<0.05$), respectively. Dual treatment of xenograft models showed a significant reduction in tumor size compared to monotherapy (vemurafenib or Bortezomib, $p<0.05$). In the tumors treated by combination of Vemurafenib and Bortezomib compared to monotherapy (Vemurafenib or Bortezomib), the expression of Ki67 were significantly reduced (84% vs 30% and 50%, $p<0.001$).

CONCLUSION: Dual targeting therapy using BRAFV600E and the proteasome inhibitors significantly increased induction of cell cycle arrest, apoptosis and growth inhibition in aggressive thyroid cancer. Our results demonstrate the potential role of synergetic effects of combination therapy using Vemurafenib and Bortezomib for future preclinical trials in patients with aggressive thyroid cancers.

NOTES

★ 16. A NOVEL HEAT SHOCK PROTEIN 90 INHIBITOR OVERCOMES RECEPTOR TYROSINE KINASE RESISTANCE IN DIFFERENTIATED THYROID CANCER

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BACKGROUND: While receptor tyrosine kinase inhibitors (RTKI) have shown benefit in advanced, RAI-refractory differentiated thyroid cancer (DTC), patients still experience a high rate of disease progression and recurrence from drug resistance. RTKI resistance has been ascribed to kinase domain mutations that decrease inhibitor binding or through drug efflux, which result in upregulation of pro-survival PI3K/Akt and MAPK pathways that are activated through heat shock protein 90 (Hsp90) chaperone function. We hypothesize that a novel Hsp90 inhibitor targeting kinase function (KU711) will effectively overcome RTKI resistance mechanisms through inhibition of client kinases essential for growth and cancer stem cell function.

METHODS: Validated human DTC cell lines WRO, TPC1, and FTC238 were tested. A lenvatinib resistant cell line (WRO-LvR) was developed and resistance confirmed using 72h CellTiter-Glo luminescent cell viability assay. Cells were then treated with lenvatinib, 17-AAG (positive control Hsp90 inhibitor), and KU711 for 24 hours and RTKI resistance pathway proteins analyzed by Western blot (WB). Kinase activity of notch1 and β-catenin was evaluated by luciferase reporter assays.

RESULTS: Lenvatinib (Lv) IC50 levels increased from 12.5μM in WRO to 37.4μM in the WRO-LvR line, however both lines were equally sensitive to KU711 (IC50 10μM). WRO-LvR demonstrated an increased expression of p-Akt (1.5-fold), notch1 (9.7-fold), pERK (4.9-fold), and p-β-catenin (6.8-fold) v.s. control WRO cells, which could only be reduced by 35-60% with high dose lenvatinib, while at IC50 levels of KU711 this was reduced by 90-99% with only 20% reduction of notch1 by 17AAG ($p<0.01$ for KU711 vs. others). Additionally, KU711 inhibited downstream pathway phosphorylation of mTOR and p70-S6kinase (60% vs. Lv; $p<0.01$). Functionally, KU711 also reduced cancer stem cell markers including CD44 (80%; vs Lv and controls; $p<0.01$), BMI-1 (25% vs Lv and controls;$p<0.05$), and mesenchymal marker vimentin (70% vs Lv and controls;$p<0.01$). Functional changes in notch1 and β-catenin expression were confirmed using luciferase-reporter activity assays.

CONCLUSION: The novel Hsp90 inhibitor KU711 overcomes lenvatinib resistance through simultaneous inhibition of key Hsp90-chaperoned kinases regulating resistance mechanisms. Additional translational evaluation is warranted to demonstrate its potential utility as a novel therapeutic for advanced DTC patients with RTKI resistance leading to progression or recurrence.

NOTES

★ 17. APPLICATION OF THE NEW 2015 AMERICAN THYROID ASSOCIATION GUIDELINES ON WELL DIFFERENTIATED THYROID CANCER LEADS TO A SUBSTANTIAL RATE OF COMPLETION TOTAL THYROIDECTOMY TO ENABLE RADIOACTIVE IODINE TREATMENT

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BACKGROUND: The new 2015 American Thyroid Association (ATA) guidelines recognize unilateral thyroid lobectomy as viable treatment for some low-risk well differentiated thyroid cancers (WDTC). The guidelines also give clearer recommendations on the indications for radioactive iodine (RAI) treatment, which requires total thyroidectomy. We have previously shown that half of patients now eligible for lobectomy have high risk pathological characteristics leading to completion total thyroidectomy. We now examined the effect of the guidelines on the frequency of RAI treatment in this cohort.

METHOD: All patients undergoing thyroidectomy for WDTC from 2000-2010 were retrospectively reviewed. We included patients classified by the ATA guidelines as low to intermediate risk. We excluded patients with microcarcinomas <1cm or high risk disease (>4cm, gross extrathyroidal extension, clinically N1b or M1), as well as those with insufficient data regarding RAI. We determined the rate at which RAI would be recommended by the new guidelines for our cohort based on surgical pathology results. Patients were classified as having "strong" indication (clinically suspicious N1a, positive lymph nodes >2mm in size or >5 in number, vascular invasion, or aggressive histology) or "intermediate" indication (extrathyroidal extension, positive margin, ≤5 microscopic positive lymph nodes) for RAI. We then compared our calculated rate of RAI with our actual rate and determined the need for completion total thyroidectomy. [Ma1]

RESULTS: A total of 413 patients were examined. Under the new guidelines, RAI would be administered in 111(26.9%) patients with strong indication, and an additional 93(22.5%) patients with intermediate indication, for a total of 204(49.3%) patients. This represents a decline of 18% and 56% respectively when compared to the 249(60.1%) patients who actually received RAI in our cohort. In the subgroup eligible for unilateral lobectomy, completion total thyroidectomy to enable RAI would be recommended in 17% (strong indication) to 43% (strong plus intermediate indication) of cases.

CONCLUSION: Although the new ATA guidelines have tightened the indications for RAI treatment for WDTC, a substantial proportion of cases would still eventually require total thyroidectomy with RAI. Depending on the treatment threshold, the rate of completion total thyroidectomy to enable RAI would vary between 17%-43%.

NOTES

18. PROGNOSTIC ASSESSMENT OF RECURRENCE AND RADIOACTIVE IODINE (RAI) RESISTANCE IN ADULT AND PEDIATRIC PATIENTS USING MUTATIONAL ANALYSIS OF METASTATIC LYMPH NODES FROM DIFFERENTIATED THYROID CARCINOMAS

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BACKGROUND: Molecular events involved in development of lymph nodes (LNs) metastasis, differentiated thyroid carcinoma (DTC) recurrences, or radioactive iodine (RAI) resistance are not well understood. Limited data are available on the role of somatic mutations in metastatic LNs in patients with DTC and on why pediatric and young adults patients (P&YA) show better prognosis, even with more extensive disease at surgery. In this study, we have analyzed the presence of somatic mutations in micro-dissected FFPE tissues from metastatic LNs and from matching thyroid DTC in adult and P&YA patients.

METHODS: ThyGenXTM NGS was used to detect somatic mutations in total nucleic acids extractions from 91 micro-dissected FFPE slides of malignant thyroid nodules and metastatic LNs of 55 patients (47 adults, 8 P&YA). These included i) total thyroidectomy (TT) specimens with matching central neck (CNLD) and level 2,3,4,5 LNs from modified radical neck dissection (MRND) ii) MRND LNs at >=2 years after the initial thyroidectomy and RAI therapy, and iii) separately adult and P&YA patients (≤22yo).

RESULTS: Majority of metastatic DTC in LNs from lateral neck MRND group, and those MRND operated several years after RAI therapy, carry BRAF mutations only. RAS mutations were not found on post RAI LNs analysis, indicating better response of RAS containing DTC to RAI.

Multifocal DTC contains different type of mutations in different foci of thyroid tumors within the same thyroid gland, which are often different from corresponding LNs.

P&AY patients with DTC have predominantly KRAS & NRAS mutations compare to adults. Whereas de novo KRAS mutation were found in LNs of P&YA, de novo BRAF mutations were found in corresponding metastatic LNs of several adult patients, which might explain the presence of more aggressive disease and resistance to RAI in adults.

CONCLUSIONS: Development of de novo BRAF mutations in metastatic LNs might be responsible for the recurrence of DTC or its resistance to the RAI therapy. However, in spite of these, those LNs remain stable in size for years.

Good prognosis of DTC in P&YA patients might be due to the predominance of RAS, rather than BRAF, mutations.

NOTES

19. MALIGNANCY PREVALENCE RATE EFFECT ON GENE EXPRESSION CLASSIFIER TESTING OF THYROID NODULES WITH INDETERMINATE CYTOPATHOLOGY

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Tulane University School of Medicine

BACKGROUND: Molecular markers were developed to assist in the clinical evaluation of thyroid nodules preoperatively. The Afirma gene expression classifier (GEC) has been extensively used to complement and improve the diagnostic accuracy of fine needle aspiration biopsies for nodules with indeterminate cytopathology. The fundamental value of GEC testing manifests in it claimed high negative predictive value (NPV) preventing unnecessary diagnostic surgeries. In this study, we examined the effects of high thyroid malignancy prevalence rate at our institution on the accuracy of GEC testing.

METHODS: This is a retrospective study of patients with indeterminate thyroid nodules (Bethesda Category III and IV) who had GEC testing done over a 3-year period in a single academic institution. Samples for the GEC testing were collected according to the manufacturer's protocol. Postoperative surgical pathology was used to evaluate the efficacy of the Afirma GEC. We examined the effect of high malignancy prevalence on the accuracy of GEC testing.

RESULTS: A total of 192 patients with 210 indeterminate FNA results and Afirma GEC testing were included. 145 of those patients underwent surgery with 149 nodules excised. The prevalence of malignancy in the excised nodules with Afirma testing was 46.3% (46/149). 17 (11.4%) samples had insufficient RNA for GEC testing; 13 of them decided not to repeat the FNA biopsy and elected for diagnostic surgery, where 5 (2.94%) were found to harbor malignancy. 49 nodules (32.8%) showed a benign GEC result; 25 of them underwent surgical intervention for various indications, and 14 were confirmed to have a benign final pathology (NPV=56%). 83 nodules (55.7%) were suspicious by Afirma GEC testing. 30 nodules out of 63 with suspicious GEC that underwent surgery had confirmed malignancy on final pathology (PPV= 48.4%).

CONCLUSIONS: The utility of Afirma GEC assay in a hospital with a high prevalence of malignancy is arguable. GEC assay testing in our institution was associated with a lower NPV compared to previously published literature. Prospective multi-intuitional studies are needed to guide optimized strategies for Afirma GEC testing.

NOTES

★ 20. SUPPRESSION OF CYTOCHROME P450 4B1: AN EARLY EVENT IN ADRENOCORTICAL TUMORIGENESIS

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BACKGROUND: Adrenocortical carcinoma (ACC) is a rare endocrine neoplasm that portends a poor prognosis owing, in part, to its inherent resistance to chemotherapy. Conversely, adrenocortical adenomas (ACAs) are common and benign. While these adrenocortical tumors (ACTs) share a common origin, there is a paucity of evidence that ACC arises from ACA. Recent comprehensive genetic analyses of ACCs by our group have shown recurrent gene copy deletion of*CYP4B1*, a cytochrome P450 isozyme. CYP4B1 has been shown to metabolize a variety of endogenous and exogenous compounds whose byproducts can be cytotoxic in specific situations. This study investigates a potential role for*CYP4B1*in promoting adrenocortical tumorigenesis and/or conferring chemoresistance to ACCs.

METHOD: Using TaqMan real-time qPCR techniques, we investigated the expression of*CYP4B1*in the normal adrenal cortex (n= 11), histologically confirmed ACA (n= 12), and ACC (n= 7). The established ACC cell line SW-13 was stably transfected with vectors carrying*CYP4B1*open reading frame or empty vectors and then selected for Geniticin-resistance.*CYP4B1*overexpressing and control ACC cells were tested for mitotane sensitivity. Standard Student's*t*-test was used to assess statistical significance in normally distributed data sets.

RESULTS: Gene expression analyses demonstrated suppression of*CYP4B1*in 100% of ACA (12/12) and ACC (7/7) samples in comparison to normal adrenal tissue. Average relative expression of*CYP4B1*in ACAs was reduced at 0.17 (0.01 - 0.50;p< .05), and nearly absent in ACC (average = 0.01; 0.00 – 0.05;p< .05). There was a significant decrease in cell viability in*CYP4B1*expressing ACC cells treated with concentrations of mitotane analogous to human dosing (16 mg/L;p< .05).

CONCLUSION: Significant suppression of*CYP4B1*was observed in all ACT samples tested. While the downregulation of CYP4B1 in ACAs may represent a metabolic shift during early stages of adrenocortical tumorigenesis, the near-complete silencing in ACCs suggests additional roles, potentially contributing to ACC's well-known chemoresistance. Resensitization of ACC cells engineered to constitutively express*CYP4B1*further supports this notion.

