

THE AMERICAN ASSOCIATION OF
**ENDOCRINE
SURGEONS**

Thirty-Eighth Annual Meeting



APRIL 2-4, 2017

Rosen Centre Hotel
Orlando, FL

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AAES 2017 ANNUAL MEETING

THE AMERICAN ASSOCIATION OF
**ENDOCRINE
SURGEONS**

Thirty-Eighth Annual Meeting
APRIL 2-4, 2017



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AAES FUTURE MEETINGS

May 6-8, 2018

Raleigh/Durham, North Carolina

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Sanziana Roman, MD

2019

Los Angeles, California

Michael W. Yeh, MD

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OLIVER COPE MERITORIOUS ACHIEVEMENT AWARD FOR THE AAES

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.

OLIVER COPE MERITORIOUS ACHIEVEMENT AWARD FOR THE AAES CONTINUED



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 1981.



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 1981, and as President in 1993.

OLIVER COPE MERITORIOUS ACHIEVEMENT AWARD FOR THE AAES CONTINUED



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.

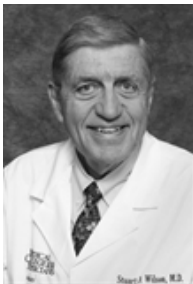


George L. Irvin, III, MD

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



Stuart D. Wilson, MD

Professor Emeritus of the Department of Surgery, Medical College of Wisconsin

Awarded in Baltimore, MD in April 2016

Dr. Wilson served as our Secretary-Treasurer from 1984-1988 and President from 1991-1992.

HONORARY MEMBERS

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

J. Aidan Carney, Pathologist

Stuart D. Flynn, Pathologist

Ian D. Hay, Endocrinologist

Virginia A. LiVolsi, Pathologist

Frank LoGerfo, Surgeon

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

Thomas S. Reeve, Endocrine Surgeon

F. John Service, Endocrinologist

Britt Skogseid, Endocrinologist

R. Michael Tuttle, Endocrinologist

William F. Young, Endocrinologist

RESIDENT/FELLOW RESEARCH AWARD WINNERS & POSTER COMPETITION WINNERS

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

The AAES Poster Competition was established in 2007.

1990

Michael J. Demeure — San Francisco, California

“Actin Architecture of Cultured Human Thyroid Cancer Cells: Predictor of Differentiation?”

Gerard M. Doherty — Bethesda, Maryland

“Time to Recovery of the Hypothalamic-Pituitary-Adrenal Axis After Curative Resection of Adrenal Tumors in Patients with Cushing’s Syndrome”

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 MEN1 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 Deacetylase (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 — Poitiers, 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

Diana I. Ortiz – 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 Protocol”

Melanie A. McWade – Vanderbilt University

“Fluorescence Detection of the Parathyroid Gland: Realizing the Potential for Intraoperative Guidance”

POSTER: Idit Dotan – McGill University Health Center

“Bio-Conjugated Nanotechnology to Target Papillary Thyroid Cancer in Vitro”

POSTER: Uma Rajhbeharrysingh – Oregon Health and Science University

“Ionized Calcium And The Utility Of Maxpth To Evaluate Gastric Bypass Patients and Others With Non-Renal Secondary Hyperparathyroidism”

RESIDENT/FELLOW RESEARCH AWARD WINNERS & POSTER COMPETITION WINNERS CONTINUED

2016

Bruna Babic – National Institute of Health, National Cancer Institute

“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”

Peter T. White – University of Michigan

“A Novel Heat Shock Protein 90 Inhibitor Overcomes Receptor Tyrosine Kinase Resistance in Differentiated Thyroid Cancer”

POSTER: Selena Brouwer – University Medical Center Urecht

“Intratumoral Heterogeneity of Microrna Expression is a Pervasive Feature in Papillary Thyroid Carcinoma”

POSTER: Wouter Kluijfhout – University of California San Francisco

“CEA Should Not Routinely be Used for Detection of a First Recurrence in Patients With MTC”

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Rosemarie Metzger, MD, MPH
Stacey Milan, MD
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Philippe Kaufmann, MD
Ioannis Koutelidakis, MD
Haggi Mazeh, MD

Maria Victoria Perez, MD
Mario Testini, MD
Meei Yeung, MBBS, FRACS

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AFFILIATE PROVIDER MEMBERS

Lisa LaFay, RN

2016-2017 NEW MEMBERS CONTINUED

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Evan Garner, MD	Omair Shariq, MD
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Donations to the AAES Foundation provide support for the mission of the AAES and its members. The purpose of the AAES Foundation is to promote research and education in the field of endocrine surgery, to advance the science and art of endocrine surgery, and to maintain the highest standards in clinical practice. A gift to the Foundation will assist to enrich and extend the horizons of endocrine surgery with annual grants awarded to applicants who share our purpose.

Become a Norman Thompson Fellow of the AAES Foundation by making a gift of \$10,000. You can pledge the amount over two to five years and have a lasting impact on the future of endocrine surgery research. To become a Norman Thompson Fellow, stop by the registration booth at the AAES Annual Meeting or visit www.aaesfoundation.org to make your commitment today.

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CONTRIBUTORS TO THE AAES FOUNDATION AND THE PAUL LOGERFO EDUCATIONAL RESEARCH FUND



Dr. Paul LoGerfo passed away September 16, 2003 during his tenure as President of the AAES. Dr. LoGerfo was very interested in education and clinical research, and in his honor the AAES established the Educational Research Fund to support educational and research activities of the Membership. As of March 8, 2017, the following members and organizations contributed from 2015-2017.

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THYCA: THYROID CANCER SURVIVORS' ASSOCIATION AWARD FOR THYROID CANCER RESEARCH

We are pleased to announce the **ThyCa: Thyroid Cancer Survivors' Association Award for Thyroid Cancer Research** through the special support of ThyCa: Thyroid Cancer Survivors' Association, Inc. (www.thyca.org) ThyCa is the premier thyroid cancer patient advocacy organization in the world and was founded by 17 people more than 21 years ago to provide support and educational materials for people affected by thyroid cancer.

The founders realized that most patients were not receiving support services or detailed information about their disease. Because of this, they decided to create ThyCa to empower people to understand their thyroid cancer diagnosis and be actively involved in their care.

ThyCa serves patients, caregivers, and professionals in more than 120 countries worldwide; provides materials in 9 languages; sponsors Thyroid Cancer Awareness Month worldwide each September, and conducts year-round awareness campaigns. ThyCa's thyroid cancer research grant program has awarded more than \$1.6 million in funded research since 2003.

Additionally, ThyCa provides a comprehensive web site; online support groups with over 50,000 participants on Yahoo, Facebook, Twitter, and Inspire; more than 120 face-to-face support groups; more than 60 videos with experts on YouTube; a free weekly e-newsletter; free downloadable handbooks on all types of thyroid cancer, a free Low-Iodine Cookbook and other materials; more than 150,000 pieces of literature distributed annually world-wide free of charge.

Our two organizations share so many goals, with the most important being to provide the best care possible to patients with thyroid cancer across the United States and the world. This is an excellent opportunity for a renewed collaboration through research, educational platforms for people affected by thyroid cancer patients, and physicians sharing their expertise. We look forward to the AAES working with ThyCa to achieve these important endeavors.

Peter Angelos, MD, PhD
President, AAES

Gary Bloom
Executive Director, ThyCa: Thyroid
Cancer Survivors' Association, Inc.
www.thyca.org

PAST MEETINGS

- 1980 **Ann Arbor, Michigan**
Local Arrangements Chair: Norman W. Thompson
- 1981 **Washington, DC**
Local Arrangements Chair: Glenn Geelhoed
- 1982 **Houston, Texas**
Local Arrangements Chair: Robert C. Hickey
- 1983 **San Francisco, California**
Local Arrangements Chair: Orlo Clark
- 1984 **Kansas City, Kansas**
Local Arrangements Chair: Stanley R. Friesen
- 1985 **Toronto, Ontario, Canada**
Local Arrangements Chair: Irving Rosen
- 1986 **Rochester, Minnesota**
Local Arrangements Chair: Jon A. van Heerden
- 1987 **Chicago, Illinois**
Local Arrangements Chair: Edwin L. Kaplan
- 1988 **Boston, Massachusetts**
Local Arrangements Chair: Blake Cady
- 1989 **Chapel Hill, North Carolina**
Local Arrangements Chair: Robert D. Croom
- 1990 **Cleveland, Ohio**
Local Arrangements Chair: Caldwell B. Esselstyn
- 1991 **San Jose, California**
Local Arrangements Chair: Maria Allo
- 1992 **Miami, Florida**
Local Arrangements Chair: George L. Irvin, III
- 1993 **Williamsburg, Virginia**
Local Arrangements Chair: H. Heber Newsome
- 1994 **Detroit, Michigan**
Local Arrangements Chair: Gary B. Talpos
- 1995 **Philadelphia, Pennsylvania**
Local Arrangements Chair: John Kukora

PAST MEETINGS CONTINUED

- 1996 **Napa, California**
Local Arrangements Chair: Quan-Yang Duh
- 1997 **Baltimore, Maryland**
Local Arrangements Chair: Robert Udelsman
- 1998 **Orlando, Florida**
Local Arrangements Chair: Peter J. Fabri
- 1999 **New Haven, Connecticut**
Local Arrangements Chair: Barbara Kinder
- 2000 **Joint Meeting: London, United Kingdom/Lille, France**
Local Arrangements Chair: Jack Monchik
- 2001 **Atlanta, Georgia**
Local Arrangements Chair: Collin Weber
- 2002 **Banff, Alberta, Canada**
Local Arrangements Chair: Janice L. Pasieka
- 2003 **San Diego, California**
Local Arrangements 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**
Local Arrangements Chair: Ashok R. Shaha
- 2007 **Tucson, Arizona**
Local Arrangements Chair: Michael J. Demeure
- 2008 **Monterey, California**
Local Arrangements Chair: Quan-Yang Duh
- 2009 **Madison, Wisconsin**
Local Arrangements Chair: Herbert Chen
- 2010 **Pittsburgh, Pennsylvania**
Local Arrangements Chair: Sally E. Carty
- 2011 **Houston, Texas**
Local Arrangements Chair: Nancy D. Perrier
- 2012 **Iowa City, Iowa**
Local Arrangements Chair: Ronald Weigel

PAST MEETINGS CONTINUED

- 2013 **Chicago, Illinois**
Local Arrangements Chair: Peter Angelos
- 2014 **Boston, Massachusetts**
Local Arrangements Chair: Richard A. Hodin
- 2015 **Nashville, Tennessee**
Local Arrangements Chair: Carmen Solorzano
- 2016 **Baltimore, Maryland**
Local Arrangements Chair: John A. Olson, Jr.

SPECIAL SESSIONS

ALLIED HEALTH SESSION: INHERITED ENDOCRINOPATHIES – MEN AND PHEOCHROMOCYTOMA: DIAGNOSIS, TREATMENT AND FOLLOW-UP

SUNDAY, APRIL 2, 2017 8:30 AM – 10:00 AM

Grand Ballroom C

The Allied Health Session will focus on inherited endocrinopathies - MEN and pheochromocytoma; diagnosis, treatment, and follow-up. Three advance practice providers will discuss MEN-1, MEN-2A, 2B and Pheochromocytoma. Discussion will include case study, diagnosis, treatment, and surveillance/follow-up of this specialized group of patients and their families. The session will conclude after a brief discussion of unique cases.

LUNCH SYMPOSIUM: MALPRACTICE IN ENDOCRINE SURGERY

Sponsored by the Community Based Surgeons Committee

SUNDAY, APRIL 2, 2017 1:00 PM – 2:30 PM

Grand Ballroom C

ADDITIONAL FEE FOR LUNCH

This session will focus on a variety of topics related to medical malpractice in surgery. It will cover several strategies aimed at decreasing malpractice risk that are applicable for all surgeons during any stage of their careers.

HISTORICAL LECTURER

Surgery, Surgeons and their College

David L. Nahrwold, MD

Northwestern University, Emeritus Professor

SUNDAY, APRIL 2, 2017 12:00 PM – 1:00 PM

Grand Ballroom C



Dr. David Nahrwold was the Loyal and Edith Davis Professor and Chairman of the Department of Surgery at Northwestern University. His clinical and research interests were in gastrointestinal surgery. He was a member of many surgical organizations and served as an officer for several of them. Dr. Nahrwold was a director and Chairman of the American Board of Surgery, president of the American Board of Medical Specialties, and Chairman of the Board of the Joint Commission. He received the Distinguished Service

Award of the American College of Surgeons, the John P Hubbard Award of the National Board of Medical Examiners, the Derrick Vail Award of the American Board of Medical Specialties, and the Distinguished Alumni Award of the Indiana University School of Medicine.

In retirement, Dr. Nahrwold has researched and written about medical history, especially about the American College of Surgeons. With Dr. Peter Kernahan he wrote the centennial history of the College, *A Century of Surgeons and Surgery. The American College of Surgeons, 1913-2012*. More recently, he wrote *A Mirror Reflecting Surgery, Surgeons, and their College: The Bulletin of the American College of Surgeons*. Currently, he is working on the biography of Dr. C Rollins Hanlon.

HISTORICAL LECTURERS

AT RECENT MEETING

- 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?
- 2016 **Samuel A. Wells, Jr., MD**
National Cancer Institute
The Diagnosis and Treatment of Thyroid Cancer: A Historical Perspective

ORLO & CAROL CLARK DISTINGUISHED LECTURER IN ENDOCRINE SURGERY

“Thyroid Cancer and the Microbiome”

Jack A. Gilbert, PhD
University of Chicago

MONDAY, APRIL 3, 2017 9:30 AM – 10:30 AM
Grand Ballroom C



Professor Jack A. Gilbert earned his Ph.D. from Unilever and Nottingham University, UK in 2002, and received his postdoctoral training at Queens University, Canada. He subsequently returned to the UK in 2005 to Plymouth Marine Laboratory at a senior scientist until his move to Argonne National Laboratory and the University of Chicago in 2010. Currently, Professor Gilbert is the Director of the Microbiome Center and a Professor of Surgery at the University of Chicago. He is also Group Leader for Microbial Ecology at Argonne National Laboratory, Research Associate at the Field Museum of Natural History, Scientific Fellow at the

Marine Biological Laboratory, and the Yeoh Ghim Seng Visiting Professorship in Surgery at the National University of Singapore. Dr. Gilbert uses molecular analysis to test fundamental hypotheses in microbial ecology. He has authored more than 250 peer reviewed publications and book chapters on metagenomics and approaches to ecosystem ecology. He is the founding Editor in Chief of mSystems journal. In 2014 he was recognized on Crain’s Business Chicago’s 40 Under 40 List, and in 2015 he was listed as one of the 50 most influential scientists by Business Insider, and in the Brilliant Ten by Popular Scientist. In 2016 he won the Altemeier Prize from the Surgical Infection Society, and the WH Pierce Prize from the Society for Applied Microbiology for research excellence.