NOTES

21. OUTCOME OF ADRENALECTOMY FOR SUBCLINICAL HYPERCORTISOLISM AND CUSHING'S SYNDROME

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BACKGROUND: The role of laparoscopic adrenalectomy in the management of subclinical Cushing's syndrome (SCS) is still controversial. In addition, the need and the duration of postoperative glucocorticoid replacement in patients with SCS undergoing adrenalectomy is yet to be clarified. We aimed to compare the results of adrenalectomy in patients with SCS and overt Cushing's syndrome (CS), in terms of complications and metabolic outcome.

METHOD: The medical records of all the patients who underwent unilateral laparoscopic adrenalectomy between January 1998 and December 2014 for unilateral adrenal lesion causing SCS or CS were reviewed. Diagnostic criteria for the definition of SCS were pathological dexamethasone suppression test plus two additional criteria, including suppressed ACTH levels, altered circadian cortisol rhythm, elevated urinary free cortisol and unilateral uptake on 131I-19-norcholesterol scintigraphy. Follow up data were obtained by outpatient consultation or telephone contact.

RESULTS: Twenty-nine patients with SCS and 50 with CS were identified. No significant difference was found between patients with SCS and CS in terms of lesion size (37.0±9.75 Vs 36.0±11.80 mm), operative time (102.2±47.9 Vs 108.9±34.0 min) and hospital stay (6.3±2.1 Vs 7.2±4.3 days). Two patients out of 29 with SCS and 3/50 with CS experienced Clavien-Dindo grade II complications (P=NS). No other complication occurred. Adrenalectomy significantly improved hypertension and diabetes in affected patients, with no difference between SCS and CS (P=NS). Hypercortisolism was resolved in all the cases at a mean follow up of 85.1±53.9 months. Basal morning plasma cortisol and ACTH 3 months after adrenalectomy were 64.9±35.7 ng/mL and 26.5±10.1 pg/mL, respectively, in SCS patients and 58.9±42.5 ng/mL and 33.0±24.1 pg/mL, respectively, in CS patients (P=NS). All the patients required postoperative glucocorticoid replacement treatment, that was discontinued within 3 months in 28/29 SCS and 16/50 CS patients (P<0.005).

CONCLUSION: Operative and metabolic outcome of adrenalectomy are similar in patients with SCS and CS. If the diagnosis is established relying on strict criteria, postoperative glucocorticoid replacement treatment is advisable in all the patients with SCS. Prolonged adrenal insufficiency is more frequent in CS patients.

NOTES

★ 22. PEDIATRIC PATIENTS WITH PHEOCHROMOCYTOMA AND PARAGANGLIOMAS SHOULD HAVE ROUTINE PREOPERATIVE GENETIC TESTING FOR COMMON SUSCEPTIBILITY GENES AND IMAGING TO DETECT EXTRA-ADRENAL AND METASTATIC TUMORS

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BACKGROUND: A recent Endocrine Society Practice Guideline recommended genetic testing in patients with pheochromocytomas and paragangliomas (PPGL) and functional imaging in patients with metastatic PPGL. However, there is limited data in pediatric PPGL as to what the best practice is with respect to genetic testing and the detection of extra-adrenal tumors. The aim of this study was to determine which genes should be tested for and whether routine imaging to detect extra-adrenal or metastatic tumors should be undertaken in pediatric patients with PPGL.

METHODS: We performed a retrospective analysis of 56 patients diagnosed with PPGL at the age of 21 years or younger. All underwent genetic testing and multimodal imaging (CT, MRI, and functional imaging with 18F-FDG, 18F-FDOPA, 18F-FDA PET/CT). All patients had histologically proven PPGL. Criteria for malignancy were presence of metastases in lymph nodes or distant sites.

RESULTS: Of 56 patients, 52% were male. Seventy-five percent were positive for a germline mutation; VHL in 57%, SDHB in 6%, RET in 6%, and NF1 and SDHD in 3% each. Adrenal pheochromocytoma was present in 62.5% (n=35/56) and 31% (n=11/35) were bilateral. Of the bilateral pheochromocytomas, 10 of 11 were in patients with VHL (1 MEN 2A) and 6 of 11 were bilateral at initial presentation (5 of 10 VHL and one MEN 2A), the remaining five developed contralateral disease over a span of 2-8 years. Four patients with VHL had recurrences after previous partial adrenalectomy, three had bilateral disease. Extra-adrenal paragangliomas in the abdomen were present in 25% (n=14/56), head and neck in 10.7% (n=6/56) and 1.8% in the chest. SDHB mutations accounted for 52% (n=11/21) and 24% had no known mutations. The rate of malignancy overall was 14% (n=8/56), 7 of 8 cases had SDHB mutations and 5 of 8 were extra-adrenal. Functional imaging helped identify additional lesions and aid in operative approach.

CONCLUSIONS: Pediatric patients with PPGL commonly have a germline mutation. Thus, genetic testing for germline mutations in VHL, SDHB/D and RET are important in surgical planning and follow-up. Imaging to detect extra-adrenal and metastatic PPGL is imperative to optimize surgical interventions.

NOTES

★ 23. THE UTILITY OF IDENTIFYING PRIMARY TUMORS IN PATIENTS PRESENTING WITH METASTATIC GASTROENTEROHEPATIC NEUROENDOCRINE TUMORS

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BACKGROUND: A significant proportion of patients with gastroenterohepatic (GEP) neuroendocrine tumors (NETs) present with distant metastases. These patients still have the potential for long-term survival with resection of the primary tumor and debulking. We set out to examine our success at finding and resecting primary tumors in patients presenting with GEPNET metastases and their outcome.

METHODS: A surgical NET database was reviewed to identify patients presenting with distant metastases prior to resection of their primary tumor. Patients not considered reasonable surgical candidates were excluded (>70% liver replacement, multiple comorbidities). Results of radiologic, endoscopic, and operative procedures were evaluated to determine which correctly identified the primary tumor. Statistical analyses were performed using Welch's t-test, Kaplan-Meier and McNemar's test.

RESULTS: Of 162 NET patients presenting to us with distant metastases, 122 had not had their primaries removed. Of these, the preoperative diagnosis of NET was made in 110 patients by biopsy, and by elevated markers and clinical symptoms in 12. The site of the primary tumor was identified by preoperative testing in 116 (95%), at surgical exploration in 5, and was not identified in 1 patient. The primary tumors included 82 small bowel, 33 pancreatic, 3 gastric, 2 duodenal and 1 rectal. The primary site was identified by: CT in 99/122, Octreoscan in 56/95, and endoscopy in 24/63. The mean number of diagnostic tests performed for each patient was 2.3. The sensitivity of CT was better than Octreoscan (81% vs. 59%, $p<0.01$), but Octreoscan identified 11 primaries not seen by CT. There was no association between preoperative marker levels and whether the primary was identified by imaging. The primary was removed in 121/122 patients, with combined hepatic debulking in 85/121 (70%). Median survival for patients with small bowel and pancreatic NETs was 88 and 53 months (vs. 56 and 24 months in SEER, respectively).

CONCLUSIONS: Preoperative testing identified the primary site in the majority of patients presenting with metastatic GEPNETs. Knowledge of the primary site facilitated operative planning, allowing for resection of the primary, and hepatic debulking in most patients. This approach led to improved survival relative to historical controls with GEPNETs.

NOTES

24. EXPERT SURGEON CONSENSUS OF RESIDENT PROFICIENCY WITH COMMON ENDOCRINE OPERATIONS

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BACKGROUND: Graduating general surgery residents in the United States (US) are expected to be proficient in common endocrine operations. However, there are no expert consensus guidelines about these expectations. We hypothesized that a group of expert endocrine surgeons would agree that general surgery chief residents could perform all steps of a thyroidectomy or parathyroidectomy with attending supervision, but there would be a lack of consensus about readiness for independent practice.

METHODS: All US members of the American Association of Endocrine Surgeons were electronically surveyed about their practice, experience with residents and expectations regarding resident proficiency in hypothetical patient presentations.

RESULTS: Overall response rate was 49.4% and 92.4% of respondents operate with residents. A majority believe a PGY5 resident should be able to perform most steps of a thyroidectomy (71.3%) or parathyroidectomy (88.2%) with direct attending supervision. There was significantly less agreement about PGY5 residents doing the initial incision or closure, division of strap muscles, preserving parathyroid glands, and dissection of the RLN even with supervision (range of agreement=69-97%).

Regarding PGY5 readiness for independent practice, 65.6% felt that a graduating PGY5 could independently perform a total thyroidectomy for benign disease, but only 44.5% felt similarly with malignant thyroid disease. Seventy-nine percent felt that a PGY5 could independently perform a parathyroidectomy.

Interestingly, years of experience as an attending was positively correlated with belief in resident autonomy for total thyroidectomy (benign r=0.38 (moderate), p<0.005; malignant r=0.29 (weak), p=0.001), but not parathyroidectomy. Logistic regression analysis showed that respondent gender and years of experience were significant independent predictors of resident autonomy for total thyroidectomy for benign disease only (p=0.001). These beliefs were independent of the average percentage time spent operating with residents or fellows or self-reported annual endocrine volume.

CONCLUSIONS: There is considerable disagreement among expert endocrine surgeons about the level of resident proficiency and autonomy with common endocrine operations. These results imply that thyroidectomy and parathyroidectomy are advanced operations that necessitate specialized training to conduct independently. These results also highlight important steps of thyroidectomy and parathyroidectomy that may require further training during residency.

NOTES

★ 25. ENDOCRINE SURGERY FELLOWSHIP GRADUATES PAST, PRESENT, AND FUTURE: EIGHT YEARS OF EARLY JOB MARKET EXPERIENCES AND WHAT PROGRAM DIRECTORS AND TRAINEES CAN EXPECT.

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BACKGROUND: Since the formalization of the American Association of Endocrine Surgeons (AAES) fellowship match in 2007, there have been 140 graduates. We examined trends in employment and practice patterns.

METHOD: Practice information of fellows from 2007-2015 was obtained by online query, personal correspondence, and a survey they completed at the beginning of their careers. Two additional surveys were sent to surgery department chairs and physician recruiters. Statistical analysis was performed with JMP Pro 10 software.

RESULTS: Of 135 graduates with available information, 64% joined academic and 36% joined private practices, with earlier graduates more likely in academic practices ($p<.0001$). Survey response rate was 67% (n=94) with similar representation from both practice types. Ninety-eight percent of early graduates intended to join academic practices versus 77% of recent graduates ($p=.002$), and early graduates more likely matched their intentions ($p=.038$). Excluding fellows hired by their residency/fellowship institutions, graduates after 2012 were less likely to find academic employment ($p=.0008$). Recent graduates intended to join practices with general surgery responsibilities more so than earlier graduates ($p=.004$). Recent graduates more likely joined practices with ≤ 50% endocrine caseload ($p=.02$) and with general surgery call (79% vs. 64%, $p=.56$). Excluding fellows hired by their residency/fellowship institutions, recent graduates reported more difficulty finding employment despite willingness to also practice general surgery ($p=.015$). However, number of interviews and offers was similar over time. Recent graduates are less satisfied with their jobs ($p=.01$); however, satisfaction is still high (79%) and 93% would choose endocrine fellowship again. Forty-four percent of recent graduates expected more help from mentors. Forty-one percent of chairs anticipate hiring an endocrine surgeon, and recruiter familiarity with endocrine surgery increased from 30% to 100%.

CONCLUSION: The majority of graduates are in academic practice and job satisfaction remains high. Recent graduates mostly intended to join academic practices with mixed clinical caseloads but more entered private practices with significant general surgery responsibilities. Interview and job offers remain similar; however, employment opportunities are more diverse. This data should help trainees shape their early career expectations. The AAES has the opportunity to actively promote job creation in academic and private practices.

NOTES

★ 26. COMPARATIVE ANALYSIS OF RAI VS. THYROIDECTOMY FOR DEFINITIVE TREATMENT OF GRAVES' DISEASE

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BACKGROUND: The most common cause of hyperthyroidism in the US is Graves' disease (GD). Management modalities include antithyroid drugs (ATD) and definitive treatment by 131I therapy (RAI) or thyroidectomy. This study's purpose was to review the experience with definitive treatments for GD at our tertiary care institution.

METHODS: A retrospective chart review encompassing pediatric (<18) and adult patients undergoing RAI (n=295) or thyroidectomy (n=105) for GD between 2003 through 2015 was conducted. Surgeon and nuclear medicine databases were used to collect demographic, clinical, pathology, and outcome data. Patients with incomplete follow up were excluded. Data analysis was performed using SPSS software with p-values < 0.05 considered statistically significant.

RESULTS: RAI patients were significantly older than thyroidectomy patients (mean age 39.1 versus 33.4 years respectively, p=0.001). No significant differences were observed between sex, BMI, weight, and presence of ophthalmopathy in the two groups. Pediatric patients were more likely to have thyroidectomy than RAI (21% versus 9.1%, p=0.026). Mean first RAI dose was 12.7 mCi. Ablation was successful in 81.4% of patients. Twenty-nine patients received a second treatment with mean of 16.1 mCi for an overall RAI success rate of 90.4% (follow up available in 95.6% of patients). Rapid turnover correlated with RAI failure (26.4% versus 4.3%, p<0.05). Common indications for surgery included failed ATD (21), patient preference (19), failed RAI (16), treatment noncompliance (12), adverse reaction to ATD (8), compressive symptoms (8), and cold nodule (5). Most surgical patients (99%) underwent total thyroidectomy, however, one underwent lobectomy alone (patient preference). RAI-related complications included worsening thyrotoxicosis (1%) and deteriorating orbitopathy (0.7%) requiring escalation of therapy. Thyroidectomy-related complications included temporary hypocalcemia (32.4%), transient recurrent laryngeal nerve paresis (2.9%), hematoma (1%), perioperative thyrotoxicosis (1%), and transient brachial compression neuropathy (1%). There was no worsening orbitopathy or recurrent GD among surgical patients.

CONCLUSION: Primary thyroidectomy appears to be favored in pediatric patients and is successful for those failing RAI. Presence of rapid turnover suggests more effective management with surgery than RAI. Although transient complication rates were higher following thyroidectomy, RAI was more likely to lead to long-term worsening eye disease among patients with pre-existing orbitopathy.

NOTES

27. OVEREXPRESSION OF SLC2A GENE (ENCODING GLUCOSE TRANSPORTER) IS RELATED TO POOR SURVIVAL OUTCOME IN PAPILLARY THYROID CARCINOMA: AN ANALYSIS OF THE CANCER GENOME ATLAS DATA

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BACKGROUND: While mitochondrial oxidative phosphorylation is a main process in normal somatic cell proliferation, cancer cells use glycolysis despite the presence of abundant oxygen. This aerobic glycolysis known as Warburg effect explains increased glucose uptake in cancer cells. Intracellular glucose transport is facilitated by glucose transporter (GLUT) and high GLUT expression is known to be associated with poor prognosis in lung cancer, breast cancer, and ovarian cancer. In this study, we evaluated the mRNA expression of SLC2A genes which encodes GLUT in papillary thyroid carcinoma (PTC) patients using The Cancer Genome Atlas (TCGA) data analysis

METHOD: The clinical information and gene expression data of the 499 PTC patients were downloaded from the TCGA database. Correlation between the overall survival of the PTC patients and mRNA expression of SLC2A gene family (SLC2A1 to SLC2A14) were analyzed by simple linear regression analysis. Clinicopathological factors including age, gender, race, thyroiditis, histologic subtype, extrathyroidal extension, tumor size, lymph node status, and TNM stage were also analyzed.

RESULTS: The median follow-up duration was 20.7 months (range, 0.03–171.70 months). There were 14 patient mortalities during the follow-up period. Patient mortality was associated with age ≥ 45 years ($p<0.001$), presence of extrathyroidal extension ($p=0.004$), higher TNM stage ($p<0.001$), and the higher mRNA expression level of SLC2A1, SLC2A3 and SLC2A14 gene ($p=0.005$, $p=<0.001$, and $p<0.001$, respectively). Logistic regression analysis revealed SLC2A1, SLC2A3, and SLC2A14 genes were independent risk factors for increased mortality (OR 11.692, 95% CI 3.362-36.938; OR 12.725, 95% CI 4.247-40.187; OR 13.768, 95% CI 4.208-61.710, respectively). When the patients were categorized into the low and high mRNA expression group based on the cut-off value, the high mRNA expression group of SLC2A1, SLC2A3, and SLC2A14 had shorter overall survival than the low mRNA expression group in the Kaplan-Meier survival analysis ($p=0.003$, $p<0.001$, and $p<0.001$, respectively).

CONCLUSION: The high mRNA expression of SLC2A1, SLC2A3, and SLC2A14 gene was associated with poor survival outcomes in PTC. This study suggests mRNA expression analysis of SLC2A genes might be useful to predict the prognosis of PTC patients.

NOTES

★ 28. DOES EPSTEIN BARR VIRUS (EBV) INFLUENCE THE DEVELOPMENT OF THYROID CANCER?

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INTRODUCTION: Epstein-Barr virus (EBV) is a common herpes virus associated with the development of several malignancies, and EBV gene expression is regulated by the viral transactivator EBNA2. Notch1 is a tumor suppressor protein that has been shown to slow thyroid cancer progression and promote re-differentiation. Both EBNA2 and Notch1 modulate gene expression by binding to the repressor protein CBF1. Previous studies have suggested that EBV infects thyroid cells, but have not examined its potential effect on Notch expression. Here, we explored whether transfection of EBNA2 can mimic Notch1 activation in thyroid cancer cell lines.

METHODS: Two human thyroid cancer cell lines, follicular FTC-236 and anaplastic HTh7, were transfected with an EBNA2, Notch1 or control vector. Exogenous expression of EBNA2 was verified by western blotting. Downstream Notch targets Hes1 and Hey1 were measured using qRT-PCR. Cell proliferation was measured by MTT.

RESULTS: EBNA2 transfection of thyroid cancer cells resulted in marked induction of Notch1 downstream targets. In FTC-236 cells, expression of Hes1 was increased ten-fold. In HTh7 cells, expression of Hes1 was increased 1.5 fold and expression of Hey1 was increased ten-fold. Importantly, these levels of activation were similar to those observed with Notch1 transfection. Notch1 transfection resulted in suppression of thyroid cancer proliferation, but EBNA-2 did not.

CONCLUSION: For the first time, we demonstrate that the EBV transactivator EBNA2 can induce the Notch signaling pathway in human thyroid cancer cells. These results suggest a potential role for EBV infection in the development of certain thyroid cancers.

NOTES

29. INDOCYANINE GREEN FLUORESCENCE ANGIOGRAPHY (ICGA) FOR QUANTITATIVE EVALUATION OF IN-SITU PARATHYROID GLAND PERFUSION AND FUNCTION AFTER TOTAL THYROIDECTOMY

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BACKGROUND: Indocyanine green fluorescence angiography (ICGA) not only provide real-time tissue perfusion images but could also quantitatively measure tissue perfusionbyfluorescent intensity (FI). Since inadequate perfusion to in-situ parathyroid glands (ISPGs) is a major cause ofpostoperative hypocalcemia (PH) after total thyroidectomy (TT), we hypothesizemeasuring theFI ofISPGs withICGA intraoperatively couldpredict postoperative residual parathyroid function andPH.

METHOD: Seventy patients underwent intraoperative ICGA during TT. Intraoperatively, each PG and its vascular pedicle were carefully preserved. Those with a vascular pedicle were left in-situ while those without were auto-transplanted. Once the entire thyroid gland had been removed, an intravenous 2.5mg ICG was given and real-time fluorescent images of the operated field were recorded using the SPY imaging system (Novadaq, Ontario). The FI of each identifiable ISPG was measured. Themean and highest FI of theremaining ISPGs per patient werecorrelated with the intraoperative parathyroid hormone (IOPTH)drop and PH risk. PH was defined as adjusted calcium<2.00mol/L 24-hour after TT and/or need for oral calcium ± calcitriol to maintain normocalcemia (2.11-2.55mmol/L).

RESULTS: Of the 280 PGs identified, 254 (90.7%) were ISPGs while the others were auto-transplanted. Each patient had ≥2 ISPGs. No inadvertently-removed PGs were found on specimen. Among the ISPGs, the mean FI/patient was 169.8±59.0 while the highest FI/patient was 231±75.0. There was a significant inverse correlation betweenthe highest FI value/patient andIOPTH drop (r=-0.239,p<0.001) but not between mean FI/patient andIOPTH drop (p>0.05). None of the 55 patients with the highest FI>150 in the remaining ISPGs developed PH while 9 (60.0%) patients with the highest FI≤149 in the remaining ISPGs developed PH. The highest FI/patient on ICGA wasfound to be equally predictive of PH as IOPTHassay (p=0.378).

CONCLUSION: Given that a patient withthe highest FI>150on ICGA has little to norisk of PHwhile a patient with highest FI≤149 on ICGAhas a 60% risk of PH, FI on ICGA could bea usefulsurrogate forsurgeons toobtain real-time feedback onresidual PG perfusion and function. Performing ICGA to the first completed side ofTTmay help guidesurgeons to alter their approach to the subsequent side in preventing PH.

NOTES

★ 30. EARLY SURGICAL MANAGEMENT OF HPT OFFERS GREATER BONE RECOVERY IN MEN1 PATIENTS AND IN SHPT PATIENTS

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BACKGROUND: No published studies have evaluated recovery of bone mineral density (BMD) after surgery in patients with neoplasia endocrine multiple type1 (MEN1) compared to those with sporadic hyperparathyroidism (sHPT). We sought to determine whether there was a difference in outcome of bone disease following treatment of MEN1-associated HPT compared to sporadic disease.

METHOD: A prospectively maintained database of all patients with MEN1 or sHPT who underwent parathyroidectomy for HPT in our institution from 1990 to 2013 was retrospectively reviewed. Patients with recorded dual energy x-ray absorptiometry (DEXA) performed at our institution at baseline and 1 year postoperatively were included. Were excluded; all persistent or recurrent patients and those with other conditions that contribute to the risk of osteoporosis. Preoperative and postoperative DEXA measurements (BMD, T-score, Z-score at the lumbar spine (LS), total hip, femoral neck (FN), and distal one-third radius (DR) were analyzed. P value of 0.01 was considered significant.

RESULTS: 30 MEN1 and 104 sHPT patients were evaluated. The female/male ratios in the MEN1 and sHPT groups were 0.8:1.0 and 2.4:1.0, respectively (p=0.02). sHPT patients were older than MEN1 patients at surgery (median age, 61 and 44 years, respectively; p=0.0001). The mean preoperative Z-score in the LS and FN was lower in the MEN1 group (-0.25 [p=0.06] and -0.48 [p=0.06]). Comparing preoperative and postoperative DEXA, the MEN1 group had a significantly higher median increase in lumbar spine BMD(0.06 versus 0.02 g/cm2 in sHPT patients; p=0.006) and this is seen consistently across the Z-score as well in LS (0.50 versus 0.30 in sHPT patients; p=0.04), FN (0.43 versus -0.45 in sHPT patients; p=0.04) and DR (0.40 versus -0.05 in sHPT patients; p=0.03); this difference remained significant following stratification for gender and menopause status.

CONCLUSION: This study suggests that the bone improvement can be seen at just one year postoperatively in MEN1. In this young, often asymptomatic population in which determining the timing of surgery is challenging, intervention may be considered prior to the development of overt bone disease but should be evaluated in a large cohort. Standard peri-parathyroidectomy care should include comparative BMD scans from baseline and 1 year post-surgery.

NOTES

★ 31. THE IDENTIFICATION OF NOVEL BIOMARKERS FOR THERAPEUTIC AND DIAGNOSTIC GOALS IN ANAPLASTIC THYROID CARCINOMA USING FUNCTIONAL GENOMIC MRNA PROFILING

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INTRODUCTION: The prognosis of anaplastic thyroid carcinoma (ATC) remains poor. The identification of novel molecular markers for therapeutic and diagnostic goals may improve quality of smart diagnostic tools and targeted treatment regimens. The challenge is to differentiate driver genes involved in carcinogenesis from the many genes that are randomly expressed in ATC. To do so, we apply our recently introduced method of functional genomic mRNA (FGM) profiling. This method enables us to capture the downstream effects of genomic alterations on gene expression level. It allows us to correct micro array expression data for major, non-genetic, factors (i.e. physiological, metabolic and experimental factors). We use the Drug Genome Interaction Database (DGIDb) for gene prioritization by identifying genes with a clinical available targeted therapy.

METHODS: Microarray expression data (GPL570 and GPL96) of ATC and normal thyroid tissue was extracted from the Gene Expression Omnibus (GEO). Following sample selection and quality control, we generated FGM profiles for both tissues and performed a two-class comparison between the profiles using a Welch t-test. A multivariate permutation test was used to assess the degree of multiple testing (FDR 5%, CI 80%). Gene prioritization was based on the significance of gene expression and the availability of a clinical available targeted ligand obtained by assessment of upregulated genes in the DGIDb.

RESULTS: The GEO search yielded 7224 arrays. After manual selection and quality control, 25 ATC arrays (4 studies) and 134 normal thyroid tissue arrays (14 studies) remained. FGM profiling and two-class comparison identified respectively 496 (Top 3: SLC25A5, GADPH, ITPR1) and 1499 (Top 3: DLG2, LOC100505761, LIMK2) significantly up- and downregulated genes. DGIDb assessment of the upregulated genes identified 6 genes with a clinical available targeted therapy (MTOR, CD74, RAF1, FGFR3, MET and MERTK).