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 it Affect Patient
Management?*
- 2015 **Gary Hammer, MD, PhD**
University of Michigan
Translating Adrenal Stem Cells: Implications for Adrenal Disease
- 2016 **Steven A. Rosenberg, MD, PhD**
National Cancer Institute and George Washington University
*The Curative Potential of T-cell Transfer Immunotherapy for Patients with
Metastatic Cancer*



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. Explain practical new approaches and solutions to relevant concepts and problems in endocrine surgical care.
3. Apply additional working knowledge to assist them with their existing and growing endocrine practice.
4. Possess new information and recent developments as they relate to recently established guidelines and procedures.
5. Explain the new designation of Noninvasive Follicular thyroid cancer with Papillary-like nuclear features (NIFTP) and what it means for the management care plan of this subtype of thyroid cancer.

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 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 **18.25 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 **9.00** credits meet the requirements for Self-Assessment.



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ACCREDITATION CONTINUED

DISCLOSURE INFORMATION

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

You may complete your attendance verification, meeting evaluation and Self-Assessment posttest online. You will receive your electronic CME certificate after completing the evaluation and posttests. Your final CME hours will be submitted to the ACS. Members of the ACS will have their credits posted to the ACS website around 30 days post-activity.

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.

	CME	SA
SUNDAY, APRIL 2, 2017		
ALLIED HEALTH SESSION	1.50	0
SCIENTIFIC SESSION #1	1.00	1.00
HISTORIC LECTUREER: Surgery, Surgeons, and their College	1.00	0
LUNCH SYMPOSIUM: Malpractice in Endocrine Surgery	1.50	0
SCIENTIFIC SESSION #2	1.50	1.50
SCIENTIFIC SESSION #3	1.50	1.50
Daily Total	8.00	4.00
MONDAY, APRIL 3, 2017		
SCIENTIFIC SESSION #4	1.50	1.50
DISTINGUISHED LECTURER: Thyroid Cancer and the Microbiome	1.00	0
PRESIDENTIAL ADDRESS: Surgical Ethics and the Future of Surgical Practice	1.00	0
INTERESTING CASES	1.75	0
VIDEO SESSIONS	1.50	0
Daily Total	6.75	1.50
TUESDAY, APRIL 4, 2017		
SCIENTIFIC SESSION #5	1.50	1.50
SCIENTIFIC SESSION #6	1.00	1.00
SCIENTIFIC SESSION #7	1.00	1.00
Daily Total	3.50	3.50
MEETING TOTAL	18.25	9.00

HOTEL INFORMATION

HOTEL INFORMATION

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9840 International Drive Orlando, FL 32819

T: 407-996-9840

W: www.rosencentre.com

WEATHER

Temperatures in early April range from the mid-80s to the mid-50s. A more accurate weather forecast can be found closer to the date of the meeting at www.weather.com.

AIRPORT INFORMATION

The Rosen Centre Hotel is located just 12 minutes from the Orlando International Airport (MCO) – <https://orlandoairports.net>

TRANSPORTATION FROM THE AIRPORT

Taxi Service: A one-way taxi ride from the airport to the Rosen Centre Hotel will cost approximately \$45.

Mears Motor Shuttle: The Mears Motor Shuttle is available to and from MCO airport for a group discounted rate of \$33 per adult and \$25 per child round trip. To purchase a coupon in advance visit: <http://bit.ly/AAESshuttle>

CONTACTS

Mira Milas, MD, Local Arrangements Chair

E: Mira.Milas@bannerhealth.com

AMERICAN ASSOCIATION OF ENDOCRINE SURGEONS

201 East Main Street, Suite 1405, Lexington, KY 40507

T: 859-402-9810 F: 859-514-9166 E: info@endocrinesurgery.org

W: www.endocrinesurgery.org



AGENDA

AGENDA

FRIDAY, MARCH 31, 2017

6:30 am – 5:45 pm

Salon 4 - Level 2

Endocrine Surgery University Registration

7:00 am — 5:45 pm

Salon 4 - Level 2

Endocrine Surgery University

An educational activity for Endocrine Surgery Fellows

COURSE DIRECTOR

Mira M. Milas, MD

Banner – University Medical Center Phoenix

COURSE FACULTY/PANELISTS

- Shaghayegh Aliabadi-Wahle, MD – Providence Portland Medical Center
- Peter Angelos, MD, PhD – University of Chicago
- Laurie Cure, PhD – Innovative Connections, Inc.
- Allan Dackiw, MD, PhD, MBA – University of Texas
- Erin Felger, MD – Medstar Washington Hospital Center- Washington DC
- James Lee, MD – Columbia University
- Mira Milas, MD – University of Arizona-Phoenix
- Barbra Miller, MD – University of Michigan
- Lilah Morris-Wiseman, MD – University of Arizona-Tucson
- Janice Pasieka, MD, FRCSC – University of Calgary
- Roy Phitiyakorn, MD, MHPE (MEd) – Harvard Medical School
- Rebecca Sippel, MD – University of Wisconsin
- Sandy Scott, BBA, MPA, FACHE – Innovative Connections, Inc.
- Tracy Wang, MD, MPH – Medical College of Wisconsin
- Michael Yeh, MD – University of California-Los Angeles

6:30 pm — 8:30 pm

Salon 4 - Level 2

ESU Dinner

Invitation Only

AGENDA CONTINUED

SATURDAY, APRIL 1, 2017

6:30 am – 12:00 pm Endocrine Surgery University Registration	<i>Salon 4 - Level 2</i>
7:00 am – 12:00 pm Endocrine Surgery University CONTINUED	<i>Salon 4 - Level 2</i>
1:00 pm – 6:00 pm AAES Annual Golf Tournament	<i>Rosen Shingle Creek Resort</i>
2:00 pm – 6:00 pm AAES Annual Tennis Tournament	<i>Rosen Shingle Creek Resort</i>
2:00 pm – 6:00 pm Registration Open	<i>Grand Ballroom Foyer</i> <i>Registration Desk 1</i>
2:00 pm – 6:00 pm AAES Executive Council Meeting	<i>Salon 5 – Level 2</i>
6:30 pm – 8:30 pm Executive Council Dinner	<i>Tommy Bahamas</i>
8:30 pm – 10:30 pm Young Surgeons' Social Hour	<i>Lafayette Music Room</i>

AGENDA CONTINUED

SUNDAY, APRIL 2, 2017

6:00 am — 6:00 pm

Registration Open

*Grand Ballroom Foyer
Registration Desk 1*

6:30 am — 8:00 am

5K Fun Run

Meet in Rosen Centre Hotel Lobby

7:30 am — 8:30 am

CBS Committee Meeting

Salon 1 – Level 2

7:30 am — 8:30 am

Education & Research Committee Meeting

Salon 2 – Level 2

7:30 am — 8:30 am

Fellowship Accreditation Committee Meeting

Salon 3 – Level 2

8:30 am — 10:00 am

Poster Walk Around and Poster Judging

Grand Ballroom A&B

8:30 am — 10:00 am

ALLIED HEALTH SESSION: Inherited Endocrinopathies - MEN and Pheochromocytoma: Diagnosis, Treatment and Follow-up

Grand Ballroom C

MODERATOR: Lisa LaFay, RN Nurse Coordinator Endocrine Surgery - University of Pittsburgh

SPEAKERS: Samuel Hyde, Genetics Counselor - MD Anderson, and Nadine Rinella, NP - Loyola University Medical Center

10:00 am — 10:30 am

Break, Exhibits, & Poster Viewing

Grand Ballroom A&B

10:30 am — 11:00 am

AAES Opening Session

Grand Ballroom C

11:00 am — 12:00 pm

SCIENTIFIC SESSION I: Papers 1-4

Grand Ballroom C

MODERATORS: Marlon Guerrero, MD - University of Arizona, and Scott Wilhelm, MD - University Hospitals/Case Medical Center

AGENDA CONTINUED

SUNDAY, APRIL 2, 2017

12:00 pm — 1:00 pm

Grand Ballroom C

HISTORICAL LECTURER: “Surgery, Surgeons and their College”

SPEAKER: David Nahrwold, MD – *Northwestern University*, Emeritus Professor

1:00 pm — 2:30 pm

Lunch on Own

OR

1:00 pm — 2:30 pm

Grand Ballroom C

“Malpractice in Endocrine Surgery” Lunch Symposium

Sponsored by the Community Based Surgeons Committee

Additional Fee for Lunch

SPEAKERS: Gerard Doherty, MD - *Brigham and Women's Hospital*, Richard Harding, MD - *Arizona Associated Surgeons*, Christina Maser, MD - *University of California San Francisco-Fresno*, Beth Sutton, MD - *Sutton Mercer & Provost Mds*, and David Bimston, MD - *Memorial Center for Integrative Endocrine Surgery*

2:30 pm — 4:00 pm

Grand Ballroom C

SCIENTIFIC SESSION II: Papers 5-10

MODERATORS: Peter Mazzaglia, MD - *Warren Alpert School of Medicine at Brown University*, and Fiemu Nwariaku, MD - *University of Texas Southwestern Medical Center*

4:00 pm — 4:25 pm

Grand Ballroom A&B

Break, Exhibits, & Poster Viewing

4:25 pm — 6:00 pm

Grand Ballroom C

SCIENTIFIC SESSION III: Papers 11-15

MODERATORS: Jessica Gosnell, MD - *University of California San Francisco*, and Electron Kebebew, MD - *National Institutes of Health*

7:00 pm — 9:00 pm

Grand Patio

AAES President’s Reception

AGENDA CONTINUED

MONDAY, APRIL 3, 2017

- 6:30 am — 8:00 am *Salon 2 – Level 2*
CESQIP Committee Meeting
- 7:00 am — 7:00 pm *Grand Ballroom Foyer*
Registration Open *Registration Desk 1*
- 7:00 am — 8:00 am *Grand Ballroom A&B*
Continental Breakfast
- 7:00 am — 8:00 am *Salon 4 – Level 2*
New Member Breakfast
Invitation Only
- 8:00 am — 9:30 am *Grand Ballroom C*
SCIENTIFIC SESSION IV: Papers 16-21
MODERATORS: Nadine Caron, MD, MPH, FRCSC - *University of British Columbia*, and James Howe, MD - *University of Iowa Hospitals & Clinics*
- 9:30 am — 10:30 am *Grand Ballroom C*
Orlo & Carol Clark Distinguished Lecturer in Endocrine Surgery: “Thyroid Cancer and the Microbiome”
SPEAKER: Jack Gilbert, PhD – *University of Chicago*
- 10:30 am — 11:00 am *Grand Ballroom A&B*
Breaks, Exhibits, & Poster Viewing
- 11:00 am — 12:00 pm *Grand Ballroom C*
PRESIDENTIAL ADDRESS: “Surgical Ethics and the Future of Surgical Practice”
SPEAKER: Peter Angelos, MD, PhD – *University of Chicago*
- 12:00 pm — 1:00 pm *Grand Ballroom C*
AAES Business Meeting

AGENDA CONTINUED

MONDAY, APRIL 3, 2017

1:00 pm — 2:30 pm

Lunch on Own

OR

1:00 pm — 2:30 pm

Top 10 AAES Posters Displayed at ENDO 2017

**Convention Center, West Concourse
Level II, West Hall B*

**See map of Convention Center, West Concourse on page 51*

JOINT PROGRAMMING WITH ENDOCRINE SOCIETY BEGINS

2:30 pm — 4:15 pm

Convention Center, West Concourse

Interesting Cases

Level IV, 414 A

MODERATOR: Samuel Snyder, MD - *University of Texas, Rio Grande Valley*

SPEAKERS: Geoffrey Thompson, MD - *Mayo Clinic*, Julie Ann Sosa, MD - *Duke University*, William B. Inabnet, III, MD - *Mount Sinai Beth Israel*, and Richard Auchus, MD, PhD - *University of Michigan*

4:30 pm — 6:00 pm

Convention Center, West Concourse

Pro/Con Joint Symposium Talks

Level IV, Chapin Theater

MODERATOR: David Steward, MD

4:30 pm – 5:15 pm - *“Hemithyroidectomy for Cancer”*

5:15 pm – 6:00 pm - *“Should Molecular Testing Affect Extent of Surgery for Thyroid Cancer”*

OR

4:30 pm- 6:00 pm

Convention Center, West Concourse

Video Sessions

Level IV, 414 A

MODERATOR: James Lee, MD - *Columbia University Medical Center*

JOINT PROGRAMMING WITH ENDOCRINE SOCIETY ENDS

7:00 pm — 8:00 pm

Grand Ballroom Foyer

Gala Reception

8:00 pm — 10:30 pm

Grand Ballroom D&E

Gala Dinner

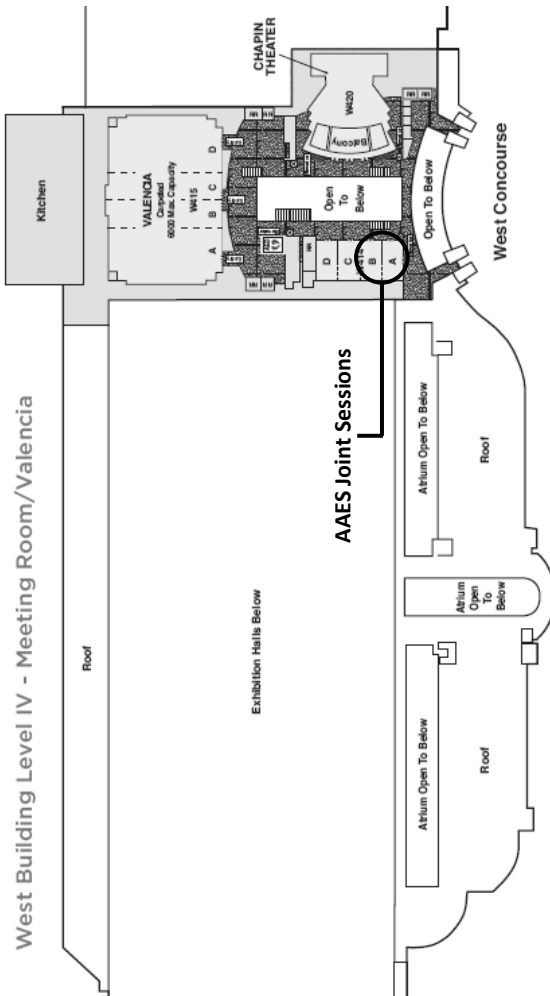
Gala Dinner included with registration; ticket required for guests

AGENDA CONTINUED

MONDAY, APRIL 3, 2017

AAES members can access the Endocrine Society joint sessions at the Convention Centre by taking the Rosen Centre Skywalk, located on Level 2 of the Rosen Centre Hotel. Once across the Skywalk, take the escalators up to Level IV of the West Concourse. Please note the Endocrine Society's Poster Session is located on Level II of the West Concourse. All other joint sessions are on Level IV.

Orlando Convention Center, West Concourse:



AGENDA CONTINUED

TUESDAY, APRIL 4, 2017

6:30 am — 8:00 am

AAES Foundation Board Meeting

Salon 1 – Level 2

7:00 am — 8:00 am

Registration Open

*Grand Ballroom Foyer
Registration Desk 1*

7:00 am — 8:00 am

Continental Breakfast

Grand Ballroom A&B

7:00 am — 8:00 am

Information Technology Committee Meeting

Salon 2 – Level 2

7:00 am — 8:00 am

Fellowship Committee Meeting

Salon 3 – Level 2

8:00 am — 9:30 am

SCIENTIFIC SESSION V: Papers 22-27

Grand Ballroom C

MODERATORS: Cortney Lee, MD - *University of Kentucky* and Beth Sutton, MD - *Mayo Clinic*

9:30 am — 9:50 am

Break, Exhibits, & Poster Viewing

Grand Ballroom A&B

9:50 am — 10:50 am

SCIENTIFIC SESSION VI: Papers 28-31

Grand Ballroom C

MODERATORS: Michael Starks, MD - *Penobscot Surgical Care* and Martha Zeiger, MD - *Johns Hopkins University School of Medicine*

11:10 am — 11:55 am

SCIENTIFIC SESSION VII: Papers 32-34

Grand Ballroom C

MODERATORS: Bradford Mitchell, MD - *Yale University* and Akira Miyauchi, MD, PhD - *Kuma Hospital*

12:00 pm

Meeting Adjourn



SCIENTIFIC PROGRAM

★ Denotes Resident/Fellow Research Award Competition Paper

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

SCIENTIFIC PROGRAM

SUNDAY, APRIL 2, 2017

8:30 am — 10:00 am

Grand Ballroom A&B

Poster Walk Around & Poster Judging

8:30 am — 10:30 am

Grand Ballroom C

ALLIED HEALTH SESSION: Inherited Endocrinopathies - MEN and Pheochromocytoma: Diagnosis, Treatment and Follow-up

MODERATOR: Lisa LaFay, RN Nurse Coordinator Endocrine Surgery - University of Pittsburgh

- **MEN-1: A Concise Look at Diagnosis, Treatment and Follow-up**
Lisa LaFay, RN Nurse Coordinator Endocrine Surgery - University of Pittsburgh
- **The Who What When & Why of MEN2A/MEN2B: Evidence-based Takeaways for Allied Health Professionals**
Samuel Hyde, Genetics Counselor - MD Anderson
- **Fun with Pheo's**
Nadine Rinella, Nurse Practitioner - Loyola University Medical Center

10:00 am — 10:30 am

Grand Ballroom A&B

Break, Exhibits, & Poster Viewing

10:30 am — 11:00 am

Grand Ballroom C

AAES Opening Session

Welcome & Memoriam – Peter Angelos, MD, PhD

Welcome to Orlando – Mira Milas, MD

Introduction of New Members

Introduction to 2016 Paul LoGerfo Award Presentations – Kepal Patel, MD

2016 Paul LoGerfo Clinical Research Award Presentation, Susan Pitt, MD, MPH

2016 Paul LoGerfo Basic Science Research Award Presentation, Dhaval Patel, MD

SCIENTIFIC PROGRAM CONTINUED

SUNDAY, APRIL 2, 2017

11:00 am — 12:00 pm

Grand Ballroom C

SCIENTIFIC SESSION I: Papers 1-4

MODERATORS: Marlon Guerrero, MD - *University of Arizona*, and Scott Wilhelm, MD - *University Hospitals/Case Medical Center*

11:00 am – 11:15 am

★ **01:** EVALUATING THE PROJECTED IMPACT OF RECLASSIFYING ENCAPSULATED FOLLICULAR VARIANT OF PAPILLARY THYROID CANCER AS NONINVASIVE FOLLICULAR THYROID NEOPLASM WITH PAPILLARY-LIKE NUCLEAR FEATURES

Rajshri Mainthia¹, Heather Wachtel¹, Peter Sadow², Yufei Chen¹, Elizabeth Mort³, Sareh Parangi¹, Carrie Lubitz¹

¹*Dept of Surgery, Massachusetts General Hospital, Harvard Medical School*, ²*Dept of Pathology, Massachusetts General Hospital, Harvard Medical School*, ³*Dept of Medicine, Massachusetts General Hospital, Harvard Medical School*

11:15 am – 11:30 am

★ **02:** BACK SO SOON? - IS EARLY RECURRENCE OF PAPILLARY THYROID CANCER REALLY JUST PERSISTENT DISEASE?

Maria F Bates¹, Marcos R Lamas², Reese W Randle¹, Kristin L Long¹, Susan C Pitt¹, David F Schneider¹, Rebecca S Sippel¹

¹*Endocrine Surgery, University of Wisconsin*, ²*Endocrinology, University of Wisconsin*

11:30 am – 11:45 am

03: FOR ATA LOW AND INTERMEDIATE RISK THYROID CANCERS, CORRECT EXTENT OF THYROIDECTOMY IS POORLY PREDICTED PREOPERATIVELY

Mashaal Dhir¹, Kelly L McCoy¹, N Paul Ohori², Cameron Adkisson¹, Shane Otto LeBeau³, Sally E Carty¹, **Linwah Yip**¹

¹*Endocrine Surgery, University of Pittsburgh Medical Center*, ²*Pathology, University of Pittsburgh Medical Center*, ³*Diabetes, Endocrinology and Metabolism, University of Pittsburgh Medical Center*

11:45 am – 12:00 pm

★ **04:** NEW TERMINOLOGY-NONINVASIVE FOLLICULAR NEOPLASM WITH PAPILLARY-LIKE NUCLEAR FEATURES (NIFTP) AND ITS EFFECT ON THE RATE OF MALIGNANCY AT A SINGLE INSTITUTION

Colleen M Kiernan¹, Vivian L Weiss², Mitra Mehrad², Kim Ely², Naira Baregamian³, Carmen C Solorzano³

¹*Surgery, Vanderbilt University*, ²*Pathology, Microbiology, and Immunology, Vanderbilt University*, ³*Division of Surgical Oncology and Endocrine Surgery, Vanderbilt University*

SCIENTIFIC PROGRAM CONTINUED

SUNDAY, APRIL 2, 2017

12:00 pm — 1:00 pm

Grand Ballroom C

HISTORICAL LECTURER: “Surgery, Surgeons and their College”

SPEAKER: David Nahrwold, MD – *Northwestern University*, Emeritus Professor

1:00 pm — 2:30 pm

Lunch on Own

OR

1:00 pm — 2:30 pm

Grand Ballroom C

“Malpractice in Endocrine Surgery” Lunch Symposium

Sponsored by the Community Based Surgeons Committee

Additional Fee for Lunch

- **Early Disclosure and Medical Errors: The Michigan Model**
Gerard Doherty, MD - *Brigham and Women's Hospital*
- **The Benefit of Secure Video Recordings of Office Visits and How They Mitigate Risk for Malpractice**
Richard Harding, MD - *Arizona Associated Surgeons*
- **The Humble Expert – Controlling Risk While Establishing your Practice**
Christina Maser, MD - *University of California San Francisco-Fresno*
- **Back to the Basics of Reducing Malpractice Risk”**
Beth Sutton, MD - *Sutton Mercer & Provost Mds*
- **Foregoing Malpractice Insurance as a Lawsuit Risk Reduction Strategy**
David Bimston, MD - *Memorial Center for Integrative Endocrine Surgery*

2:30 pm — 4:00 pm

Grand Ballroom C

SCIENTIFIC SESSION II: Papers 5-10

MODERATORS: Peter Mazzaglia, MD - *Warren Alpert School of Medicine at Brown*

University, and Fiemu Nwariaku, MD - *University of Texas Southwestern Medical Center*

SCIENTIFIC PROGRAM CONTINUED

SUNDAY, APRIL 2, 2017

2:30 pm – 2:45 pm

★ **05:** FIFTEEN YEARS OF ADRENALECTOMIES: IMPACT OF SPECIALTY TRAINING AND OPERATIVE VOLUME

Brenessa M Lindeman¹, Daniel A Hashimoto², Yanik J Bababekov², Sahael M Stapleton², David C Chang², Richard A Hodin², Roy Phitayakorn²

¹*Surgery, Brigham and Women's Hospital,* ²*Surgery, Massachusetts General Hospital*

2:45 pm – 3:00 pm

★ **06:** EACH PROCEDURE MATTERS: SURGEON VOLUME THRESHOLD FOR MINIMIZING COMPLICATIONS AND REDUCING COST ASSOCIATED WITH ADRENALECTOMY

Kevin Anderson¹, Samantha Thomas², Mohamed Adam³, Michael Stang³, Randall Scheri³, Sanziana Roman³, Julie Sosa³

¹*School of Medicine, Duke University School of Medicine,* ²*Department of Biostatistics and Bioinformatics, Duke University Medical Center,* ³*Department of Surgery, Duke University Medical Center*

3:00 pm – 3:15 pm

★ **07:** SURGICAL APPROACH IMPACTS INTRAOPERATIVE HEMODYNAMIC INSTABILITY IN PHEOCHROMOCYTOMA

Emily Postma¹, Wessel M Vorselaars², Jesse Pasternak³, Mattan Lustgarten³, Eric Mirallie⁴, Thomas J Fahey III¹, Rocco Bellantone⁵, Marco Raffaelli⁵, Menno R Vriens², Laurent Brunaud⁶, Rasa Zarnegar¹

¹*Surgery, New York Presbyterian Hospital-Weill Cornell Medical Center, NY,* ²*University Medical Centre Utrecht, the Netherlands,* ³*University Health Network Toronto, Canada,* ⁴*University Hospital Hôtel-Dieu Nantes, France,* ⁵*University Hospital Agostino Gemelli, Catholic University of Sacred Heart, Rome, Italy,* ⁶*University of Lorraine, Nancy, France*

3:15 pm – 3:30 pm

★ **08:** CONTRALATERAL SUPPRESSION OF ALDOSTERONE AT ADRENAL VENOUS SAMPLING PREDICTS HYPERKALEMIA FOLLOWING ADRENALECTOMY FOR PRIMARY ALDOSTERONISM

Omar A Shariq¹, Irina Bancos², Patricia A Cronin¹, David R Farley¹, Melanie L Richards¹, Geoffrey B Thompson¹, William F Young, Jr.², Travis J McKenzie¹

¹*Department of Surgery, Mayo Clinic,* ²*Division of Endocrinology, Diabetes, Metabolism, and Nutrition, Mayo Clinic*

SCIENTIFIC PROGRAM CONTINUED

SUNDAY, APRIL 2, 2017

3:30 pm – 3:45 pm

★ **09:** METABOLIC SYNDROME IS ASSOCIATED WITH INCREASED POSTOPERATIVE COMPLICATIONS AND USE OF HOSPITAL RESOURCES IN PATIENTS UNDERGOING LAPAROSCOPIC ADRENALECTOMY

Omair A Shariq¹, Kristin M Fruth², Kristine T Hanson², Patricia A Cronin¹, Melanie L Richards¹, David R Farley¹, Geoffrey B Thompson¹, Elizabeth B Habermann², Travis J McKenzie¹

¹Department of Surgery, Mayo Clinic, ²Robert D and Patricia E Kern Center for the Science of Healthcare Delivery, Mayo Clinic

3:45 pm – 4:00 pm

★ **10:** LESS IS MORE: COST-UTILITY ANALYSIS OF SURVEILLANCE STRATEGIES FOR SMALL, NONFUNCTIONAL, RADIOGRAPHICALLY BENIGN ADRENAL INCIDENTALOMAS
Kathryn H Chomsky-Higgins^{1,2}, Carolyn D Seib¹, Holly M Rochefort¹, Jessica E Gosnell¹, Wen T Shen¹, James G Kahn³, Quan-Yang Duh¹, Insoo Suh¹

¹Endocrine Surgery, University of California, San Francisco, ²General Surgery, UCSF East Bay General Surgery, ³School of Medicine, Institute for Health Policy Studies, University of California, San Francisco

4:00 pm — 4:25 pm

Grand Ballroom A&B

Break, Exhibits, & Poster Viewing

4:25 pm — 5:45 pm

Grand Ballroom C

SCIENTIFIC SESSION III: Papers 11-15

MODERATORS: Jessica Gosnell, MD - *University of California San Francisco*, and Electron Kebebew, MD - *National Institutes of Health*

4:25 pm – 4:40 pm

★ **11:** EXPANDED CRITERIA FOR LIVER METASTASIS DEBULKING ALSO APPLY TO PANCREATIC NEUROENDOCRINE TUMORS: RESULTS FROM A LARGE SERIES

Rosemary E Morgan, SuEllen J Pommier, Rodney F Pommier

Department of Surgery, Division of Surgical Oncology, Oregon Health & Science University

4:40 pm – 4:55 pm

★ **12:** DECREASED UCHL1 EXPRESSION AS A CYTOLOGIC BIOMARKER FOR AGGRESSIVE BEHAVIOR IN PANCREATIC NEUROENDOCRINE TUMORS

Maureen D Moore¹, Brendan M Finnerty¹, Rema Rao², Rana Hoda², Katherine D Gray¹, Toni Beninato¹, Rasa Zarnegar¹, Thomas J Fahey, III¹

¹Surgery, New York Presbyterian Weill Cornell Medicine, ²Pathology, New York Presbyterian Weill Cornell Medicine

SCIENTIFIC PROGRAM CONTINUED

SUNDAY, APRIL 2, 2017

4:55 pm – 5:10 pm

★ **13:** GENE EXPRESSION CHANGES IN SMALL BOWEL NEUROENDOCRINE TUMORS ASSOCIATED WITH PROGRESSION TO METASTASES

Kendall J Keck¹, Patrick Breheny², Terry A Braun³, Benjamin Darbro⁴, Guiying Li¹, Joseph S Dillon⁵, Andrew M Bellizzi⁶, Thomas M O'Dorisio⁵, James R Howe¹

¹Department of Surgery, University of Iowa Carver College of Medicine, ²Department of Biostatistics, University of Iowa College of Public Health, ³Department of Biomedical Engineering, University of Iowa College of Engineering, ⁴Department of Pediatrics, University of Iowa Carver College of Medicine, ⁵Department of Internal Medicine, University of Iowa Carver College of Medicine, ⁶Department of Pathology, University of Iowa Carver College of Medicine

5:10 pm – 5:25 pm

★ **14:** HEALTH RELATED QUALITY OF LIFE IN MEN-1 PATIENTS IN THE UNITED STATES COMPARED TO OTHER CHRONIC CONDITIONS AND NORMATIVE DATA.