CONCLUSION: FGM profiling can identify a great number of up- and downregulated genes in ATC. MTOR, CD74, RAF1, FGFR3, MET and MERTK have a clinical available form of targeted therapy. Future research should focus on validation of the downstream protein expression of these genes and introduction of the associated targeted ligands in the diagnostics and treatment of ATC.

NOTES

★ 32. "NORMOHORMONAL PRIMARY HYPERPARATHYROIDISM" IS A DISTINCT DISEASE PROCESS FROM CLASSIC PRIMARY HYPERPARATHYROIDISM

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BACKGROUND: Normohormonal primary hyperparathyroidism (NHpHPT) presents diagnostic and intraoperative decision-making challenges. Most literature NHpHPT is descriptive and it remains unclear if NHpHPT is distinct from classic pHPT (CpHPT) in presentation. We sought to better define the differences between NHpHPT and CpHPT in order to better inform the care of NHpHPT patients.

METHODS: From our prospectively maintained database, 516 consecutive patients undergoing parathyroidectomy for pHPT were reviewed retrospectively. Patients were divided into 2 groups: CpHPT [hypercalcemia (>10.2mg/dL), elevated parathyroid hormone (PTH >75pg/mL)] and NHpHPT (hypercalcemia, normal PTH). We evaluated inter-group differences in: presentation, gland weight, pathology, intraoperative PTH, and complications. We studied NHpHPT and multigland hyperplasia (MGH), comparing 3-gland parathyroidectomy with those who had 3.5-gland parathyroidectomy. T-tests, chi-squared tests, ANOVA, and logistic regression were used for analysis.

RESULTS: There were 116(22.5%) patients in the NHpHPT group. Mean highest PTH value and associated calcium were 62.1pg/mL±10.1 and 10.6mg/dL±0.63 in NHpHPT, and 142±89.0pg/mL and 11.0±0.88(both p<0.01) for CpHPT. Nephrolithiasis was more common in NHpHPT [36.2% versus 21.8%(p<0.01)], while other signs and symptoms were similar. MGH was more common in NHpHPT 23(19.8%) than in CpHPT 44(11%) (p=0.04). NHpHPT was less likely to localize on preoperative imaging studies [53(47.3%) versus 214(55.3%)(p <0.01)]. The NHpHPT group had a lower mean total gland weight (531.8mg±680.0 versus 1039.6mg±1237.3;p<0.01) and lower mean 2-week postoperative PTH level (32.5pg/mL±18.95 versus 41.0pg/mL±27.8)(p=0.01). There was no difference in hypoparathyroidism (PTH <15pg/mL)(p=0.93) at 2-weeks. When comparing 3-gland (n=9) with 3.5-gland (n=12) parathyroidectomy in those NHpHPT with MGH, there was no difference in 2-week postoperative PTH levels (42.3±32.1 versus 20.0±11.8)(p=0.09).

CONCLUSION: This retrospective cohort study suggests that NHpHPT is a distinct disease process from CpHPT. Here, NHpHPT represents 22.5% of our pHPT patients, which is much higher than previously reported. We found that NHpHPT is more likely to have MGH and have lower total gland weight. This can make it challenging to resect the ideal amount of tissue that allows a cure but does not cause permanent hypoparathyroidism. There was a trend toward higher 2-week PTH after 3-gland parathyroidectomy compared to 3.5-gland, however, larger studies with long-term follow-up are needed to determine optimal surgical management.

NOTES

★ 33. IS INTRAOPERATIVE PARATHYROID HORMONE TESTING IN PATIENTS WITH NORMOHORMONAL PRIMARY HYPERPARATHYROIDISM USEFUL?

Gina Trinh[1], Salem I Noureldine, MD[2], Jonathon O Russell, MD[2], Nishant Agrawal, MD[2], Jason D Prescott, MD, PhD[2], Martha A Zeiger, MD[2], Ralph P Tufano, MD, MBA[2]

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BACKGROUND: Intraoperative parathyroid hormone (IOPTH) testing is a useful surgical adjunct in the management of patients with primary hyperparathyroidism (PHPT). The successful removal of hypersecreting parathyroid gland(s) is indicated by a decrease in PTH levels >50% and typically into the normal range. However, a subset of patients with PHPT will actually have baseline PTH levels in the normal range. We sought to determine if an IOPTH reduction of >50% could accurately predict surgical cure in this patient population.

METHODS: A retrospective chart review was performed on all patients who underwent parathyroidectomy for PHPT at a single institution between December 2004 and June 2014. Only patients who underwent IOPTH testing during parathyroidectomy were included. Surgical cure was defined as sustained eucalcemia at least 6 months postoperatively.

RESULTS: Of the 1,861 patients with documented biochemical evidence of PHPT, 317 (17%) had normal range baseline PTH levels ≤65 pg/mL (NHPHPT), and 1,544 (83%) had elevated baseline PTH >65 pg/mL (classic PHPT). IOPTH degradation was slower in patients with NHPHPT than classic PHPT (p<.001). A >50% drop predicted cure in 98.6% of patients with NHPHPT and 98.8% of patients with classic PHPT (p=.810). When the surgeon relied on IOPTH to guide surgical resection in patients with NHPHPT, the cure rate was 98.5%. However, when the surgeon did not rely on the IOPTH findings to guide surgical resection, the cure rate was 95.2% (p=.141). Patients with NHPHPT were found to have higher rates of multigland disease than patients with classic PHPT (p=.018). Patients with NHPHPT were found to have a lower surgical cure rate the longer it took to achieve a greater than 50% drop, however, the surgical cure rate was the same at any time point the 50% drop occurred in patients with classic PHPT (p<0.05 for all).

CONCLUSIONS: Despite having a slower IOPTH degradation, the 50% rule delineating surgical cure can be applied with equal confidence to patients with NHPHPT. Finally, the time at which the 50% drop is achieved has an impact on long term success rates in this patient population.

NOTES

34. HEIGHT OF SERUM CALCIUM NOT CORRELATED WITH SYMPTOMS OR SEVERITY OF PRIMARY HYPERPARATHYROIDISM

Deva Boone, MD, Douglas Politz, MD, Jose Lopez, MD, Jamie Mitchell, MD, Kevin Parrack, MD, James Norman, MD

Norman Parathyroid Center

BACKGROUND: Guidelines for surgical treatment of primary hyperparathyroidism (pHPT) include calcium levels >1 mg/dl above normal. We sought to determine whether higher calcium levels were associated with increased symptoms or severity of disease.

METHODS: Retrospective review of a prospectively maintained database of adults with pHPT undergoing parathyroidectomy. Patients were grouped according to highest preoperative serum calcium level into two groups, those with calcium up to 11.0 mg/dl (Ca≤11) and those above 11.0 mg/dl (Ca>11). We compared subjective symptoms in addition to objective measures of disease severity including osteoporosis, kidney stones, and hypertension.

RESULTS: 17,497 consecutive adults with pHPT were studied and was evenly split between Ca≤11 (8885 patients, 50.8%) and Ca>11 (8612, 49.2%). In both groups, an absence of symptoms related to pHPT was uncommon (less than 5%). In all measures, symptomatology and rate of objective measures of disease severity were nearly identical (percentages for Ca≤11 and Ca>11, respectively): fatigue (68.4% vs. 67.9%), difficulty concentrating (55.5% vs. 53.2%), headaches (26.1% vs. 21.8%), GERD (34.5% vs. 31.4%), bone pain (47.8% vs. 45.8%), sleep disturbances (64.5% vs 61.9%), osteoporosis (41.2% vs. 40.7%), kidney stones (22.5% vs 21.0%), hypertension (47.9% vs. 50.8%). In Chi squared analysis, none of the differences reached statistical significance.

CONCLUSION: For adults with pHPT, serum calcium that is >1 mg/dl above normal is not associated with an increased rate of subjective symptoms or with objective measures of disease severity than those with lesser elevations in calcium. Half of all patients never reached this arbitrary biochemical cutoff, but had identical symptoms and end-organ effects. There appears to be no reason to include a serum calcium cutoff in parathyroidectomy guidelines.

NOTES

35. CAN WE CONSIDER IMMEDIATE COMPLICATIONS AFTER THYROIDECTOMY AS A QUALITY METRIC OF SURGERY?

Jean-Christophe Lifante, MD, PhD[1], Cécile Payet[2], Fabrice Menegaux, MD[3], Frédéric Sebag, MD[4], François Pattou, MD, PhD[5], Jean-Louis Kraimps, MD[6], Jean-Louis Peix, MD[1], Cyrille Colin, MD, PhD[1], Antoine Duclos, MD, PhD[1]

[1]Claude Bernard Lyon 1 University, Hospices Civils De Lyon,[2]Hospices Civils De Lyon,[3]Assistance Publique Des Hopitaux De Paris,[4]Assistance Publique Des Hopitaux De Marseille,[5]Universite Lille 2,[6]Centre Hospitalier Regional Universitaire De Poitiers

BACKGROUND: Permanent recurrent laryngeal nerve palsies (RLNP) and hypoparathyroidism (HP) represent the two major complications following thyroid surgery. Tracking these permanent complications is difficult and requires at least six months of follow-up. Assuming that the rate of immediate complications can predict permanent complications rate, some authors consider that it can be used as a valid metric for assessing individual surgeons' performance. However, most of immediate postoperative RLNP and HP are transient. This study aimed to determine the correlation between the rates of immediate and permanent complications following thyroïdectomies at the surgeon level.

METHOD: We conducted a cross-sectional study prospectively in five academic hospitals between April 2008 and December 2009. Immediate complications were first assessed during hospitalization within 48 hours after the thyroidectomy. A second assessment was planned at least six months after surgery to diagnose permanent complications. The correlation between the rates of immediate and permanent complications of each of the 22 participating surgeons was calculated using the Spearman's rank coefficient (r).

RESULTS: We included 3,605 patients during the study period. Overall rates of immediate and permanent RLNP were 10.3% [95%CI, 3.8%-21.8%] and 3.6% [1%-9.1%], respectively. Rates of immediate and permanent HP were 22.3% [9.6%-35.6%] and 2.2% [0.0%-5.9%]. There was a fairly good correlation between the rates of immediate and permanent RLNP (r=0.70, p=0.004), while no correlation was found between immediate and permanent HP (r= -0.10, p= 0.627).

CONCLUSION: Although immediate RLNP represents a good surrogate of postoperative thyroid surgery outcomes, immediate HP rate does not reflect permanent HP rate. Consequently, immediate HP should not be used to assess the quality of thyroidectomy and monitor surgeons' performance.

POSTER DISPLAYS

★ *Denotes Resident/Fellow Research Award Competition Poster*

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

POSTER DISPLAYS

POSTER GROUP 1: THYROID

★ P001. THE GENE EXPRESSION PROFILE OF NORMAL THYROID TISSUE AS INDICATOR OF THYROID CARCINOMA. IS IT THE WAY TO PROPHYLACTIC TOTAL THYROIDECTOMY?

Giovanna Di Meo, MD[1], Roberto Ria, MD, PhD[2], Vittorio Simeon, PhD[3], Assunta Melaccio, MD[2], Angela Gurrado, MD, PhD[1], Alessandro Pasculli, MD[1], Pellegrino Musto, MD[3], Franco Dammacco, MD, PhD[2], Angelo Vacca, MD, PhD[2], Mario Testini, MD[1]
[1]Unit of Endocrine, Digestive, and Emergency Surgery. Department of Biomedical Sciences and Human Oncology. University Medical School of Bari, Italy,[2]Unit of Internal Medicine. Department of Biomedical Sciences and Human Oncology. University Medical School of Bari, Italy,[3]Laboratory of Pre-Clinical and Traslational Research, IRCSS CROB, Rionero in Vulture (PZ), Italy

★ P002. MEASUREMENT AND VARIATION IN ESTIMATION OF QUALITY OF LIFE EFFECTS OF PATIENTS UNDERGOING TREATMENT FOR PAPILLARY THYROID CARCINOMA

Lucia De Gregorio, MD, Abbey L Fingeret, MD, Konstantinos P Economopoulos, MD, PhD, Sareh Parangi, MD, Antonia E Stephen, Elkan F Halpern, PhD, Karen Donelan, ScD, J Shannon Swan, MD, Carrie C Lubitz, MD, MPH
Massachusetts General Hospital

P003. TARGETING SYNAPTIC VESICLE2 PROTEINS FOR TREATING MEDULLARY THYROID CANCER

Won Hong, PhD[1], Kyung Sung[1], April Harrison[1], **Renata Jaskula-Sztul, PhD**[2], David Beebe, PhD[1], Herbert Chen, MD[2]
[1]UW Madison,[2]University of Alabama - Birmingham

★ P004. NODULAR GRAVES' DISEASE IS ASSOCIATED WITH A HIGHER INCIDENCE OF THYROID CANCER AND AGGRESSIVE FEATURES

James Y Lim, MD, **Stephanie Y Chen**, Latha Pasapuleti, John A Chabot, MD, James A Lee, MD, Jennifer H Kuo, MD
Columbia University

P005. PAPILLARY THYROID MICROCARCINOMA IN ADULTS: AN INSTITUTIONAL EXPERIENCE OF 1153 CONSECUTIVE CASES TREATED DURING A 70-YEAR PERIOD.