Benjamin J Peipert¹, Sneha Goswami¹, Susan Yount², Cord Sturgeon¹

¹Surgery, Northwestern University Feinberg School of Medicine, ²Medical Social Sciences, Northwestern University Feinberg School of Medicine

5:25 pm – 5:40 pm

★ **15:** GENOTYPE-PHENOTYPE PANCREATIC NEUROENDOCRINE TUMOR RELATIONSHIP IN MULTIPLE ENDOCRINE NEOPLASIA TYPE 1 PATIENTS: A 23 YEAR EXPERIENCE AT A SINGLE INSTITUTION

Ioannis Christakis¹, Qiu Wei^{1,2}, Sam Hyde³, Gilbert Cote³, Elizabeth G Grubbs¹, Jeffrey E Lee¹, Nancy D Perrier¹

¹Surgical Endocrinology, MD Anderson Cancer Center, ²Department of Hepatobiliary Pancreatic Surgery, The First Hospital of Jilin University, ³Department of Endocrine Neoplasia and Hormonal Disorders, MD Anderson Cancer Center

SCIENTIFIC PROGRAM CONTINUED

MONDAY, APRIL 3, 2017

8:00 am — 9:30 am

Grand Ballroom C

SCIENTIFIC SESSION IV: Papers 16-21

MODERATORS: Nadine Caron, MD, MPH, FRCSC - *University of British Columbia*, and James Howe, MD - *University of Iowa Hospitals & Clinics*

8:00 am – 8:15 am

★ **16: THE IMPACT OF POTASSIUM IODIDE ON THYROIDECTOMY FOR GRAVES' DISEASE: IMPLICATIONS FOR SAFETY AND OPERATIVE DIFFICULTY**

Reese W Randle¹, Maria F Bates¹, Kristin L Long¹, Susan C Pitt¹, David F Schneider¹, Rebecca S Sippel¹

¹*Department of Surgery, University of Wisconsin- Madison*

8:15 am – 8:30 am

17: CLINICAL PERFORMANCE OF A NEXT-GENERATION SEQUENCING PANEL (THYROSEQ V2) IN THE EVALUATION OF INDETERMINATE THYROID NODULES

Aida Taya¹, Dillon Gurciullo², Ashita Gupta³, Randall Owen², William B Inabnet, III⁴, Jessica Beyda⁵, Jennifer L Marti⁶

¹*Surgery, Mount Sinai St. Luke's and Mount Sinai West, Icahn School of Medicine at Mount Sinai*, ²*Surgery, Mount Sinai Hospital, Icahn School of Medicine at Mount Sinai*, ³*Endocrinology, Mount Sinai West, Icahn School of Medicine at Mount Sinai*, ⁴*Surgery, Mount Sinai Beth Israel and Mount Sinai Hospital, Icahn School of Medicine at Mount Sinai*, ⁵*Pathology, Mount Sinai Hospital, Icahn School of Medicine at Mount Sinai*, ⁶*Surgery, NewYork-Presbyterian/Lower Manhattan Hospital, Weill Cornell Medicine*

8:30 am – 8:45 am

★ **18: NOTCH3 AS A NOVEL THERAPEUTIC TARGET IN METASTATIC MEDULLARY THYROID CANCER**

Irene Lou¹, Scott K Odorico², April Harrison², Xiao-Min Yu², Renata Jaskula-Sztul¹, Herbert Chen¹

¹*Surgery, University of Alabama at Birmingham*, ²*Surgery, University of Wisconsin*

8:45 am – 9:00 am

★ **19: DEVELOPMENT OF THE THYCAT: A CLINICALLY USEFUL COMPUTERIZED ADAPTIVE TEST TO ASSESS QUALITY OF LIFE IN THYROID CANCER SURVIVORS**

BobieJo Ava Ferguson¹, Briseis Aschebrook-Kilfoy², Peter Angelos³, Raymon H Grogan³, Robert D Gibbons⁴

¹*The University of Chicago Pritzker School of Medicine*, ²*Department of Public Health Sciences, The University of Chicago*, ³*Department of Surgery, The University of Chicago*, ⁴*Departments of Medicine and Public Health Sciences, The University of Chicago*

SCIENTIFIC PROGRAM CONTINUED

MONDAY, APRIL 3, 2017

9:00 am – 9:15 am

★ **20:** TUMOUR INFILTRATING LYMPHOCYTES AND LYMPHOCYTIC PROFILING AS PREDICTIVE AND PROGNOSTIC BIOMARKERS IN THYROID CANCERS

Marra Jai Aghajani^{1,2}, Tao Yang^{1,2,3}, Charles Mccafferty², Susannah Graham ^{1,2,4}, Navin Niles^{1,2,4}

¹Ingham Institute for Applied Medical Research, ²School of Medicine, Western Sydney University, ³Department of Anatomical Pathology – Liverpool Hospital, ⁴Department of Head & Neck Surgery – Liverpool Hospital

9:15 am – 9:30 am

★ **21:** ESTROGEN RECEPTOR SUBTYPE EXPRESSION AND REGULATION IS ALTERED IN PAPILLARY THYROID CANCER AFTER MENOPAUSE

Gustavo A Rubio¹, Paola Catanuto¹, Sharon J Elliot¹, John I Lew²

¹DeWitt Daughtry Family Department of Surgery, University of Miami Leonard M. Miller School of Medicine, ²Division of Endocrine Surgery, DeWitt Daughtry Family Department of Surgery, University of Miami Leonard M. Miller School of Medicine

9:30 am — 10:30 am

Grand Ballroom C

Orlo & Carol Clark Distinguished Lecturer in Endocrine Surgery: “Thyroid Cancer and the Microbiome”

SPEAKER: Jack Gilbert, PhD – *University of Chicago*

10:30 am — 11:00 am

Grand Ballroom A&B

Breaks, Exhibits, & Poster Viewing

11:00 am — 12:00 pm

Grand Ballroom C

PRESIDENTIAL ADDRESS: “Surgical Ethics and the Future of Surgical Practice”

SPEAKER: Peter Angelos, MD, PhD – *University of Chicago*

12:00 pm — 1:00 pm

Grand Ballroom C

AAES Business Meeting

Active, Corresponding, Allied Specialist & Affiliate Provider Members Only

1:00 pm — 2:30 pm

Lunch on Own

OR

1:00 pm — 2:30 pm

Top 10 AAES Posters Displayed at ENDO

*Convention Center, West Concourse
Level II, Exhibition Hall*

SCIENTIFIC PROGRAM CONTINUED

MONDAY, APRIL 3, 2017

JOINT PROGRAMMING WITH ENDOCRINE SOCIETY BEGINS

**see map of Convention Center, West Concourse on page 51.*

2:30 pm — 4:15 pm

Convention Center, West Concourse

Interesting Cases

Level IV, W414 A&B

MODERATOR: Samuel Snyder, MD - *University of Texas, Rio Grande Valley*

PANELISTS: Geoffrey Thompson, MD - *Mayo Clinic*, Julie Ann Sosa, MD - *Duke University*, William B. Inabnet, III, MD - *Mount Sinai Beth Israel*, and Richard Auchus, MD, PhD - *University of Michigan*

4:30 pm — 6:00 pm

Convention Center, West Concourse

Pro/Con Joint Symposium Talks

Level IV, W414 A&B

- 4:30 pm – 5:15 pm - *“Hemithyroidectomy for Cancer”*
- 5:15 pm – 6:00 pm - *“Should Molecular Testing Affect Extent of Surgery for Thyroid Cancer”*

OR

4:30 pm- 6:00 pm

Convention Center, West Concourse

Video Sessions

Level IV, W414 A&B

MODERATOR: James Lee, MD - *Columbia University Medical Center*

- Minimally invasive parathyroidectomy - Robert Udelsman, MD, MBA, *Yale University*
- Total thyroidectomy with central neck dissection - Peter Angelos, MD, PhD, *University of Chicago*
- Lateral neck dissection - Ralph Tufano, MD, MBA, *Johns Hopkins University School of Medicine*
- Laparoscopic Transabdominal Adrenalectomy - Quan Duh, MD, *University of California San Francisco*
- Laparoscopic Retroperitoneal Adrenalectomy - Martin Walz, MD, *Academic Hospital of the University of Duisburg-Essen*
- Transoral thyroidectomy - Angkoon Anuwong, MD, FRCST, *Police General Hospital*

JOINT PROGRAMMING WITH ENDOCRINE SOCIETY ENDS

SCIENTIFIC PROGRAM CONTINUED

TUESDAY, APRIL 4, 2017

8:00 am — 9:30 am

Grand Ballroom C

SCIENTIFIC SESSION V: Papers 22-27

MODERATORS: Cortney Lee, MD - *University of Kentucky*, and Beth Sutton, MD - *Mayo Clinic*

8:00 am – 8:15 am

★ **22: ARE SESTAMIBI SCANS USEFUL FOR PATIENTS WITH SECONDARY AND TERTIARY HYPERPARATHYROIDISM UNDERGOING SURGERY?**

Farah Karipineni¹, Zeyad Sahli¹, Helina Somervell¹, Aarti Mathur¹, Jason D Prescott¹, Ralph P Tufano², Martha A Zeiger¹

¹*Surgery, Johns Hopkins*, ²*Head and Neck Surgery, Johns Hopkins*

8:15 am – 8:30 am

★ **23: SKELETAL EFFECTS OF FAILED PARATHYROIDECTOMY**

Feibi Zheng¹, Hui X Zhou², Philip I Haigh³, Ning Li⁴, Michael W Yeh¹

¹*Section of Endocrine Surgery, David Geffen School of Medicine, University of California, Los Angeles*, ²*Department of Research and Evaluation, Kaiser Permanente Southern California*, ³*Department of Surgery, Kaiser Permanente Los Angeles Medical Center*, ⁴*Department of Biomathematics, University of California, Los Angeles*

8:30 am – 8:45 am

★ **24: INFLUENCE OF CONCURRENT CHRONIC KIDNEY DISEASE ON INTRAOPERATIVE PARATHYROID HORMONE MONITORING DURING PARATHYROIDECTOMY FOR PRIMARY HYPERPARATHYROIDISM**

Bipin Sunkara¹, Barbra S Miller¹, Mark S Cohen¹, Paul G Gauger¹, David Hughes¹

¹*University of Michigan*

8:45 am – 9:00 am

★ **25: PREOPERATIVE GENETIC TESTING IN PHEOCHROMOCYTOMAS AND PARAGANGLIOMAS ALTERS SURGICAL APPROACH AND EXTENT OF RESECTION**

Pavel J Nockel¹, Lily Yang¹, Roxanne Merkel¹, Dhaval Patel¹, Naris Nilubol¹, Tamara Prodanov², Karel Pacak², Electron Kebebew¹

¹*Endocrine Oncology Branch, NIH*, ²*NICHD, NIH*

SCIENTIFIC PROGRAM CONTINUED

TUESDAY, APRIL 4, 2017

9:00 am – 9:15 am

★ **26:** LOBECTOMY FOR LOW-RISK DIFFERENTIATED THYROID CANCER: CAN POSTOPERATIVE THYROID HORMONE SUPPLEMENTATION BE AVOIDED AND STILL BE COMPLIANT WITH THE 2015 ATA GUIDELINES?

Caroline Cox¹, Maggie Bosley¹, Lori Beth Southerland¹, Sanziana Roman², Julie Ann Sosa², Sara Ahmadi³, Denise Carneiro-Pla¹

¹*Surgery, Medical University of South Carolina*, ²*Surgery, Duke University School of Medicine*, ³*Medicine, Duke University School of Medicine*

9:15 am – 9:30 am

★ **27:** IMPORTANCE OF SURGEON-PERFORMED ULTRASOUND IN THE PREOPERATIVE NODAL ASSESSMENT OF PATIENTS WITH DIFFERENTIATED THYROID CANCER

Rosebel Monteiro¹, Muhammad Etiwy¹, Amy Han¹, Andrew Swearingen¹, Vikram Krishnamurthy¹, Judy Jin¹, Joyce Shin¹, Eren Berber¹, Allan E Siperstein¹

¹*Endocrine Surgery, The Cleveland Clinic Foundation*

9:30 am – 9:50 am

Grand Ballroom A&B

Break, Exhibits & Poster Viewing

9:50 am — 10:50 am

Grand Ballroom C

SCIENTIFIC SESSION VI: Papers 28-31

MODERATORS: Michael Starks, MD - *Penobscot Surgical Care*, and Martha Zeiger, MD - *Johns Hopkins University School of Medicine*

9:50 am – 10:05 am

28: ESTIMATION OF THE LIFETIME PROBABILITY OF DISEASE PROGRESSION OF PAPILLARY MICROCARCINOMA OF THE THYROID ON ACTIVE SURVEILLANCE

Akira Miyauchi¹, Takumi Kudo², Yasuhiro Ito¹, Hitomi Oda¹, Hisanori Sasai³, Takuya Higashiyama¹, Mitsuhiro Fukushima¹, Hiroo Masuoka¹, Minoru Kihara¹, Akihiro Miya¹

¹*Surgery, Kuma Hospital*, ²*Internal Medicine, Kuma Hospital*, ³*Head and Neck Surgery, Kuma Hospital*

10:05 am – 10:20 am

29: COST-EFFECTIVENESS OF LOBECTOMY VERSUS GENETIC TESTING FOR INDETERMINATE THYROID NODULES: CONSIDERING THE COSTS OF SURVEILLANCE

Courtney Balentine¹, David J Vanness², David F Schneider³

¹*University of Alabama at Birmingham*, ²*Population Health Sciences, University of Wisconsin*, ³*Surgery, University of Wisconsin*

SCIENTIFIC PROGRAM CONTINUED

TUESDAY, APRIL 4, 2017

10:20 am – 10:35 am

30: FAILING TO INTERVENE ON THYROID CANCER: A STUDY OF THE NATIONAL CANCER DATABASE

Megan K Applewhite¹, **Michael G White**², Edwin L Kaplan², Peter Angelos², Raymon H Grogan²

¹General Surgery, Albany Medical College, ²General Surgery, University of Chicago

10:35 am – 10:50 am

31: HAS INTRAOPERATIVE NEUROMONITORING OF RECURRENT NERVES AN IMPACT ON POSTOPERATIVE NERVE PALSY RATE? A PROSPECTIVE STUDY

Eric Mirallie¹, Cécile Caillard¹, François Pattou², Laurent Brunaud³, Antoine Hamy⁴, Marcel Dahan⁵, Jean-Michel Prades⁶, Muriel Mathonnet⁷, Gerard Landecy⁸, Henri-Pierre Dernis⁹, Jean-Christophe Lifante¹⁰, Frédéric Sebag¹¹, Franck Jegoux¹², Emmanuel Babin¹³, Alain Bizon¹⁴, Florent Espitalier¹⁵, Isabelle Durand-Zaleski¹⁶, Christelle Volteau¹⁷, Claire Blanchard¹

¹Clinique de Chirurgie Digestive et Endocrine, Hôtel Dieu, CHU Nantes, ²CHU Lille, Université de Lille, Chirurgie générale et endocrinienne, ³CHU Nancy - Hôpital de Brabois, Service de chirurgie digestive, hépato-biliaire, et endocrinienne, ⁴CHU Angers, Chirurgie digestive et endocrinienne, ⁵CHU de Toulouse - Hôpital Larrey, Chirurgie Thoracique, Pôle Voies Respiratoires, ⁶CHU Saint-Etienne - Hôpital Nord, ORL et Chirurgie cervico-faciale et plastique, ⁷CHU de Limoges - Hôpital Dupuytren, Chirurgie digestive, générale et endocrinienne, ⁸CHU de Besançon - Hôpital Jean Minjot, Chirurgie digestive, ⁹Centre Hospitalier du Mans, Service ORL et chirurgie cervico-faciale, ¹⁰Centre Hospitalier Lyon-Sud, Chirurgie générale, endocrinienne, digestive et thoracique, ¹¹AP-HM - Hôpital de La Timone, Chirurgie Générale, ¹²CHU de Rennes - Hôpital Pontchaillou, Service ORL et chirurgie maxillo-faciale, ¹³CHU de Caen, ORL et chirurgie cervico-faciale, ¹⁴CHU d'Angers, ORL et chirurgie cervico-faciale, ¹⁵CHU de Nantes, Service ORL, ¹⁶AP HP URCEco île-de-France, hôpital de l'Hôtel-Dieu, ¹⁷DRCI, département Promotion

10:50 am – 11:10 am

Break, Exhibits & Poster Viewing

Grand Ballroom A&B

11:10 am – 11:55 am

SCIENTIFIC SESSION VII: Papers 32-34

MODERATORS: Bradford Mitchell, MD - Yale University, and Akira Miyauchi, MD, PhD - Kuma Hospital

Grand Ballroom C

SCIENTIFIC PROGRAM CONTINUED

TUESDAY, APRIL 4, 2017

11:10 am – 11:25 am

32: IMPACT OF AUTOFLUORESCENCE-BASED IDENTIFICATION OF PARATHYROIDS DURING TOTAL THYROIDECTOMY ON POSTOPERATIVE HYPOCALCEMIA: A BEFORE-AFTER CONTROLLED STUDY

Fares Benmiloud¹, Guillaume Penaranda², Anne Denizot¹

¹*Endocrine Surgery Unit, Hopital Europeen Marseille*, ²*Biostatistics, Laboratoire Alphabio-Marseille*

11:25 am – 11:40 am

33: FAMILIAL ISOLATED PRIMARY HYPERPARATHYROIDISM ASSOCIATED WITH GERMLINE GCM2 MUTATIONS IS MORE AGGRESSIVE AND HAS LOWER BIOCHEMICAL CURE RATE

Mustapha El Lakis¹, Bin Guan², Sunita Agarwal², James Welch², William Simonds², Stephen Marx², Naris Nilubol¹, Dhaval Patel², Lily Yang², Roxanne Merkel², Electron Kebebew¹

¹*Endocrine Oncology Branch, National Institutes of Health*, ²*National Institutes of Health*

11:40 am – 11:55 am

34: A POLYCLONAL ORIGIN OF PARATHYROID TUMORS IS COMMON AND IS ASSOCIATED WITH MULTIPLE GLAND DISEASE IN PRIMARY HYPERPARATHYROIDISM

Yuhong Shi¹, Pedram Azimzadeh¹, Shannon Wentworth¹, Janice Ferlitch¹, James Koh², Nariman Balenga¹, John A. Olson, Jr.¹

¹*University of Maryland School of Medicine*, ²*Duke University*

12:00 pm

Meeting Adjourn



ABSTRACTS

★ *Denotes Resident/Fellow Research Award Competition Paper*

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

ABSTRACTS

★ 01. EVALUATING THE PROJECTED IMPACT OF RECLASSIFYING ENCAPSULATED FOLLICULAR VARIANT OF PAPILLARY THYROID CANCER AS NONINVASIVE FOLLICULAR THYROID NEOPLASM WITH PAPILLARY-LIKE NUCLEAR FEATURES

Rajshri Mainthia¹, Heather Wachtel¹, Peter Sadow², Yufei Chen¹, Elizabeth Mort³, Sareh Parangi¹, Carrie Lubitz¹

¹Dept of Surgery, Massachusetts General Hospital, Harvard Medical School, ²Dept of Pathology, Massachusetts General Hospital, Harvard Medical School, ³Dept of Medicine, Massachusetts General Hospital, Harvard Medical School

Background: The reclassification of noninvasive Encapsulated Follicular Variant of Papillary Thyroid Cancer (EFVPTC) to Noninvasive Follicular Thyroid neoplasm with Papillary-like nuclear features (NIFTP) will reduce non-efficacious and potentially harmful post-surgical treatments and follow-up. Previous reports estimate that reclassification would affect more than 18.5% of patients diagnosed with papillary thyroid carcinoma (PTC) worldwide each year. We aimed to quantify the implications of this change.

Methods: A natural language search of pathology reports from two institutions from 4/2006-4/2016 was performed to isolate cases that would have been designated as NIFTP. Of the 1335 cases of PTC, 194 cases (14.5%) met NIFTP criteria (follicular growth pattern and nuclear features of PTC, encapsulation or clear demarcation, and no evidence of invasion). Cases in which non-invasive EFVPTC was found in combination with other thyroid malignancies (n=25) were excluded. Demographic, pathological, treatment, and follow-up data were assessed for the remaining 169 potential NIFTP cases.

Results: Of the 169 patients with tumors meeting NIFTP criteria, 134 (79%) were women. The mean age of patients was 50 ± 15 years and the mean index tumor size was 1.8 ± 1.5 cm. Fine needle aspiration results were nondiagnostic (2%), benign (17%), atypia/follicular lesion of undetermined significance (24%), follicular neoplasm (20%), suspicious for malignancy (19%), and malignant (6%) in the primary tumor focus. For patients with a “suspicious for malignancy/PTC” result (n=31), 71% underwent total thyroidectomy. Eighty-five NIFTP patients underwent total thyroidectomy as the initial procedure. Thyroid lobectomy was the index procedure for 79 patients (50%); of these patients, 54% underwent subsequent total thyroidectomy and 30% received post-op RAI treatment. There were no cases of serological or structural recurrence among the 129 patients with >3 months follow-up (median follow up=25 months [IQR 12-50]).

Conclusions: The reclassification of non-invasive EFVPTC as NIFTP will likely improve the quality of thyroid cancer care and reduce costs. However, given that only 50% of patients underwent lobectomy as their index procedure, the potential impact of this change with regard to extent of surgery was limited to approximately 6.3% of all patients with PTC in our cohort compared to the projected impact on 18.5% of patients with PTC.

ABSTRACTS

★ 02. BACK SO SOON? - IS EARLY RECURRENCE OF PAPILLARY THYROID CANCER REALLY JUST PERSISTENT DISEASE?

Maria F Bates¹, Marcos R Lamas², Reese W Randle¹, Kristin L Long¹, Susan C Pitt¹, David F Schneider¹, Rebecca S Sippel¹

¹*Endocrine Surgery, University of Wisconsin*, ²*Endocrinology, University of Wisconsin*

Background: Although papillary thyroid carcinoma (PTC) has excellent survival, recurrence remains a major challenge. Though recurrences can take decades, many patients present with evidence of disease as early as 6 months postoperatively. While reoperation >6 months is often labeled as “recurrence,” we sought to examine what percentage of reoperations are truly for “recurrent” disease versus management of persistent disease.

Methods: We conducted a retrospective review of a prospectively maintained surgical database. Patients with PTC that had a reoperation for nodal disease between 2000-2016 were included. We classified an operation as “recurrence” if a patient had an undetectable thyroglobulin (Tg) and negative neck ultrasound at any point prior to the reoperation. Patients with persistent disease had a positive Tg, an abnormal ultrasound, or persistent Tg antibodies.

Results: A total of 92 reoperations were performed on 68 patients. Twenty patients required >1 reoperation. 63.6% had their primary surgery performed at another institution. The mean age was 45±2.1 years and 69% were females. On initial pathology: tumor size was 2.7±0.2cm; 52.9% were multifocal; 42.7% had extrathyroidal extension; and 30.9% had vascular invasion. The majority of patients underwent a central/lateral neck dissection at their original surgery (60.3%) and were treated with post-operative RAI (75%). Most patients were ATA intermediate (58.8%) or high (14.7%) risk. The median time to first reoperation was 21 months (1-292). Most occurred within the first five years (77.6%) (52.6% within 2 years, 41.8% within 1 year). Only 3% (3 of 92) of surgeries met our criteria for true disease “recurrence”. These reoperations occurred at 14, 37, and 93 months. The remaining 66 (71.7%) surgeries were categorized as persistent disease: 62% had an abnormal initial ultrasound, 55.4% had an elevated Tg level, and 9.8% had Tg Abs. Twenty-two initial surgeries didn’t have documented follow-up within the first year.

Conclusions: Our study shows that majority of re-operative surgery for PTC is really for management of persistent disease. Over half of the patients who needed a reoperation required it within the first two years. This strongly suggests that improvements in the adequacy of initial surgery and preoperative assessment are critical to improving the care of patients with thyroid cancer

ABSTRACTS

03. FOR ATA LOW AND INTERMEDIATE RISK THYROID CANCERS, CORRECT EXTENT OF THYROIDECTOMY IS POORLY PREDICTED PREOPERATIVELY

Mashaal Dhir¹, Kelly L McCoy¹, N Paul Ohori², Cameron Adkisson¹, Shane Otto LeBeau³, Sally E Carty¹, **Linwah Yip¹**

¹Endocrine Surgery, University of Pittsburgh Medical Center, ²Pathology, University of Pittsburgh Medical Center, ³Diabetes, Endocrinology and Metabolism, University of Pittsburgh Medical Center

Background: The 2015 ATA Guidelines recommend thyroid lobectomy as sufficient treatment for intrathyroidal differentiated thyroid cancers (DTC) <4 cm. However, low risk DTC are most often associated with cytologically indeterminate FNA results and when preoperative FNA is positive for malignancy, it is unknown if initial lobectomy is adequate. Our study aim was to examine the histologic features of patients with a positive for malignancy cytology result, and assess the recommended extent of initial thyroidectomy using criteria from the 2015 ATA Guidelines.

Methods: We studied consecutive patients from a single institution who had a positive cytologic diagnosis and received initial total thyroidectomy (TT) ± lymphadenectomy (5/07-12/12). Diagnosis of recurrent/persistent disease required histologic confirmation. By 2015 ATA Guidelines, initial TT is preoperatively recommended for patients with tumor size >4 cm, clinical T4, N1, or M1 disease.

Results: Of 380 patients, 1 patient had false positive cytology (0.3%) and 379 patients had confirmed papillary thyroid cancer (PTC). PTC was conventional or tall-cell variant in 73% and 16% of patients, respectively. Mean tumor size was 1.7 cm and ≥1 central compartment lymph node was examined in 92% (mean=6). At least 1 2015 ATA criterion for initial TT was present preoperatively in 72 (19%) patients. In the remaining 307 patients, 57% proved postoperatively to have at least one of the following features of ATA Intermediate Risk (IM) disease: extrathyroidal extension, >5 positive lymph nodes, and/or aggressive subtype. ATA Low Risk (LR) disease treated appropriately with lobectomy was histologically present in 133 (43%) patients. At mean follow-up of 53.4 months, 10% of patients had recurrent/persistent disease, occurring at an incidence that was equivalent in the IM and LR categories (5.1% v. 3.8%, p=0.8).

Conclusions: When preoperative FNA is positive for malignancy, TT was indicated by ATA Guidelines preoperatively in 20% of patients who had clinically aggressive PTC at presentation and postoperatively in 45% who had Intermediate Risk disease. Initial lobectomy for Low Risk disease was appropriate extent of surgery for only 35% of patients. The cost and risk implications of the new ATA strategy are significant, and better tools are needed to improve preoperative risk stratification.