Ian D Hay, MD, PhD, Tammi R Johnson, AS, Suneetha Kaggal, BS, Megan E Reinalda, BS, Thomas J Sebo, MD, PhD, Geoffrey B Thompson, MD
Mayo Clinic and College of Medicine

★ P006. THE PSYCHOLOGICAL SIDE OF THYROID CANCER: IS IT JUST AS FAVORABLE MENTALLY?

J Johnson, MD, S Boyle, MD, K Thomas, BS, L Choi, MD, A Crosier-Riffle, MD, C Abraham, MD, C Carsello, MD, A Ata, PhD, S C Stain, MD, T D Beyer, MD
Albany Medical College

★ P007. CEA SHOULD NOT ROUTINELY BE USED FOR DETECTION OF A FIRST RECURRENCE IN PATIENTS WITH MTC

Wouter P Kluijfhout, Joe Darryl Baal, Toni Beninato, Frederick T Drake, Sagar Wagle, Wen T Shen, Insoo Suh, Quan-Yang Duh, Jessica E Gosnell
University California San Francisco, Department of Surgery

P008. PROPHYLACTIC CENTRAL NECK DISSECTION IN PAPILLARY THYROID CANCER ALLOWS FOR APPROPRIATE AVOIDANCE OF RADIOACTIVE IODINE

Alexander T Reid, James H Hammond, Joshua D Smith, Adam C Niemann, **David T Hughes, MD**
University of Michigan

★ P009. COMPARING PAPILLARY THYROID MICROCARCINOMAS AMONG BENIGN AND MALIGNANT DISEASE IN 1001 PATIENTS: EPIPHENOMENON OR RELATED OCCURRENCE?

Vikram D Krishnamurthy, MD, Muhammad Etiwy, MD, Jesse Gutnick, MD, Rachel Slotcavage, MD, Judy Jin, MD, Joyce J Shin, Eren Berber, MD, Alan Siperstein, MD
The Cleveland Clinic

★ P010. HYPOTHYROIDISM FOLLOWING HEMI-THYROIDECTOMY: A RETROSPECTIVE POPULATION STUDY OF THE TRICARE DATABASE

Ryan D Restrepo, MD[1], Anna M Carroll, MPH[2], Paul D Rockswold, MD[2], Michael G Johnston, MD[1]
[1]Naval Medical Center Portsmouth,[2]Navy Marine Corps Public Health Center

★ P011. DOES THYROID MANIPULATION DURING PARATHYROIDECTOMY CAUSE POSTOPERATIVE HYPERTHYROIDISM? A PROSPECTIVE ANALYSIS

Snehal G Patel, MD[1], Jenny Y Yoo, MD[1], Linwah Yip, MD[1], Michael T Stang, MD[2], Sally E Carty, MD[1], Kelly L McCoy, MD[1]
[1]UPMC,[2]Duke

★ P012. INTRATUMORAL HETEROGENEITY OF MICRORNA EXPRESSION IS A PERVASIVE FEATURE IN PAPILLARY THYROID CARCINOMA

Selena D Brouwer, MD[1], M Nishino, MD, PhD[2], J Barletta, MD[4], K Doyle, BS[4], T Selvakumar, PhD[4], Menno R Vriens, MD[1], J Moalem, MD[3], Daniel T Ruan, MD[4]
[1]University Medical Center Utrecht,[2]Beth Israel Deaconess Medical Center,[4]Brigham and Women's HospitaL,[3]University of Rochester

★ P013. IMMUNOHISTOCHEMISTRY AS ACCURATE TOOL FOR EVALUATING BRAF-V600E IN 130 SAMPLES OF PAPILLARY THYROID CANCER PATIENTS

Zakaria Y Abd Elmageed, PhD[1], Koji Tsumagari, MD[1], Andrew B Sholl, MD[1], Paulo Miccoli, MD[2], Emad Kandil, MD[1]
[1]Tulane University School of Medicine,[2]Department of Surgical, Medical, Molecular and Critical Area Pathology, Università degli Studi di Pisa, Pisa, Italy

P014. LESSON TO LEARN AFTER 1000 TRANSCUTANEOUS LARYNGEAL ULTRASOUND (TLUSG) WITH LARYNGOSCOPY VALIDATION - IS THERE A ROLE OF TLUSG IN PATIENTS INDICATED FOR LARYNGOSCOPIC EXAMINATION BEFORE THYROIDECTOMY?

Kai-Pun Wong, MBBS, FRCS, Kin-Pan Au, MBBS, Shi Lam, MBBS, Siu-Chung Tam, MBBS, Brian Hung-Hin Lang, MBBS, MS
Department of Surgery, The University of Hong Kong, Queen Mary Hospital, Hong Kong

★ P015. ALL IN THE FAMILY? ANALYZING THE IMPACT OF FAMILY HISTORY IN ADDITION TO GENOTYPE ON MEDULLARY THYROID CANCER AGGRESSIVENESS IN MEN2A PATIENTS

Kristin L Long, MD, Carol Etzel, Thereasa Rich, MS, CGC, Samuel Hyde, MMsc, Nancy Perrier, MD, Paul Graham, MD, Jeffrey E Lee, MD, Elizabeth Grubbs, MD
MD Anderson Cancer Center

★ P016. CLINICAL CHARACTERISTICS AND DISEASE-FREE SURVIVAL OF FAMILIAL NONMEDULLARY THYROID CANCER IN THE NETHERLANDS

F Waissi[1], S Nell[1], Jw Kist[1], Tp Links[2], S Kruijff[2], A Schepers[3], Emj Nieveen van Dijkum[4], Af Engelsman[4], Ja van der Hage[5], Ih Borel Rinkes[1], Mr Vriens[1]
[1]University Medical Center Utrecht,[2]University Medical Center Groningen,[3]Leiden University Medical Center,[4]Academic Medical Center Amsterdam,[5]The Netherlands Cancer Institute - Antoni van Leeuwenhoek

★ P017. COMPARISON OF BETHESDA THYROID CYTOPATHOLOGY CATEGORIZATION AND SURGICAL PATHOLOGY FOR DIFFERENT RACES

Amishav Bresler, BA[1], Andrew B Tassler, MD[2], Samer Khader, MD[2], Gloria Ramos-Rivera, MD[2], Bradley A Schiff, MD[2], Amanda Laird, MD[2], Steven K Libutti, MD[2], Richard V Smith, MD[2], Thomas J Ow, MD[2]
[1]Albert Einstein College of Medicine,[2]Albert Einstein College of Medicine and Montefiore Medical Center

★ P018. METADHERIN EXPRESSION IN PAPILLARY THYROID CANCER

Robert F Moore, BA, Koji Tsumagari, MD, PhD, Andrew Sholl, MD, Laura Kidd, MD, Zaid Al-Qurayshi, MD, Zakaria Abd Elmageed, MD, Emad Kandil, MD
Tulane University School of Medicine

P019. USE OF RADIOACTIVE IODINE THERAPY FOR PAPILLARY THYROID CANCER: IS IT USED TOO FREQUENTLY?

Ling Zhang, MD, PhD, Ning Qu, Qiang Shen, MD, Zhuo-ying Wang, MD, PhD, Qing-hai Ji, MD
Fudan Univeritys Cancer Center

P020. THE FATE OF INDETERMINATE THYROID NODULES: THE EFFECT OF REPEAT CYTOLOGY AND AFIRMA GENE EXPRESSION CLASSIFIER

Maureen D Moore, MD[1],**Suraj Panjwani, MBBS**[1], Laurent Brunaud, MD, PhD[2], Rana Hoda, MBBS[1], Thomas J Fahey, III, MD[1], Rasa Zarnegar, MD[1]
[1]New York Presbyterian Hospital-Weill Cornell Medicine,[2]CHU Nancy - Hospital Brabois Adultes, University de Lorraine

P021. CHARACTERIZATION OF THE MODE OF ACTION OF VANDETANIB IN A MOUSE MODEL FOR MEDULLARY THYROID CARCINOMA

Karine Pozo, PhD[1], Stefan Zahler, PhD[2], Sarah Oltmann, MD[1], Fiemu Nwariaku, MD[1], Masaya Takahashi, PhD[1], James A Bibb, PhD[1]
[1]The University of Texas Southwestern Medical Center of Dallas,[2]Ludwig-Maximilians-Universität, Munich 81377, Germany

★ P022. THYROID CANCER NEOVASCULATURE EXPRESSES PROSTATE-SPECIFIC MEMBRANE ANTIGEN - A POSSIBLE NOVEL THERAPEUTIC TARGET

Maureen D Moore, MD, Rashmi Mathew, MBBS, Suraj Panjwani, MBBS, Michael Crowley, MSc, Yi-Fang Liu, MD, Rasa Zarnegar, MD, Theresa Scognamiglio, MD, Thomas J Fahey III, MD
New York Presbyterian Hospital-Weill Cornell Medicine

★ P023. PEDIATRIC AND YOUNG ADULT PATIENTS WITH SPORADIC THYROID NODULES HAVE A VERY HIGH RATE OF MALIGNANCY AND PRESENTED WITH MORE ADVANCED DISEASE AND A HIGH PREVALENCE OF LYMPH NODES METASTASES

Michele Fischer, BS, Santosh Eapen, MD, Margarita Smotkin-Tangorra, MD, Brian Erler, MD, PhD, Min Zheng, MD, PhD, Alexander L Shifrin, MD
Jersey Shore University Medical Center

P024. A NOVEL LINK BETWEEN CD44 POSITIVITY AND GENETIC MUTATIONS IN A PROSPECTIVE COHORT OF THYROID CANCER PATIENTS

Ja Seong Bae, MD[1], Chitra Subramanian, PhD, MBA[2], Peter T White, MD[2], Hashim Motiwala, PhD[2], Chan Kwon Jung, MD[3], Mark S Cohen, MD, FACS[2]
[1]Department of Surgery, Seoul St. Mary's Hospital, Catholic University of Korea,[2]Department of Surgery, University of Michigan,[3]Department of Pathology, Seoul St. Mary's Hospital, Catholic University of Korea

★ P025. MICROSCOPIC SURGICAL MARGIN INVOLVEMENT IN PAPILLARY THYROID CARCINOMA IS A RISK FACTOR OF RECURRENCE: A CASE CONTROL STUDY WITH PROPENSITY SCORE MATCHING

Joon-Hyop Lee, MD[1], Hyeong Won Yu, MD[2], Jin Wook Yi, MD[2], Ra-Yeong Song, MD[2], Hyungju Kwon, MD[2], Jun Woo Jung, MD[1], Su-Jin Kim, PhD[2], Young Jun Chai, MD[3], June Young Choi, MD[1], Kyu Eun Lee, PhD[2]
[1]Seoul National University Bundang Hospital,[2]Seoul National University Hospital,[3]Seoul National University Boramae Medical Center

P026. COMPARISON OF THE EFFECTS OF SUBSTITUTIVE TREATMENT WITH LIQUID OR SOLID FORMULATION OF LEVOTHYROXINE ON THE STATE OF WELL-BEING AND QUALITY OF LIFE IN RECENTLY THYROIDECTOMIZED PATIENTS

Raffaella Bocale[1], Anna Maria D'Amore[1], Antonio Amore[1], Marco Raffaelli[2],**Celestino Pio Lombardi**[1]
[1]Division of Endocrine and Metabolic Surgery, Department of Surgery, Università Cattolica del Sacro Cuore, Complesso Integrato Columbus, Rome, Italy,[2]Division of Endocrine and Metabolic Surgery, Department of Surgery, Università Cattolica del Sacro Cuore, Rome, Italy

POSTER GROUP 2: PARATHYROID

★ P027. DOUBLE ADENOMAS AS A CAUSE FOR PRIMARY HYPERPARATHYROIDISM: ASYMMETRIC HYPERPLASIA OR A DISTINCT PATHOLOGIC ENTITY?