ABSTRACTS

★ 04. NEW TERMINOLOGY-NONINVASIVE FOLLICULAR NEOPLASM WITH PAPILLARY-LIKE NUCLEAR FEATURES (NIFTP) AND ITS EFFECT ON THE RATE OF MALIGNANCY AT A SINGLE INSTITUTION

Colleen M Kiernan¹, Vivian L Weiss², Mitra Mehrad², Kim Ely², Naira Baregamian³, Carmen C Solorzano³

¹Surgery, Vanderbilt University, ²Pathology, Microbiology, and Immunology, Vanderbilt University, ³Division of Surgical Oncology and Endocrine Surgery, Vanderbilt University

Background: NIFTPs have cytologic features that mimic classic papillary thyroid cancer (PTC). The presence of both papillary and follicular features in the majority of such lesions will presumably lead to indeterminate diagnoses on FNA. We reviewed our institutional experience to determine the impact of NIFTP on our endocrine surgery practice.

Methods: From 1/2009 to 3/2016, 1,046 patients underwent FNA and thyroidectomy at our endocrine surgery center. Cases with prior cytology: benign, atypia/follicular lesion of undetermined significance (AUS/FLUS), suspicious follicular/Hürthle cell neoplasm (SFN), suspicious for PTC or PTC and subsequent diagnosis of follicular variant PTC (fvPTC) were reviewed by three thyroid-dedicated pathologists using criteria by Nikiforov et al. (JAMA Oncol. 2016;2(8):1023-9) Malignancy rates were calculated.

Results: A total of 60 (6%) fvPTCs were identified, 44 in the index nodule. Of these, 37 were completely submitted and available for evaluation and 17/37(46%) were NIFTP. On preoperative FNA, the NIFTP lesions were diagnosed as suspicious for PTC (41%), AUS/FLUS (29%), SFN (12%), PTC (12%) and benign (6%). After reclassification of fvPTC to NIFTPs the overall rate of cancer in thyroid nodules subjected to thyroidectomy changed from 31 to 29%. Overall specific malignancy rates across Bethesda cytology categories changed as follows: benign (n=419) from 3.5 to 3.3%; AUS/FLUS (n=240) from 17 to 15%; SFN (n=104) from 23 to 21%; suspicious for PTC (n=85) from 68 to 60% and PTC (n=198) from 93 to 92%. Among the 18 patients with NIFTPs, 12 had initial total thyroidectomy and 5 a lobectomy. Four (80%) lobectomy patients underwent completion thyroidectomy. Overall, 50% of NIFTP patients received RAI.

Conclusions: The new NIFTP terminology led to a very small decrease in overall malignancy rate at our institution (31 to 29%) with the most affected cytology category being suspicious for PTC (68 to 60%). Because the majority of NIFTPs will be called indeterminate lesions or neoplasms by cytology/molecular testing, thyroidectomy will remain a common treatment modality. The new terminology will likely be used to impact the decision-making to avoid excessive treatment and follow-up.

ABSTRACTS

★ 05. FIFTEEN YEARS OF ADRENALECTOMIES: IMPACT OF SPECIALTY TRAINING AND OPERATIVE VOLUME

Brenessa M Lindeman¹, Daniel A Hashimoto², Yanik J Bababekov², Sahael M Stapleton², David C Chang², Richard A Hodin², Roy Phitayakorn²

¹*Surgery, Brigham and Women's Hospital,* ²*Surgery, Massachusetts General Hospital*

Background: Previous associations between surgeon volume and specialty with adrenalectomy outcomes were described using databases representing only a sample of procedures. We performed an analysis of all adrenalectomies performed in the state of New York to assess the effect of surgeon volume and surgeon specialty on clinical outcomes.

Methods: Adrenalectomies performed in adults were identified from the New York Statewide Planning and Research Cooperative System (SPARCS) from 2000-2014. Surgeon specialty, adrenalectomy volume, and patient demographics were assessed. High volume was previously defined in the literature as >4 adrenalectomies/year. Adrenalectomies performed as part of another procedure were excluded. The Chi-square test, nonparametric tests, and multivariate logistic regression were used to assess in-hospital mortality, length-of-stay (LOS), and in-hospital complications.

Results: A total of 9,251 adrenalectomies were included. Median patient age was 58 years; 49.4% were men and 72.1% were white. Urologists (US) performed 59.1% of adrenalectomies, general surgeons (GS) performed 28.5%, and endocrine surgeons (ES) performed 12.2%. Nearly all ES were high-volume compared with US and GS (97.9% vs 65.9% and 47.1%, respectively, $p<0.001$) and performed a significantly higher median number of adrenalectomies/year (14 ES vs 3 US vs 2 GS, $p<0.001$). Overall, 103 patients died (1.11%).

In unadjusted analysis, GS had the highest mortality compared to US and ES (1.4% vs 1.2% and 0.2%, respectively, $p=0.004$), as well as rate of hemorrhage (6.2% vs 5.9% and 2.9%, respectively, $p<0.001$). High-volume surgeons had significantly lower mortality compared to low-volume surgeons (0.74% vs 1.79%, $p<0.001$) and a lower rate of complications (12.51% vs 18.47%, $p<0.001$). Patients with Medicare/Medicaid (49.1%) or non-white race (42.7%) were more likely to see a low-volume surgeon ($p<0.001$). ES were more likely to perform laparoscopic procedures (33.1% vs 17.4% GS and 15.4% US, $p<0.001$) and had the lowest median hospital LOS (2 days vs 4 days for GS and US, $p=0.0001$). After risk adjustment, surgeon volume but not surgeon specialty was an independent predictor of lower inpatient mortality (OR = 0.84, $p=0.011$).

Conclusions: Patients with adrenal disease should be referred to surgeons based on adrenalectomy volume regardless of specialty, but nearly all endocrine surgeons that perform adrenalectomy are high-volume for the procedure.

ABSTRACTS

★ 06. EACH PROCEDURE MATTERS: SURGEON VOLUME THRESHOLD FOR MINIMIZING COMPLICATIONS AND REDUCING COST ASSOCIATED WITH ADRENALECTOMY

Kevin Anderson¹, Samantha Thomas², Mohamed Adam³, Michael Stang³, Randall Scheri³, Sanziana Roman³, Julie Sosa³

¹School of Medicine, Duke University School of Medicine, ²Department of Biostatistics and Bioinformatics, Duke University Medical Center, ³Department of Surgery, Duke University Medical Center

Background: An association has been suggested between increasing surgeon volume and improved patient outcomes, but a threshold has not been defined for what constitutes a 'high volume' adrenal surgeon. This has important implications as a criterion for referral and reimbursement.

Methods: All adult patients who underwent adrenalectomy by an identifiable surgeon between 1998-2009 were selected from the Healthcare Utilization Project National Inpatient Sample. Multivariable logistic regression modeling with restrictive cubic splines was utilized to measure the association between annual surgeon volume and perioperative patient outcomes (complication rates) in order to identify a volume threshold.

Results: A total of 3,496 surgeons performed adrenalectomies on 6,712 patients at 687 hospitals across the study period. Median annual surgeon volume was 1 case. Overall, 20.5% of patients experienced a surgical complication. After adjustment, the likelihood of experiencing a complication decreased with increasing annual surgeon volume up to 5.63 cases (95% CI 3.27-5.96), so a threshold of 6 was selected. Patients of high-volume (≥ 6 cases/yr) surgeons were younger (56 vs. 60 years, respectively), more likely to be white (78 vs. 70%), have private insurance (60 vs. 46%), and receive care at a teaching hospital (95 vs. 61%) or in the Northeast region (61 vs. 41%) (all p 's < 0.001). Patients who received care from a high-volume surgeon had shorter length of stay (3 vs. 6 days) and reduced cost (\$9,884 vs. \$11,543, both p 's < 0.001). High-volume surgeons had reduced rates of respiratory (5 vs. 7%, $p=0.008$), urological (2 vs. 5%, $p<0.001$), or any (14 vs. 22%, $p<0.001$) complication. After adjustment, patients undergoing resection by low-volume surgeons were more likely to experience complications (OR 1.71, 95% CI 1.27-2.31, $p=0.005$), have a longer hospital stay (RR 1.46, 95% CI 1.25-1.70, $p=0.003$), and at increased cost (+26.2%, 95% CI 12.6-39.9, $p=0.02$).

Conclusions: This is the first study to establish a surgeon volume threshold (≥ 6 cases/yr) that is associated with improved patient outcomes and reduced hospital cost. 83% of patients undergo adrenalectomies by low-volume surgeons and are potentially placed at excessive risk. This volume threshold has implications for quality improvement, surgical referral and reimbursement, and surgical training.

ABSTRACTS

★ 07. SURGICAL APPROACH IMPACTS INTRAOPERATIVE HEMODYNAMIC INSTABILITY IN PHEOCHROMOCYTOMA

Emily Postma¹, Wessel M Vorseelaars², Jesse Pasternak³, Mattan Lustgarten³, Eric Mirallie⁴, Thomas J Fahey III¹, Rocco Bellantone⁵, Marco Raffaelli⁵, Menno R Vriens², Laurent Brunaud⁶, Rasa Zarnegar¹

¹*Surgery, New York Presbyterian Hospital-Weill Cornell Medical Center, NY*, ²*University Medical Centre Utrecht, the Netherlands*, ³*University Health Network Toronto, Canada*, ⁴*University Hospital Hôtel-Dieu Nantes, France*, ⁵*University Hospital Agostino Gemelli, Catholic University of Sacred Heart, Rome, Italy*, ⁶*University of Lorraine, Nancy, France*

Background: Adrenalectomy for pheochromocytoma is often associated with hemodynamic instability. Currently, this procedure is typically performed laparoscopically using either a retroperitoneal (RP) or transperitoneal (TP) approach. We set out to determine if the surgical approach affects the risk of hemodynamic instability (HDI) during surgery in a large multicenter cohort.

Methods: Prospectively maintained adrenal databases (2002-2013) from six academic institutions were utilized to select patients with unilateral pheochromocytoma who underwent laparoscopic adrenalectomy without conversion to an open procedure. We reviewed patient demographics, preoperative medication, peri- and intra-operative characteristics, as well as outcomes. A multivariate analysis was performed to assess whether the surgical approach affected intraoperative episodes of HDI (both SBP > 160 mmHg and MAP < 60 mmHg).

Results: In total 240 patients met the criteria for inclusion. Of these, 59 (25%) were treated by the RP approach. The RP approach was significantly faster (99.5 min versus 120 min, $p < 0.004$). However, the RP group had a significantly higher incidence of HDI compared to the TP group; 53% versus 31% respectively.

Other markers of HDI: SBP > 200 mm Hg and MAP < 60 mm Hg ($p = 0.045$), MAP < 60 mm Hg ($p = 0.001$), and mean duration of SBP < 70% of baseline ($p = 0.02$) were observed more frequently in the RP group. Surgical approach maintained significance on multivariate analysis for HDI. Postoperative morbidity and mortality were comparable when comparing RP to the TP approach.

Conclusions: Retroperitoneal adrenalectomy has gained popularity for adrenal tumors independent of tumor characteristics. However, given the significantly increased risk of intraoperative hemodynamic instability associated with this approach for unilateral pheochromocytoma the transperitoneal approach maybe safer.

ABSTRACTS

★ 08. CONTRALATERAL SUPPRESSION OF ALDOSTERONE AT ADRENAL VENOUS SAMPLING PREDICTS HYPERKALEMIA FOLLOWING ADRENALECTOMY FOR PRIMARY ALDOSTERONISM

Omair A Shariq¹, Irina Bancos², Patricia A Cronin¹, David R Farley¹, Melanie L Richards¹, Geoffrey B Thompson¹, William F Young, Jr.², Travis J McKenzie¹

¹Department of Surgery, Mayo Clinic, ²Division of Endocrinology, Diabetes, Metabolism, and Nutrition, Mayo Clinic

Background: Relative mineralocorticoid deficiency resulting in hyperkalemia after unilateral adrenalectomy for primary aldosteronism (PA) is poorly understood. It is thought to be due to a chronically suppressed renin-angiotensin-aldosterone system and an inability of the remaining adrenal gland to secrete sufficient amounts of aldosterone following surgery. We aimed to determine whether a higher degree of contralateral suppression of aldosterone secretion at adrenal venous sampling (AVS) predicted the development of postoperative hyperkalemia.

Methods: A retrospective analysis of patients undergoing unilateral adrenalectomy for PA between 2004-2015 at our institution was performed. Clinical and biochemical parameters of patients who developed hyperkalemia (≥ 5.2 mmol/L) after surgery were compared with those who remained normokalemic. The contralateral suppression index (CSI) was defined as the aldosterone-to-cortisol (A/C) ratio from the non-dominant adrenal vein divided by the A/C ratio from the external iliac vein. Univariate analysis utilized the Wilcoxon rank-sum test or chi-square test, as appropriate. Multivariable logistic regression was performed to identify factors that significantly predicted hyperkalemia.

Results: Of 194 patients who met criteria for inclusion, 14 (7.2%) developed hyperkalemia (median serum potassium 5.4, range 5.2-6.3 mmol/L), which occurred within 1-3 weeks of surgery in all but two patients. Two patients experienced persistent hyperkalemia for greater than two months. Four patients received mineralocorticoid replacement therapy for a duration of 2.3-15.9 months. On univariate analysis, hyperkalemic patients were older (57.0 vs. 51.7 years, $P=.04$), had higher pre-operative serum creatinine (1.2 vs 1.0 mg/dL, $P=.01$), higher 24-hour urinary aldosterone excretion (61.8 vs 43.4 mcg, $P=.04$), and a lower median CSI (0.14 vs 0.27, $P=.03$). On multivariable logistic regression, the CSI remained the only significant predictor of post-operative hyperkalemia ($P=.002$). Receiver operator characteristic curve analysis revealed an optimal CSI cut-off of <0.47 .

Conclusions: Hyperkalemia following unilateral adrenalectomy for PA is uncommon and usually transient, but may require mineralocorticoid supplementation in the post-operative period. Patients with a CSI of <0.47 require meticulous follow-up and monitoring of potassium levels following surgery.

ABSTRACTS

★ 09. METABOLIC SYNDROME IS ASSOCIATED WITH INCREASED POSTOPERATIVE COMPLICATIONS AND USE OF HOSPITAL RESOURCES IN PATIENTS UNDERGOING LAPAROSCOPIC ADRENALECTOMY

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Background: Rates of obesity and metabolic syndrome (MetS) continue to rise worldwide, however the impact of MetS on outcomes following adrenalectomy has not been described. We sought to investigate the effect of MetS on postoperative 30-day morbidity, mortality, and utilization of hospital resources in a large cohort of patients undergoing elective laparoscopic adrenalectomy.

Methods: Patients who underwent laparoscopic adrenalectomy from 2005-2014 were identified in the American College of Surgeons National Surgical Quality Improvement Program database. Patients with BMI ≥ 30 kg/m² who also had diabetes and hypertension requiring medications were defined as having MetS. Univariate and multivariable analyses were performed for the outcomes of 30-day morbidity/mortality, major complications, and utilization of hospital resources (prolonged length of stay [LOS] ≥ 3 days and requirement for perioperative blood transfusion).

Results: Of the 3,502 patients included in the study, 395 had MetS (11.3%). Compared to patients without MetS, patients with MetS were older (mean 57.2 vs 51.7 years, $P < .001$), had higher American Society of Anesthesiologists (ASA) scores (ASA 3-4 87.1% vs 58.5%, $P < .001$) and had a greater percentage of pre-operative comorbidities, including dyspnea (13.4% vs 9.5%, $P = .01$), severe COPD (7.8% vs 3.8%, $P < .001$), cardiac disease (14.3% vs 5.5%, $P < .001$), and vascular disease (10.2% vs 4.1%, $P < .001$). On unadjusted analysis, MetS was associated with an increased risk of overall mortality/morbidity (12.2% vs 5.6%, $P < .001$), major complications (10.4% vs 4.3%, $P < .001$), prolonged LOS (33.9% vs 23.3%, $P < .001$), operative time (156 vs 138 minutes, $P < .001$), and risk of blood transfusion (3.3% vs 1.2%, $P = .001$). On multivariable analysis, MetS was an independent predictor of overall mortality/morbidity (odds ratio [OR] 1.86; $P < .001$), major complications (OR 1.99; $P < .001$), pulmonary complications (OR 1.83, $P = .049$), the need for blood transfusion (OR 1.94; $P = .04$) and prolonged length of stay (OR 1.34; $P = .02$).

Conclusions: The presence of MetS increased the risk of postoperative complications after laparoscopic adrenalectomy and was associated with 2-fold risk of blood transfusion and 34% increased odds of a prolonged hospital stay.

ABSTRACTS

★ 10. LESS IS MORE: COST-UTILITY ANALYSIS OF SURVEILLANCE STRATEGIES FOR SMALL, NONFUNCTIONAL, RADIOGRAPHICALLY BENIGN ADRENAL INCIDENTALOMAS

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Background: Recently published European guidelines suggest that patients with incidentally identified adrenal masses that are biochemically inactive, radiographically benign, and <4cm require neither further imaging nor biochemical evaluation. In contrast, existing United States guidelines support a regimen of surveillance after discovery of such masses. No cost-utility analysis has been performed to rigorously evaluate the relative merits of these management strategies.

Methods: We constructed a decision-analytic model to evaluate surveillance strategies for <4cm, nonfunctional, benign-appearing adrenal incidentalomas. Costs, utility values, and transition probabilities were found by literature review. The model used a societal perspective, standard 3% global discounting, and a lifetime time horizon. A strategy of no surveillance was tested against strategies of (1) one-time surveillance with noncontrast CT and standard biochemical evaluation, (2) annual surveillance for two years, and (3) annual surveillance for five years. Threshold and sensitivity analyses on key parameters were conducted to assess robustness of the model. Costs and health outcomes were represented in US dollars and quality-adjusted life-years (QALYs).

Results: In the base case, the no surveillance strategy cost \$10.52 and provided 26.28 QALYs. One-time surveillance cost \$105 more and provided 0.10 more QALYs for an incremental cost-effectiveness ratio (ICER) of \$1052.94/QALY. All other strategies involving more surveillance were dominated; these were less effective due to loss of QALYs from false positive results of screening, exposure to radiation, and unnecessary surgery. Findings were consistent for patients younger than 40 years of age. At thresholds above 0.9% for prevalence of adrenocortical carcinoma and 16% for annual risk of progression to clinical significance for aldosteronoma, pheochromocytoma, and subclinical Cushing's syndrome, one-time surveillance was the most effective and preferred strategy. The model was robust to sensitivity analyses of disease prevalence, sensitivity and specificity of diagnostic assays and imaging, and utility estimates.

Conclusions: To our knowledge, this is the first cost-utility analysis evaluating surveillance strategies for small adrenal incidentalomas. For those patients with a <4cm, nonfunctional, benign-appearing mass, a one-time follow-up evaluation involving noncontrast CT and biochemical evaluation is cost-effective. We suggest that one-time surveillance may be a safe and potentially superior alternative to more extensive regimens.

ABSTRACTS

★ 11. EXPANDED CRITERIA FOR LIVER METASTASIS DEBULKING ALSO APPLY TO PANCREATIC NEUROENDOCRINE TUMORS: RESULTS FROM A LARGE SERIES

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Background: Recently, authors advocated for lowering the liver debulking threshold for metastatic small bowel neuroendocrine tumor (NETs) from 90% to 70%. This was supported by another series of small bowel NETs which included 18 pancreatic NETs. Most other reports on liver debulking operations include mostly small bowel NETs and small numbers of pancreatic NETs. None have reported exclusively on pancreatic NETs. Accordingly, the debulking threshold and factors that predict outcomes of liver debulking operations specifically among pancreatic NETs are not well defined.

Methods: Records of patients with pancreatic NETs undergoing liver debulking from 2006 to 2016 were reviewed. The debulking threshold was 70%. Extrahepatic disease and positive margins by parenchyma-sparing enucleation were allowed. Liver progression-free survival (LPFS) and survival were calculated by Kaplan-Meier method for various clinical, surgical, and pathological factors and compared by log-rank. Factors were also correlated with LPFS and survival by multivariate regression analyses.

Results: Forty-one patients underwent 43 liver debulking operations. Twenty-three operations yielded 100% debulking, 12 yielded $\geq 90\%$, and 8 yielded $\geq 70\%$. Parenchyma-sparing operations were performed in 63%. The mean number of metastases resected per operation was 20 (range 1-101). The mean size of the largest resected metastasis was 4.6 cm (range 0.8-23.2 cm). Forty-six percent of patients had at least one intermediate grade metastasis. Somatostatin analogue therapy was continued in 27 patients (66%) post-operatively. Follow-up was complete. Liver progression rate was 42%, with median LPFS of 11 months. The five-year survival rate was 80%, with all deaths from liver failure. There were no significant differences in LPFS or survival rates based on age, gender, tumor functional status, presence of extrahepatic disease, primary tumor location, postoperative somatostatin analogue therapy, synchronous metastases, type of hepatic resection, or percent debulked. On multivariate analysis, metastases greater than 5 cm correlated with liver progression ($p=0.01$).

Conclusions: Criteria for liver debulking surgery in patients with pancreatic NETs may be expanded to include a 70% debulking threshold, intermediate grade tumors, positive margins, parenchyma-sparing resections, and extrahepatic disease, and yield results indistinguishable from complete resection. Expanding criteria will increase the number of patients eligible for an operation and maintain excellent survival rates.

ABSTRACTS

★ 12. DECREASED UCHL1 EXPRESSION AS A CYTOLOGIC BIOMARKER FOR AGGRESSIVE BEHAVIOR IN PANCREATIC NEUROENDOCRINE TUMORS

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Background: The incidence of pancreatic neuroendocrine tumors (PNETs) has increased over the past two decades, yet there are currently no reliable markers associated with aggressive behavior. Our group has recently documented loss of ubiquitin carboxyl-terminal esterase L1 (UCHL1) expression in metastatic as compared to localized gastrointestinal NETs. The aim of this study was to determine whether UCHL1 expression along with Ki-67 staining can identify the metastatic potential of PNETs from fine needle aspiration (FNA) samples obtained at endoscopic ultrasound (EUS).

Methods: A retrospective review of 48 consecutive patients with PNETs diagnosed by EUS-FNA between 2003 and 2015 at a single center was performed. Thirty-five biopsy samples had an adequate amount of material for UCHL1 staining. UCHL1 immunocytochemistry of primary PNETs was performed in conjunction with Ki-67 staining and scored semi-quantitatively. A UCHL1 score ≤ 4 (weak) and Ki-67 $\geq 3\%$ (strong) was considered a combined positive test for detecting metastases. Patient demographics and tumor size were compared between metastatic and localized primary tumor samples.

Results: There were no significant differences in mean age (58 \pm 17 vs. 58 \pm 16 years), sex (47% vs. 75% male), or tumor functionality (33% vs 16%) between metastatic and localized tumors, though patients with metastases had larger tumors (4.2 \pm 3.2 vs. 2.2 \pm 1.2cm, p=0.008). Median follow-up was 15.5 [1.4-94] and 22.2 [0-99] months in localized and metastatic cohorts, respectively (p=0.95). Weak UCHL1 staining had 80% sensitivity, 65% specificity, 63% PPV, and 81% NPV to identify primary tumors that were associated with metastatic disease either at presentation or in follow-up. The combination of weak UCHL1 staining and strong Ki-67 staining increased the specificity of the test to 94%. On multivariable analysis, the combined positive test of weak UCHL1 staining and strong Ki-67 staining remained the only independent predictor of metastatic disease (p=0.047).

Conclusions: Decreased UCHL1 expression on cytology of primary PNET tumors detects the association or development of metastatic disease with high sensitivity. With the addition of Ki-67, the specificity of the test substantially increases. Furthermore, UCHL1 appears useful as a novel biomarker for identifying malignant potential of primary PNETs and in combination with Ki-67 is an independent predictor of metastatic disease.

ABSTRACTS

★ 13. GENE EXPRESSION CHANGES IN SMALL BOWEL NEUROENDOCRINE TUMORS ASSOCIATED WITH PROGRESSION TO METASTASES

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Background: Small bowel neuroendocrine tumors (SBNETs) frequently present with metastases, yet little is known about the molecular surrogates of this progression or the pathways involved. Recognition of these pathways could help prognostication or discovery of new targets for therapy. The objective of this study was to identify genes serially differentially expressed between normal small bowel (NL), primary SBNETs (PT) and liver metastases (Mets) to identify expression profiles associated with development of metastases.

Methods: RNA was isolated from matched NL tissue, PTs and Mets from 12 patients with metastatic SBNETs. RNA was analyzed with Human Transcriptome Arrays (HTAs) and RNAseq. Changes in gene expression between PTs and NLs, and in Mets compared to PTs, were determined based on statistical significance and >2 fold changes. Common genes that were serially differentially expressed (increasing or decreasing from NL->PTs->Mets) were identified, and 10 were selected for qPCR validation in 40 additional SBNET patients.

Results: Serial differential expression from NL through PTs to Mets was confirmed by qPCR in 7 of 10 genes, with increasing expression in 2 (*ERRF1*, *SERPINA10*) and decreasing in 5 (*DMD*, *MUC3A*, *PMP22*, *SLIT2*, *TGFBR2*). Six genes are involved in neural pathways (growth, synapses, axonal guidance), 2 in the epidermal growth factor receptor (EGFR), 2 in the *AKT*, and 1 in the TGF-beta pathway. Expression levels of *PMP22* alone could discriminate between PTs and Mets in 73/80 (91%) cases, which improved to 96% (69/72) by adding levels of *SYT13*. Progression-free survival decreased when Mets had increased expression of *SYT13* ($p < 0.01$), and overall survival decreased with increased expression of *SYT13* in PTs and Mets ($p = 0.04$ and 0.01 , respectively).

Conclusions: Recognition of serially increased and decreased gene expression from normal tissues through primaries to metastatic tumors lends insight into the biology of SBNET progression. Identification of genes involved in this process highlights specific pathways, such as the *EGFR* and *AKT* pathways, which can be selectively targeted by new or existing therapeutic agents. Measuring expression levels of these genes allows for discrimination of primary tumors from metastases, and increased expression of select genes negatively correlates with patient survival, which has prognostic value.

ABSTRACTS

★ 14. HEALTH RELATED QUALITY OF LIFE IN MEN-1 PATIENTS IN THE UNITED STATES COMPARED TO OTHER CHRONIC CONDITIONS AND NORMATIVE DATA.

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Background: Health-related quality of life (HRQOL) in multiple endocrine neoplasia type 1 (MEN1) is poorly described. We sought to determine how HRQOL scores in MEN1 compare to those of the general population and patients with chronic conditions.

Methods: Adults ≥ 18 years recruited from an MEN1 support group (n=153) completed PROMIS-29 via online questionnaire. T-scores \pm standard deviations were compared to normative data using a one-sample t-test. PROMIS scores for back pain (n=218), cancer (n=310), congestive heart failure (CHF; n=60), chronic obstructive pulmonary disease (COPD; n=79), major depressive disorder (MDD; n=196), rheumatoid arthritis (RA; n=521), neuroendocrine tumors (NET; n=619), and primary hyperparathyroidism (PHPT; n=45) were obtained from literature review and compared to the MEN1 sample. T-scores for domains of anxiety, depression, fatigue, pain interference, and physical functioning were compared using Wilcoxon Signed-Rank Test. Bonferroni Sequential Correction was used to control for multiple comparisons.

Results: MEN1 patients reported worse anxiety (61.7 \pm 10.0), depression (57.9 \pm 10.5), fatigue (62.2 \pm 11.1), pain interference (55.4 \pm 11.1), physical functioning (44.4 \pm 9.6), sleep disturbance (58.0 \pm 9.2), and social functioning (44.7 \pm 10.5) scores compared to normative data (50 \pm 10, p<0.0001). Individuals with MEN1 reported greater anxiety, depression, and fatigue than patients with back pain, cancer, COPD, RA, NET, and PHPT (p<0.0001). Compared to MDD, MEN1 patients had similar anxiety and fatigue scores but lower depression scores (61.7 vs. 57.9, p<0.001). MEN1 was associated with greater pain interference (55.4) than cancer (51.9, p<0.01), NET (52.3, p=0.03), and PHPT (38.4, p<0.0001) but less than back pain (64.2 vs. 55.4, p<0.0001). Physical functioning was significantly higher in individuals with MEN1 (44.4) than those with back pain (37.5, p<0.0001), CHF (34.8, p<0.0001), COPD (38.0, p<0.0001), and RA (40.7, p<0.01), but lower than patients with PHPT (44.4 vs. 49.1, p<0.0001).