Heather Wachtel, MD, Johnathon Sataloff, BA, Salman Zaheer, MD, Lindsay Kuo, MD, MBA, Rachel Kelz, MD, MSCE, Douglas L Fraker, MD
Hospital of the University of Pennsylvania

★ P028. GOING GREEN: THE USE OF ICG AND PINPOINT TECHNOLOGY IN PARATHYROID SURGERY- A FEASIBILITY STUDY

Amanda H Kohlbrenner, MD, Rachel Dirks, PhD, Christina Maser, MD
UCSF Fresno

★ P029. THE IMPACT OF PARATHYROIDECTOMY ON QUALITY OF LIFE IN PATIENTS WITH TERTIARY HYPERPARATHYROIDISM

Anna Xinyin See, MD[2], Ngian Chye Tan, MD[2], Narayanan Gopalakrishna Iyer, MD, PhD[2], Hiang Khoon Tan, MD, PhD[2], Amy Ee Lin Lim[1], Lina Hui Lin Choong, MD[1], Jeremy Chung Fai Ng, MD[2]
[2]SingHealth Duke-NUS Head & Neck Centre,[1]Singapore General Hospital Department of Renal Medicine

★ P030. REOPERATIVE SURGERY IN PATIENTS WITH MULTIPLE ENDOCRINE NEOPLASIA TYPE 1 AND PRIMARY HYPERPARATHYROIDISM

Xavier M Keutgen, MD[1], Naris Nilubol, MD[1], Sunita Agarwal, MD[2], James Welch[2], Lee S Weinstein, MD[2], Steve Marx, MD[2], William F Simonds, MD[2], Electron Kebebew, MD[1]
[1]National Cancer Institute,[2]National Institutes of Health

★ P031. RATES OF SYMPTOMATIC SECONDARY HYPERPARATHYROIDISM AFTER BYPASS SURGERY FOR SUPER-MORBID OBESITY: AN OVERLOOKED PHENOMENON

Michael G White, MD[2], Marc Ward, MD[1], Megan Applewhite, MD[2], Harry Wong[2], Vivek Prachand, MD[1], Peter Angelos, MD, PhD[2], Edwin L Kaplan, MD[2], Raymon H Grogan, MD[2]
[2]Endocrine Surgery Research Group in the Department of Surgery,[1]Section of General Surgery in the Department of Surgery

★ P032. SELECTIVE PARATHYROID VENOUS SAMPLING IN PATIENTS WITH PERSISTENT OR RECURRENT HYPERPARATHYROIDISM AND NEGATIVE, EQUIVOCAL OR DISCORDANT NONINVASIVE IMAGING

Philip Y Sun, MS, Scott M Thompson, MD, PhD, Robert A Wermers, MD, Travis J McKenzie, MD, Melanie L Richards, MD, David R Farley, MD, James C Andrews, MD, Geoffrey B Thompson, MD
Mayo Clinic

★ P033. IMPROVING RECOGNITION OF MILD PRIMARY HYPERPARATHYROIDISM WITH MACHINE LEARNING

Yash R Somnay, BS[1], Mark Craven, PhD[1], Kelly L McCoy, MD[2], Sally E Carty, MD[2], Tracy S Wang, MD, MPH[3], Caprice C Greenberg, MD, MPH[1], David F Schneider, MD, MS[1]
[1]University of Wisconsin,[2]University of Pittsburgh,[3]Medical College of Wisconsin

P034. REAL-TIME IMAGE-GUIDED SURGERY OF PARATHYROID GLANDS

Hyunsuk Suh, MD[1], Jeong Heon Lee, BS[2], Hak Soo Cho, PhD[2], William III Inabnet, MD, FACS[1]
[1]Mount Sinai Beth Israel,[2]Beth Israel Deaconess Medical Center

POSTER GROUP 3: ADRENAL

★ P035. RESECTION OF PHEOCHROMOCYTOMA IMPROVES DIABETES MELLITUS IN THE MAJORITY OF PATIENTS

Toni Beninato, MD[1], Wouter P Kluijfhout, MSc[1], Frederick Thurston Drake, MD[1], James Lim[1], Julie S Kwon[1], Wen T Shen, MD[1], Jessica E Gosnell, MD[1], Chienying Liu, MD[2], Insoo Suh, MD[1], Quan-Yang Duh, MD[1]
[1]Department of Surgery, University of California San Francisco,[2]Division of Endocrinology, Department of Medicine, University of California San Francisco

★ P036. COMPUTED-TOMOGRAPHY IN THE EVALUATION AND SURGICAL MANAGEMENT OF ADRENAL TUMORS: DOES SIZE REALLY MATTER?

Saïd C Azoury, MD[1], Neeraja Nagarajan, MD, MPH[1], Allen Young, MPH[1], Aarti Mathur, MD[1], Jason Prescott, MD, PhD[1], Elliot K Fishman, MD[2], Martha A Zeiger, MD, FACS[1]
[1]Endocrine Surgery, Department of Surgery, The Johns Hopkins Hospital,[2]Department of Radiology and Radiological Sciences, Johns Hopkins University, School of Medicine

P037. ADRENAL MASSES IN FAMILIAL ADENOMATOUS POLYPOSIS (FAP)

Jonah Shiroky, MD, MSc[1], Anand Govindarajan, MD[2], Karen M Devon, FRCSC[1]
[1]Department of Surgery, University of Toronto,[2]Department of Surgery, Mount Sinai Hospital

★ P038. SINGLE-INCISION RETROPERITONEOSCOPIC ADRENALECTOMY: A NORTH AMERICAN EXPERIENCE

Shonan Sho, MD, Michael W Yeh, MD, Masha J Livhits, MD
Section of Endocrine Surgery, Department of Surgery, UCLA David Geffen School of Medicine, Los Angeles, CA, USA

★ P039. CATECHOLAMINE-SECRETING TUMORS IN PREGNANCY: THE CASE FOR MEDICAL MANAGEMENT

Zahraa Al-Hilli, MD, Geoffrey B Thompson, MD, Melanie L Richards, MD, Travis J McKenzie, MD, David R Farley, MD, Michelle O Kinney, MD, Carl H Rose, MD, William F Young Jr, MD
Mayo Clinic

★ P040. ANALYSIS OF SERUM CORTISOL LEVELS AFTER UNILATERAL ADRENALECTOMY IN PATIENTS WITHOUT CUSHING'S SYNDROME

Rachel L Slotcavage, MD, Alexis Okoh, Jesse Gutnick, MD, Nisar Zaidi, MD, Vikram Krishnamurthy, MD, Allan Siperstein, MD, Joyce Shin, MD, Judy Jin, MD, Eren Berber, MD
Cleveland Clinic Foundation

★ P041. SELECTIVE VERSUS NON-SELECTIVE ALPHA-BLOCKADE PRIOR TO LAPAROSCOPIC ADRENALECTOMY FOR PHEOCHROMOCYTOMA

Reese W Randle, MD, Courtney J Balentine, MD, MPH, Susan C Pitt, MD, MPHS, David F Schneider, MD, MS, Rebecca S Sippel, MD
University of Wisconsin- Madison

P042. ASSESSMENT OF THE ALDOSTERONOMA RESOLUTION SCORE AS A PREDICTIVE RESOLUTION SCORE OF HYPERTENSION AFTER ADRENALECTOMY FOR ALDOSTERONE-PRODUCING ADENOMA IN FRENCH PATIENTS

Ludwig Pasquier[1], Mehdi Kirouani[6], Floran Fanget, MD[2], Claire Nominé, MD[3], Vincent Arnault, MD[4], Jean-Baptiste Finel, MD[5], Christophe Trésallet, MD, PhD[6], Antoine Hamy, MD[5], Loic De Calan, MD[4], Laurent Brunaud, MD, PhD[3], Jean-Christophe Lifante, MD, PhD[2], Fabrice Menegaux, MD, PhD[6], Jean-Benoit Hardouin, PhD[7], **Eric Mirallié, MD**[1], Claire Blanchard, MD[1]

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Andrew P Loehrer, MD[1], Carrie C Lubitz, MD, MPH[1], Zirui Song, MD, PhD[1], **Benjamin C James, MD, MS**[2]

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[1]UT Southwestern Medical Center,[2]The University of Sydney

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Sjoerd Nell, MD[1], Gerlof D. Valk, MD, PhD[1], Ad R. Hermus, MD, PhD[2], Olaf M. Dekkers, MD, PhD[3], Wouter W. de Herder, MD, PhD[4], Anouk N. van der Horst-Schrivers, MD, PhD[5], Madeleine L. Drent, MD, PhD[6], Peter H. Bisschop, MD, PhD[7], Bas Havekes, MD, PhD[8], Ruben de Kleine, MD[5], Inne H.M. Borel Rinkes, MD, PhD[1], Menno R. Vriens, MD, PhD[1]
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BYLAWS

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 and Affiliate Providers.

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 two assemblies 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.

8. **Affiliate Provider members** shall consist of nurse practitioners, physician's assistants, nursing specialists other non-physician health care providers with certification in their respective fields in Canada, Central America, Mexico or South America. Affiliate Providers shall have demonstrated significant commitment to and documented excellence in clinical practice, education and/or research in endocrine surgery, shall have been in practice within their specialty for a minimum of three years beyond training, and must have attended at least one assembly of the AAES prior to their application for membership.

Affiliated Providers shall pay Dues as levied by the Council and approved by the membership, are subject to attendance requirements, can serve on committees, do not have voting privileges, and are not eligible for election to office or Council. Affiliate Provider members will become members upon review of the membership committee and do not need to be voted on by the full membership.

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 , Allied Specialist membership or Affiliate Provider membership.

2. Application forms for Active, Corresponding, 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 at the annual business meeting at a set time deemed appropriate (within 90 days) following the annual meeting. Affiliate members shall be cleared by the membership committee chair and Secretary Treasurer and will not require formal vote by the membership at the annual assembly. 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 Council members), Program Committee, Education and Research Committee, Information and Technology Committee, Accreditation Committee, Fellowship Committee, Foundation Committee and CESQIP (Collaborative Endocrine Surgery Quality Improvement Program).

B. The Nominating Committee shall consist of the President and three 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.

6.3 **Ad Hoc Committees.** As it is the purview of the president to create ad-hoc committees as needed for special projects of the society, and appoint members to said created committees, it is understood that these members will serve on a limited term of 1-3 years or based on the discretion of any newly elected President. The purpose of these Ad Hoc committees will be in service to time limited projects not falling directly within the purview of standing committees.

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 pro¬ceedings 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 Nonprofit Corporation Act of the State of California.

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

2015 - 2016

GEOGRAPHICAL MEMBERSHIP DIRECTORY

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Curitiba
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Molinari, Alberto S.

Sao Paulo
Aun, Frederico

Canada

ALBERTA

Calgary
Harvey, Adrian M.
Mack, Lloyd
Pasieka, Janice Lynn

Edmonton
McMullen, Todd Patrick William

BRITISH COLUMBIA

Prince George
Caron, Nadine Rena

Vancouver
Bugis, Samuel P.
Melck, Adrienne Lara
Schmidt, Nis
Wiseman, Sam Michael

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Devon, Karen M.
Pasternak, Jesse David
Rosen, Irving Bernard
Rotstein, Lorne E.
Urbach, David Robert

QUEBEC

Montreal
Benay, Cassandre Elie
Mitmaker, Elliot Jonathan
Tabah, Roger John

Chile

Santiago
Costa, Eduardo A.

Colombia

Medellin
Duenas, Juan Pablo

Guatemala

Guatemala City
Cordon, Carlos Rene
Penalonzo, Marco Antonio

Mexico

D.F.
Arrangoiz, Rodrigo

Leon Guanajuanto
Espana-Gomez, Maria Nayvi

Merida
Fajardo-Cevallos, Rafael Enrique

Mexico City
Herrera, Miguel F.
Pantoja, Juan Pablo
Sierra-Salazar, Mauricio
Velázquez-Fernández, David

United States

ALABAMA

Birmingham
Chen, Herbert
Diethelm, Arnold G.
Porterfield, John Roland
Smith, Gardner Scott
Sperling, David

Mobile
Dyess, Donna Lynn

ARIZONA

Phoenix
Demeure, Michael J.
Flynn, Stuart D.
Harding, Richard James
Milas, Mira
Schlinkert, Richard T.
Staren, Edgar D.

Scottsdale
Van Lier Ribbink, Jeffrey Anthony

Tucson
Guerrero, Marlon A.
Morris, Lilah F.

ARKANSAS

Little Rock
Mancino, Anne T.

CALIFORNIA

Beverly Hills
Katz, Alfred D.

Davis
Wolfman, Earl

Duarte
Ituarte, Philip H. G.
Yim, John Hosei

Encino
Zuckerbraun, Lionel

Fresno
Maser, Christina Lynn
Rahbari, Reza

Hillsborough
Lim, Robert C.

La Jolla
Sanford, Arthur

Los Altos
Allo, Maria D.

Los Angeles
Giuliano, Armando E.
Haigh, Philip I.
Harari, Avital
Hines, Oscar J.
Isorena, Jennifer
Livhits, Masha Jean
Wu, James X.
Yeh, Michael W.
Zanocco, Kyle Andrew

Northstar-Truckee
Danto, Lawrence A.

Orange
Elfenbein, Dawn
Harness, Jay Kenneth

Palo Alto
Kazaure, Hadiza Shu'aib

GEOGRAPHICAL MEMBERSHIP DIRECTORY CONTINUED

Pomona
Basa, Johanna Vida

Richmond
Park, Judith J.

Sacramento
Campbell, Michael James

San Diego
Block, Melvin A.
Boganey, Anthony Corey
Bouvet, Michael
Clark, Gary C.
Greenblatt, David Yu

San Francisco
Beninato, Toni
Clark, Orlo Herrick
Debas, Haile T.
Drake, Frederick Thurston
Duh, Quan-Yang
Gosnell, Jessica Erin
Hunt, Thomas K.
Seib, Carolyn Dacey
Shen, Wen Tsong
Suh, Insoo
Yutan, Elaine U.

Santa Barbara
Latimer, Ronald G.

Santa Cruz
Lee, Louis C.

Santa Monica
Brunicardi, F. Charles
Goldfarb, Melanie
Said, Meena

Stanford
Cisco, Robin Malone
Greco, Ralph S.
Lin, Dana T.
Norton, Jeffrey Allen

Ventura
Nguyen, Chau Tuan

COLORADO

Aurora
Albuja-Cruz, Maria B.
McIntyre, Jr., Robert C.
Raeburn, Christopher D.

Boulder
Brown, Dennistoun K.

Colorado Springs
Grant, Clive S.

Denver
Vanderveen, Kimberly

Golden
Bocker, Jennifer Marie

CONNECTICUT

Bloomfield
Raphael, Rachel

Farmington
Stevenson, Christina E.

Hartford
Sivarajah, Maheshwaran

GEOGRAPHICAL MEMBERSHIP DIRECTORY CONTINUED

New Haven
Callender, Glenda G.
Carling, Tobias
Donovan, Patricia Irvin
Foster, Jr., Roger S.
Javid, Mahsa
Quinn, Courtney Elizabeth
Rhodes, Drew Brice
Udelsman, Robert

DELAWARE

Newark
Murphy, Emily EK
Press, Danielle Marenv

DISTRICT OF COLUMBIA

Washington
Assadipour, Yasmine
Felger, Erin Angela
Geelhoed, Glenn W.
Rosen, Jennifer Erica

FLORIDA

Bonita Springs
Freier, Duane T.

Coral Gables
Irvin, George L.

Fort Myers
Patwardhan, Nilima

Gainesville
Shaw, Christiana M.

Hollywood
Bimston, David Noel

Jacksonville
Asbun, Horacio J.
Smith, Stephen L.
Adkisson, Cameron David

Miami
Farra, Josefina Cecilia
Lew, John I.
LoPinto, Melissa
Rodgers, Steven E.
Dembrow, Victor D.

Orlando
Watkins, Lucas Nathaniel

Safety Harbor
Schmidt, Rick J.

Stuart
Vopal, James J.

Tampa
Boone, Deva
Hodes, Ashley
Norman, James G.
Politz, Douglas E.

Wesley Chapel
Mitchell, Jamie

Weston
Metzger, Rosemarie

GEORGIA

Atlanta
Sharma, Jyotirmay
Weber, Collin J.

Augusta
Mansberger, Arlie R.
Terris, David J.
Yeh, Karen A.

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McGill, Julie F.

Marietta
Underwood, Robert A.

Savannah
Jillard, Christa
Yeager, E. Stephen

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Honolulu
Wong, Livingston
Woodruff, Stacey Lynne

ILLINOIS

Aurora
Bloom, Allen D.

Burr Ridge
Patel, Subhash

Chicago
Abadin, Shabirhusain Shakir
Angelos, Peter
Applewhite, Megan K.
Asare, Elliot
Cheatem, Donald M.
Cherenfant, Jovenel
Elaraj, Dina
Fredland, Allan J.
Grogan, Raymon H.
Kaplan, Edwin L.
Pickleman, Jack
Sturgeon, Cord
White, Michael Geoffrey

Evanston
Moo-Young, Tricia Angeline
Prinz, Richard Allen
Rajjoub, Samer Rodwan
Winchester, David James

Hinsdale
Paloyan, Edward

Lisle
Lee, Theresa Minsum

Maywood
De Jong, Steven A.
Kabaker, Adam Scott

North Chicago
Zdon, Michael J.

Oaklawn
Hopkins, William M.

Park Ridge
Hann, Sang E.

Springfield
McDow, Alexandria Dailey

Sterling
Hopping, Jacob Royle

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Indianapolis
Belle, Janeil M.
Broadie, Thomas Allen
James, Benjamin Christopher
Miskulin, Judiann

IOWA

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

GEOGRAPHICAL MEMBERSHIP DIRECTORY CONTINUED

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Sloan, David Alexander

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Quillo, Amy R.

Richmond
Suman, Paritosh

LOUISIANA

Kenner
Wang, Yi Zarn
Woltering, Eugene A.

New Orleans
Boudreaux, John Philip
Jaffe, Bernard M.
Kandil, Emad
Opoku-Boateng, Adwoa S.

MAINE

Bangor
Starks, Michael Ray

Lewiston
Goldstein, Richard E.

Portland
Goldfarb, Walter B.
MacGillivray, Dougald Charles
Radke, Frederick Roy
Wu, Leslie S.

Vinalhaven
Kinder, Barbara K.

MARYLAND

Aberdeen
Borman, Karen Renee

Baltimore
Alexander, H. Richard
Aragon Han, Patricia
Gann, Donald S.
Lindeman, Brenessa Michelle
Marohn, Michael R.
Mathur, Aarti
Olson, Jr., John A.
Prescott, Jason D.
Romero Arenas, Minerva Angelica
Tufano, Ralph P.
Turner, Douglas John
Turner, Joel
Zeiger, Martha Allen

Bethesda
Aufforth, Rachel D.
Hughes, Marybeth
Kebebew, Electron
Neychev, Vladimir Kostadinov
Nilubol, Naris
Nockel, Pavel John
Patel, Dhaval Thakor
Wells, Jr., Samuel A.

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Silen, William

Beverly
Narra, Vinod

GEOGRAPHICAL MEMBERSHIP DIRECTORY CONTINUED

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Beazley, Robert
Brooks, David C.
Chen, Yufei
Cho, Nancy Lackhyun
Doherty, Gerard Michael
Fingeret, Abbey
Gawande, Atul
Gaz, Randall D.
Hasselgren, Per-Olof J.
Hodin, Richard A.
Holm, Tammy Marie
Lubitz, Carrie C.
Mahamad, Sadhana
McAneny, David
Moore, Jr., Francis Daniels
Nehs, Matthew Alexander
Pai, Sara Isabel
Parangi, Sareh
Phitayakorn, Roy
Randolph, Gregory William
Ruan, Daniel T.
Stephen, Antonia E.

Brookline
Cady, Blake
Mowschenson, Peter M.

Burlington
Brams, David M.
Wei, John P.

Cambridge
LoGerfo, Frank

Pittsfield
Curletti, Eugene L.

Springfield
Jabiev, Azad A.

Weston
Aliapoulios, Menelaos A.

MICHIGAN

Ann Arbor
Burney, Richard E.
Cardenas, Alex Raymond
Cohen, Mark Steven
Gauger, Paul G.
Hughes, David Thomas
Miller, Barbra S.

Bloomfield Hills
Saxe, Andrew W.

Detroit
Singer, Michael Carmi
Talpos, Gary B.

Frankfort
Griffen, Ward O.

Franklin
Hamburger, Stuart W.

Kalamazoo
Bly, Ryan Timothy

Lansing
McLeod, Michael K.
Mitchell, Bradford K.

Midland
Sequeira, Melwyn John

Royal Oak
Czako, Peter F.
Nagar, Sapna

Saginaw
Ghanem, Maher

MINNESOTA

Maple Grove
Kemp, Kourtney Lynn

Minneapolis
Delaney, John P.
Evasovich, Maria Rae
Najarian, John S.

Robbinsdale
Cerny, Joseph C.

Rochester
Al-Hilli, Zahraa
Carney, J. Aidan
Farley, David R.
Hay, Ian D.
Lee, Grace S.
McKenzie, Travis J.
Richards, Melanie L.
Service, F. John
Thompson, Geoffrey Bruce
Young, William F.

St. Paul
Sneider, Mark S

Stillwater
Fox, Amy Catherine

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Parent, Andrew D.

Tupelo
Bowlin, John W.

MISSOURI

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Saint Louis
Gillanders, William E.
Hall, Bruce L.
Moley, Jeffrey F.
Shieber, William
Brunt, L. Michael

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Kalispell
Sheldon, David G.

NEBRASKA

Papillion
Stanislav, Gregory

NEW HAMPSHIRE

Lebanon
Sorensen, Meredith J.

NEW JERSEY

Morristown
Whitman, Eric D.

Neptune
Shifrin, Alexander L.

New Brunswick
Trooskin, Stanley Zachary

Paramus
Yozawitz, Justin Mark

Plainsboro
Kahn, Steven P.
Roy, Rashmi

GEOGRAPHICAL MEMBERSHIP DIRECTORY CONTINUED

Vineland
Kushnir, Leon

NEW MEXICO

Albuquerque
Vazquez, Bianca J.

Rio Rancho
Miscall, Brian G.

NEW YORK

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Abraham, Christa Rose
Beyer, Todd D.
Carsello, Carrie Beth

Bronx
Laird, Amanda Michelle
Libutti, Steven K.
Smith, Jonathan Cope
Taye, Aida

Buffalo
Cance, William G.

Cooperstown
Ryan, M. Bernadette

Delmar
Folek, Jessica

Elmhurst
Arora, Shalini

Fayetteville
Kort-Glowaki, Kara C.

Ithaca
Foster, Cory Lee

Lake Success
Dubner, Sanford
Sznyter, Laura A.

Mineola
Allendorf, John D.

New York
Ahmed, Leaque
Brennan, Murray F.
Chabot, John A.
Fahey, Thomas J.
Fernandez Ranvier, Gustavo G.
Ganly, Ian
Heller, Keith Stuart
Inabnet III, William B.
Keutgen, Xavier Maximillien
Kraus, Dennis H.
Kundel, Anna
Kuo, Jennifer Hong
Lee, James
Lee, Jane Soyoun
Lim, James Young Hoon
Marti, Jennifer Lynn
Ogilvie, Jennifer B.
Owen, Randall Paul
Patel, Kepal N.
Patel, Snehal
Shah, Jatin P.
Shaha, Ashok R.
Singh, Bhuvanesh
Strong, Vivian E.
Tuttle, Robert M.
Untch, Brian R.
Zarnegar, Rasa

Rochester
Moalem, Jacob

Syracuse
Numann, Patricia J.

Valhalla
Spanknebel, Kathryn

GEOGRAPHICAL MEMBERSHIP DIRECTORY CONTINUED

White Plains
Weber, Kaare John

NORTH CAROLINA

Apex
Leight, George S.

Asheville
Humble, Ted H.

Chapel Hill
Croom, Robert D.
Kim, Lawrence T.
Yeh, Jen Jen

Charlotte
Kercher, Kent W.
Pederson, Lee
Wagner, Kristin Elizabeth

Durham
Roman, Sanziana Alina
Scheri, Randall P.
Sosa, Julie Ann

Greenville
Pofahl, Walter E.
Pories, Walter J.

Pittsboro
Starling, James R.

Raleigh
Faust, Kirk B.
Park, Paul Beomsoo

Wilmington
Versnick, Mark Anthony

Winston Salem
Albertson, David A.
Cannon, Jennifer
Gallagher, Scott F.
Randle, Reese Woodson

OHIO

Akron
Horattas, Mark C.
van Fossen, Victoria L.
Vasiliou, Elya Horattas

Beachwood
Chagpar, Ryaz

Cincinnati
Steward, David Leland

Cleveland
Berber, Eren
Esselstyn, Caldwell B.
Gutnick, Jesse
Jin, Judy
Mansour, Edward G.
McHenry, Christopher R.
Shin, Joyce J.
Siperstein, Allan
Wilhelm, Scott Michael

Columbus
Ellison, Christopher
Kitano, Mio
Phay, John E.
Shirley, Lawrence Andrew
Sigmond, Benjamin R.

Toledo
Wharry, Laura I.

GEOGRAPHICAL MEMBERSHIP DIRECTORY CONTINUED

OKLAHOMA

Norman
Connally, Tom Shi
Lewis, Amanda Nicole

ORGEON

Portland
Aliabadi, Shaghayegh
Choe, Giye
Jamison, Richard Lindsay
Raaf, John H.
Sheppard, Brett C.
Yu, Kelvin Chiu

PENNSLYVANIA

Allentown
Hartzell, George W.
McDonald, Marian P.

Bryn Mawr
Carter, Bradford

Danville
Blansfield, Joseph A.
Strodel, William E.

Greensburg
Treter, Sarah D.

Harrisburgh
Yang, Harold C.

Hershey
Boltz, Melissa Marie
Chesnut III, Charles Herschel
Greenleaf, Erin Kenning
Kauffman, Jr, Gordon L.
Saunders, Brian D.

Meadowbrook
Kukora, John S.

Philadelphia
Fraker, Douglas L.
Kairys, John C.
Kelz, Rachel
Kuo, Lindsay Evert Yunxiu
Lango, Miriam
LiVolsi, Virginia
Ridge, John A.
Slotcavage, Rachel L.
Wachtel, Heather
Yeo, Charles J.

Pittsburgh
Bartlett, David Lawrence
Carty, Sally E.
McCoy, Kelly Lynn
Patel, Snehal Ghanshyam
Stang, Michael T.
Yip, Linwah
Yoo, Jenny Young

Saxonburg
Stremple, John F.

Sayre
Trostle, Doug

PUERTO RICO

San Juan
Mendez, William

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Providence
Baldwin, Keith M.
Cotton, Travis Mcfarlane
Khokhar, Mamoona Tahir
Mazzaglia, Peter Joseph
Monchik, Jack Morton

GEOGRAPHICAL MEMBERSHIP DIRECTORY CONTINUED

SOUTH CAROLINA

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Carneiro-Pla, Denise

Columbia
Brown, J. Jeffrey

Greenville
Lokey, Jonathan S.

Rock Hill
Dhiman, Shamly V.

Seabrook Island
van Heerden, Jon Anthony

Spartanburg
Orr, Richard Kenneth

TENNESSEE

Burns
Kauffmann, Rondi Marie

Chattanooga
Giles, Wesley Heath
Roe, Michael

Knoxville
Alexander, Andrea Mariah
Nelson, Jr., Henry Sperry
Zirkle, Kevin

Memphis
Prasertvit, Sirinya

Nashville
Abumrad, Naji N.
Barbul, Adrian
Baregamian, Naira
Broome, James Thomas
Mims, Michele Hall
Solorzano, Carmen Cecilia
Williams, Kathleen Crews

Tazewell
Wilmoth, Robert J.

TEXAS

Austin
Brady, Bridget Marie
Kroeker, Teresa R.

Dallas
Dackiw, Alan P.B.
Holt, Shelby Anne
Landry, Christine S.
Nwariaku, Fiemu E.
ltmann, Sarah Catherine
Steckler, Robert M.

El Paso
Milan, Stacey

Galveston
Tyler, Douglas S.

Houston
Brandt, Mary L.
Christakis, Ioannis Apostolos
Clarke, Callisia Nathelee
Clayman, Gary
Graham, Paul Hardin
Grubbs, Elizabeth Gardner
Jackson, Gilchrist L.
Lee, Jeffrey E.
Long, Kristin Leigh
Lopez, Monica Esperanza
Makris, Konstantinos
Perrier, Nancy D.
Suliburk, James W.
Zheng, Feibi

GEOGRAPHICAL MEMBERSHIP DIRECTORY CONTINUED

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Govednik, Cara Marie

San Antonio
Duperier, Frank Dauterive
Santillan, Alfredo A.

Temple
Edwards, Courtney Michelle
Lairmore, Terry C.
Snyder, Samuel K.

Wichita Falls
Sutton, Beth H.

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Arlington
Broughan, Thomas A.
Lai, Victoria

Charlottesville
Hanks, John B.
Smith, Philip William

Glen Allen
Stojadinovic, Alexander

Portsmouth
Johnston, Michael Gwynne

Richmond
Grover, Amelia C.
Merrell, Ronald Clifton
Newsome, Jr., Heber H.
Phan, Giao Q.

Williamsburg
Quintana, Doris Ann

Winchester
Dy, Benzon Munoz

WASHINGTON

Seattle
Reimel, Beth Ann

Spokane
Sinha, Renu

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Richmond, Bryan K.

Morgantown
Parrish, Cynthia Mchenry
Ross, Arthur J.

WISCONSIN

Madison
Balentine, Courtney
Mack, Eberhard A.
Matzke, Greg M.
Pasupuleti, Latha Venkata
Pitt, Susan Clare
Schaefer, Sarah Catherine
Schneider, David F.
Sippel, Rebecca S.
Wenger, Ronald David

Milwaukee
Campbell, Bruce H.
Cayo, Ashley Kappes
Coan, Kathryn
Evans, Douglas B.
Krzywda, Elizabeth Ann
Kunnimalaiyaan, Muthusamy
Lahiff, Shannon Maureen
Misustin, Sarah
Ortiz, Diana Isabel
Wang, Tracy S.
Wilson, Stuart D.
Yen, Tina Wei-Fang

West Bend
Carr, Azadeh A.

CORRESPONDING COUNTRIES OF THE AAES

Australia

Beecroft
Reeve, Thomas S.

Melbourne
Serpell, Jonathan William

Parkville (Melbourne)
Miller, Julie Ann

St Leonards
Sywak, Mark
Zern, Nicole Kansier

Sydney
Delbridge, Leigh W.
Sidhu, Stan

Waroona
Edis, Anthony J.

Austria

Vienna
Niederle, Bruno

Belgium

Aalst
Van Slycke, Sam

Liege
Defechereux, Thierry

China

Hong Kong
Lang, Brian HH
Lo, Chung-Yau

Shanghai City
Fan, Youben

France

Francheville
Peix, Jean-Louis

Lille Cedex
Carnaille, Bruno Marie

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.
Weber, Theresia

GEOGRAPHICAL MEMBERSHIP DIRECTORY CONTINUED

Rostock
Klar, Ernst

Greece

Athens
Linos, Dimitrios A.
Moraitis, Dimitrios G.

India

Lucknow
Agarwal, Amit
Agarwal, Gaurav
Mishra, Saroj K.

Israel

Hadera
Krausz, Michael M.

Haifa
Mekel, Michal

Hertzlia
Schachter, Pinhas P.

Jerusalem
Mazeh, Haggi

Italy

Genoa
Minuto, Michele N.

Padova
Iacobone, Maurizio

Padua
Favia, Gennaro

Pisa
Miccoli, Paolo

Rome
Bellantone, Rocco
De Crea, Carmela
Lombardi, Celestino Pio
Raffaelli, Marco

Japan

Joto-ku, Osaka
Imamura, Masayuki

Kobe
Miyauchi, Akira

Nagakute
Imai, Tsuneo

Oita
Noguchi, Shiro

Tokyo
Iihara, Masatoshi
Obara, Takao
Sugitani, Iwao
Takami, Hiroshi E.

Netherlands

Groningen
Kruijff, Schelto

Utrecht
Borel Rinkes, Inne H.M.
Vriens, Menno Reginaldus

New Zealand

Auckland
Patel, Rajeshbhai Kantibhai

GEOGRAPHICAL MEMBERSHIP DIRECTORY CONTINUED

Norway

Bergen
Varhaug, Jan E.

Poland

Krakow
Barczynski, Marcin

Russia

Saint Petersburg
Romanchishen, Anatoly Filippovich

Saudi Arabia

Riyadh
Al Sobhi, Saif Sulaiman
Alhefdhi, Amal Yahya

South Korea

Seoul
Lee, Kyu Eun
Youn, Yeo-Kyu

Spain

Barcelona
Moreno Llorente, Pablo

Sevilla
Sanchez-Blanco, J.M.

Sweden

Linkoping
Gimm, Oliver

Stockholm
Dural, Ahmet Cem
Hamberger, Bertil
Kouvaraki, Maria

Uppsala
Akerstrom, Goran
Skogseid, Britt M.

Switzerland

Geneve
Sadowski, Samira Mercedes

Taiwan

Taipei
Lee, Chen-Hsen

Turkey

Istanbul
Duren, Mete
Tezelman, Serdar Tevfik

Ukraine

Kiev
Kvachenyuk, Andrey

United Kingdom

Exeter
Pearse, A.G.E.

London
Frilling, Andrea

Oxford
Dudley, Nicholas E.

2016 MEMBER CONTACT INFORMATION

IMPORTANT!

Please indicate any changes to your contact information. Make sure to include your current email address.

NAME: _____

MAILING ADDRESS: _____

_____

_____

INSTITUTION: _____

BIRTHDATE: _____

SPOUSE: _____

PHONE: _____

FAX: _____

EMAIL: _____

ALTERNATE EMAIL: _____

SUBMIT TO REGISTRATION DESK
or to AAES Headquarters via email, mail or fax:

American Association of Endocrine Surgeons
11300 W. Olympic Blvd., Suite 600, Los Angeles, CA 90064

T: **310-986-6452**
F: **310-437-0585**
E: **membership@endocrinesurgery.org**

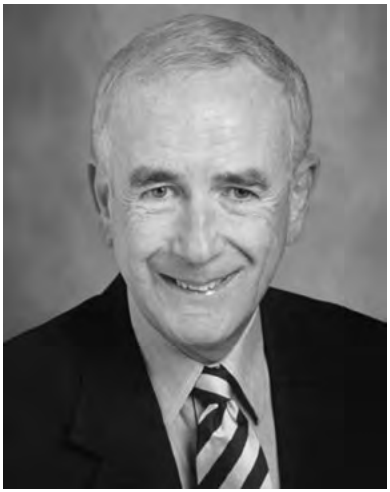
If you need to pay dues and correct your information, please do so online by visiting **www.endocrinesurgery.org/membership/dues.phtml**

IN MEMORIAM

Nicholas Coe, MD

Dr. Nicholas P.W. Coe of Montgomery, MA died suddenly Friday November 27 at Baystate Medical Center at the age of 69. He was born in England on May 8, 1946, the son of Stuart and Joan (Whittley) Coe. Dr. Coe was a graduate of Abingdon Academy and Guys Hospital Medical School, London University. He emigrated to America in 1975, became a U.S. citizen in 1981 and continued his surgical education at Baystate Medical Center. Dr. Coe was the Associate Director of Surgical Education at Baystate Medical Center, Professor of Surgery at Tufts University School of Medicine and past President of the Association of Surgical Education. He was also a Fellow of the Royal Academy of Surgeons (U.K.) plus a member of the American College of Surgeons, the American Surgical Society and the American Association of Endocrine Surgeons. In addition to his surgical and teaching skills, Dr. Coe was a published author, composer and musician who played violin with the Holyoke Civic Symphony. He was a nature-lover, an animal lover and a mentor to all...a true Renaissance man. Dr. Coe is survived by his loving wife of forty years, Pamela (Copeland) Coe, a sister Vanessa Lewis, a brother Jonathan Coe and several nieces and nephews who reside in England. Present donations in his memory may be made to the Holyoke Civic Symphony http://www.holyokecivicsymphony.org/support/

Norman W. Thompson, MD



The AAES fondly remembers one of our founding figures, Dr. Norman Winslow Thompson. An exceptional surgeon, a revered colleague, and an inspirational teacher, Dr. Thompson leaves a legacy of remarkable surgical advances and a persistent inspiration for many of the world's endocrine surgeons.

Dr. Thompson and the University of Michigan were indelibly linked throughout his career. He was internationally-recognized for his expertise thyroid cancer, hyperparathyroidism, adrenal tumors, and Multiple Endocrine Neoplasia Type 1. In one of his greatest contributions, Dr. Thompson defined the key components of an operation for pancreatic and duodenal tumors of Multiple Endocrine Neoplasia Type I in an operation that still bears his name (the Thompson Procedure). This operation attributed to him very much represents the key qualities of the man – intrepid, precise, and optimistic. While he was known for his ability to skillfully illustrate a patient's endocrine problem in vivid anatomical detail, he was also a remarkably kind physician that appreciated the entirety of the patient. Dr. Thompson changed tens of thousands of patients' lives for the better and he was able to create meaningful and lasting connections with many of them through his humanistic and caring manner.

Dr. Thompson's ability to connect and inspire a global community of endocrine surgery was remarkable. With a small cadre of like-minded endocrine surgeons from around the world, Dr. Thompson helped to define a specialty field and create a vibrant AAES that continues to grow to this day. Norman traveled tirelessly to share his experiences from the podium and in the operating room. Language and culture were never barriers to him as colleagues recognized his genuine approachability and interest in their experiences. Ever the expert, he was constantly learning from others and collected a large circle of deeply-devoted international friends. Norman inspired others throughout his entire career. He changed peoples' minds, their careers, and their destinies in a subtle and gentle way – with a nimble intellect and the deft guiding hands of a surgeon.

It was easy to recognize Norman's unique spirit of enthusiasm, curiosity, unflagging optimism, and the ability to see the best in a situation or a person at all times. Viewed by others as a giant in his field, he was an exceptionally humble man in the eyes of those who knew him well. He walked through life with both a sense of grace and a genuine feeling of gratitude rarely seen. When preparing for retirement, he was quoted as saying, "Don't tell anyone, but I would have done this for nothing. I loved what I was doing. It just didn't seem like work in many ways. Your patients are your reward."

Please contact us regarding any additional updates.

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NOTES

AMERICAN ASSOCIATION OF
ENDOCRINE SURGEONS

38th ANNUAL MEETING

Held concurrently with "ENDO 2017"

APRIL 2-4, 2017 ■ ORLANDO, FLORIDA
ROSEN CENTER HOTEL

2017 LOCAL ARRANGEMENTS CHAIR: Mira Milas, MD
PROGRAM CHAIR: Scott M. Wilhelm, MD

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