Conclusions: HRQOL data are essential for documenting disease severity and outcomes of interventions, and informing timing and extent of treatment. This is the largest study of HRQOL in adults with MEN1 and the first to benchmark HRQOL scores against normative data and data from patients with other chronic conditions. MEN1 respondents reported worse HRQOL across all 7 PROMIS-29 domains compared to normative data and across most domains compared to people with other common chronic conditions.

ABSTRACTS

★ 15. GENOTYPE-PHENOTYPE PANCREATIC NEUROENDOCRINE TUMOR RELATIONSHIP IN MULTIPLE ENDOCRINE NEOPLASIA TYPE 1 PATIENTS: A 23 YEAR EXPERIENCE AT A SINGLE INSTITUTION

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Background: We have previously shown that multiple endocrine neoplasia type 1 (MEN1) mutations were most common in exon 2. Our objective was to investigate the genotype-phenotype relationship of pancreatic neuroendocrine tumors (PNETs) in patients with MEN1 treated at our institution.

Methods: Retrospective chart review of all patients with MEN1 treated at our center from January 1993 to December 2015. Patients with a genetic diagnosis of MEN1 were included. Demographics, clinicopathologic characteristics, and *MEN1* genetic testing results were analyzed. Diagnosis of the presence of a PNET was based on imaging performed at any time from presentation to the conclusion of follow-up (FU); histopathologic confirmation was not required.

Results: MEN1-associated mutations were present in 206 patients. There were 99 males and 107 females (48% vs 52%). There were 98 kindreds, with 53 kindreds having a single member affected (54%) and 45 kindreds having more than 1 member affected (range: 2-10 family members) (46%).

In 18/206 patients, PNET status was uncertain due to absent abdominal imaging; these patients were excluded from analysis. Among the remaining 188 patients, the most common site of *MEN1* mutation was in exon 2 (34/188; 18%). The median FU for patients with exon 2 mutation was 5.8 years (range 1-22) and for patients with exons 3-10 mutation was 6.1 years (range 1-22) (P=0.768). Among 188 MEN1 patients, 125 had a PNET identified (61%). Among all age groups, 30/34 patients (88%) with an exon 2 mutation had a PNET while only 95/154 patients (62%) with a mutation in exons 3-10 had a PNET (P=0.002). In the age group 20-40 years old, 8/9 patients (89%) with an exon 2 mutation had a PNET while only 24/52 patients (46%) with a mutation in exons 3-10 had a PNET (P=0.028). In the age group 40-60 years old, 16/17 patients (94%) with an exon 2 mutation had a PNET while 46/56 patients (82%) with a mutation in exons 3-10 had a PNET (P=0.212).

Conclusions: MEN1 patients with a mutation in exon 2 may have a higher incidence of PNET developing at a younger age. If confirmed, future screening and intervention studies might be designed to focus particularly on this high-risk group.

ABSTRACTS

★ 16. THE IMPACT OF POTASSIUM IODIDE ON THYROIDECTOMY FOR GRAVES' DISEASE: IMPLICATIONS FOR SAFETY AND OPERATIVE DIFFICULTY

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Background: Administration of potassium iodide (KI) prior to total thyroidectomy for Graves' disease reportedly decreases the vascularity of the thyroid gland, but the effect of KI on the ease and safety of thyroidectomy for Graves' is largely unknown.

Methods: We did a prospective cohort study of patients with Graves' disease undergoing total thyroidectomy from May 2015 through August 2016. For the first 8 months no one received KI; for the next 8 months all patients were prescribed KI. We compared groups with an intention-to-treat analysis and outcomes included: operative difficulty (based on the Thyroid Difficulty Scale) and surgical complications.

Results: A total of 54 patients with Graves' disease underwent surgery during the study period with 28 patients in the no KI group and 26 in the group prescribed KI. Of those prescribed KI, 24 (92%) took it as directed. Patients were similar in gender distribution, body mass index, and smoking status ($p=NS$ for all), but patients prescribed KI were younger (mean age 38.5 vs. 46.8, $p=0.02$) than those not given KI. Pre-operative anti-thyroidal medications were similar and resulted in equal blockade based on free T4 levels (1.2ng/dL with KI vs. 1.3ng/dL without KI, $p=0.43$). According to the Thyroid Difficulty Scale scores, the group prescribed KI demonstrated significantly decreased gland vascularity (mean score 2.6 vs. 3.3, $p=0.04$), but there were no significant differences in thyroid friability, fibrosis, or size ($p=NS$ for all). Overall, the difficulty level of thyroidectomy was similar between groups (mean score 9.5 with KI vs. 10.3 without KI, $p=0.26$). Despite similar thyroidectomy difficulty level, patients prescribed KI were less likely to experience transient hoarseness (0% vs. 17.9%, $p=0.008$) and transient hypoparathyroidism (3.8% vs. 25.9%, $p=0.018$) postoperatively compared with the no KI group. Permanent hoarseness and hypocalcemia were not observed in either group.

Conclusions: In patients with Graves' disease treated surgically, preoperative KI administration decreases gland vascularity but does not significantly affect the overall ease of thyroidectomy. However, the use of KI preoperatively was associated with a lower rate of transient hoarseness and transient hypoparathyroidism, suggesting that KI administration not only decreases vascularity but also improves the safety of thyroidectomy for Graves' disease.

ABSTRACTS

17. CLINICAL PERFORMANCE OF A NEXT-GENERATION SEQUENCING PANEL (THYROSEQ V2) IN THE EVALUATION OF INDETERMINATE THYROID NODULES

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Background: Molecular testing with the Thyroseq v2 next generation sequencing panel (“Thyroseq”) is used to estimate the risk of cancer in indeterminate thyroid nodules (ITNs: Bethesda III/IV). We performed a multi-center analysis of Thyroseq performance for ITNs. **Methods:** We analyzed 156 ITNs evaluated with Thyroseq, across 3 institutions where the prevalence of malignancy in ITNs is 10-30%. For each biopsied nodule, Thyroseq data and surgical pathology were matched via pathologic re-review. Incidental carcinomas separate from the biopsied nodule were independently classified. A result was considered “Thyroseq-positive” if molecular alterations were annotated on the report with malignancy probability >30%, and “Thyroseq-negative” if no alterations, or alterations with malignancy probability <10%, were detected. Performance characteristics were estimated using Bayes Theorem.

Results: The Thyroseq negative call rate was 65% (102/156). Surgery was performed on 23% of 102 Thyroseq-negative, 73% of 51 Thyroseq-positive, and 100% of 3 Thyroseq-inconclusive nodules. On surgical pathology, 16% of nodules were malignant (10/63; 60% PTC, 20% FVPTC, 20% FTC).

The positive predictive value (PPV) of a Thyroseq-positive result was 22% (8/37; 95% CI 10-38%). If 2 benign NIFTP tumors were included, the PPV would be 27% (95% CI 14-44%). There was one false negative result (NPV 96%, 95%CI 78-99%; 22/23). Bayes Theorem estimated the NPV for all ITNs at 96-98%, and specificity of Thyroseq between 20-50%.

The most common mutation was *NRAS* (19/37); with PPV of 7% (1/15). The PPV of all *RAS* mutations (*HRAS*, *KRAS*, *NRAS*) was 9% (2/22). The second most common mutation, *BRAF* V600E, had PPV of 100% (3/3).

Conclusions: We report the first multi-center validation study of Thyroseq for patients with ITNs. The estimated NPV was >95%. The PPV of 22% was substantially lower than the quoted malignancy rates (most 80-99%) for these alterations. *RAS* mutations had a PPV of 9%.

These data indicate that Thyroseq is likely to offer high NPV but low PPV, and the specificity of Thyroseq is likely to be markedly lower than quoted. Positive results should be interpreted with caution. The actual risk of malignancy for certain molecular alterations may be lower than suggested on the Thyroseq clinical report.

ABSTRACTS

★ 18. NOTCH3 AS A NOVEL THERAPEUTIC TARGET IN METASTATIC MEDULLARY THYROID CANCER

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Background: Mortality associated with thyroid cancer occurs more often from poorly differentiated subtypes such as medullary thyroid cancer (MTC). MTC commonly metastasizes early to the liver, and portends only a 40-50% 5-year overall survival. We have previously determined Notch3 to be tumor suppressor in MTC *in vitro*. We therefore hypothesize that Notch3 overexpression in metastatic MTC to the liver will result in decreased tumor proliferation and growth.

Methods: The TT cell line, derived from human MTC, was genetically modified to overexpress Notch3 in the presence of doxycycline creating the TT-Notch3 cell line. Transfection with empty vector created our control cell line, TT-TRE. Durable inducibility was confirmed on Western blotting.

Thirty-five athymic male nude mice were intrasplenically injected with either TT-Notch3 or TT-TRE cells with subsequent splenectomy. Each cell line was divided into three treatment groups. The Early Dox group had doxycycline chow started immediately upon arrival, the Late Dox group had doxycycline chow started after 8 weeks, and the control group received standard chow for 12 weeks. Each animal underwent CT scanning with Fenestra VC contrast at 8 and 12 weeks to evaluate for presence of tumors. Quantification of tumor volumes used Inveon Research Workplace Software. Animals were sacrificed at 12 weeks, and the liver tissue underwent Ki-67, H&E, and Notch3 staining.

Results: Comparing 8 and 12 week CT scans based on percentage volume increased, we see the anti-proliferative effect of Notch3 induction ($p=0.001$). The TT-Notch3 treated group had a 37-fold decrease in tumor volume compared to the control. TT-Notch3 mice also had an increased overall Ki-67 index. ANOVA comparison found no difference among the TT-TRE treatment groups. However, in the late doxycycline treated TT-Notch3 group, Notch3 over-expression after tumor formation resulted in decreased Ki-67 index ($p=0.038$). TT-Notch3 cells additionally showed increased areas of neutrophilic infiltration and necrosis on H&E. Lastly, Notch3 staining was only highly specific in the TT-Notch3 mice that developed tumors confirming over-expression.

Conclusions: Notch3 overexpression has an anti-proliferative effect on metastatic MTC liver tumors. Therefore, Notch3 is a potential therapeutic target in MTC liver metastasis.

ABSTRACTS

★ 19. DEVELOPMENT OF THE THYCAT: A CLINICALLY USEFUL COMPUTERIZED ADAPTIVE TEST TO ASSESS QUALITY OF LIFE IN THYROID CANCER SURVIVORS

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Background: Results of a 78-question survey from the North American Thyroid Cancer Survivorship Study (NATCSS)—a multicenter longitudinal study of quality of life (QoL) among a cohort of thyroid cancer survivors—indicate that QoL is significantly decreased, similar to survivors of cancers with worse survival and more invasive treatments (eg, colorectal and breast cancers). Assessing QoL is a key component of cancer survivorship care, currently infeasible for thyroid cancer survivors in a clinical setting due to the length of currently available questionnaires. Computer adaptive tests (CATs) can achieve highly accurate and efficient questionnaire results in minimal time, and are able to be self-administered remotely over smartphone apps. We aimed to develop a CAT to assess QoL in thyroid cancer survivors in the clinical setting.

Methods: A Bifactor Item Response Theory Model was fit to responses from NATCSS questionnaires for 1078 of the 2660 NATCSS participants. The model was adjusted to an R of 0.95, to achieve a high correlation between the CAT model and the QoL score obtained from all 78 original NATCSS questions.

Results: The CAT was able to assess accurately QoL with strong correlation (R = 0.95) to the original 78 NATCSS questions in an average of 9.94 questions (SD ± 3.03). The CAT can be administered in a clinical setting in under 5 minutes. There was no statistically significant difference in the number of questions required to create a robust QoL CAT for NATCSS respondents of different ages, genders, ethnicities, subtype, SES, or time since diagnosis or treatment.

Conclusions: The ThyCAT is a clinically useful, rapid QoL assessment tool addressing a significant unmet need in thyroid cancer survivors. It is fast, reliable, and applies across sociodemographic factors and cancer subtypes. The implication of these results are that on a smartphone app, in less than 10 questions, and in under five minutes we can identify patients struggling with QoL issues after thyroid cancer treatment, which has the potential to close a significant gap in long-term thyroid cancer treatment.

ABSTRACTS

★ 20. TUMOUR INFILTRATING LYMPHOCYTES AND LYMPHOCYTIC PROFILING AS PREDICTIVE AND PROGNOSTIC BIOMARKERS IN THYROID CANCERS

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Background: Tumor infiltrating lymphocytes (TILs) have been established as a characteristic phenomenon in cancer. We have not yet discerned their prognostic significance, with their function in either stimulating or inhibiting thyroid cancer progression still uncertain. Programmed death ligand 1 (PD-L1) expression by TILs has been reported in thyroid cancer; however the relationship between lymphocytic PD-L1 expression and other immunologic components of the thyroid tumor microenvironment remains unclear.

Our study aimed to investigate the prognostic value of TILs present in thyroid cancers, including CD3+, CD4+, CD8+ and CD20+ lymphocytes. The relationship between TIL PD-L1 expression and prognosis in cases of primary thyroid cancer was also examined.

Methods: This retrospective study analysed 119 archived cases of thyroid cancer. For all patients, clinicopathological features were reviewed. Tissue microarrays (TMAs) were constructed from 88 formalin-fixed paraffin-embedded (FFPE) tissue samples and stained for CD (cluster of differentiation) lymphocytic markers, and for PD-L1. Stained cells were manually counted and analysed for clinical and histopathological correlations.

Results: Elevated TIL PD-L1 expression was significantly correlated with increased incidence of extrathyroidal extension ($p=0.0222$) and increased tumor size ($p=0.0498$). Patients with relatively low levels of tumor infiltrating CD8+ T cells presented with a significantly higher incidence of lymph node metastasis ($p=0.0071$). The subgroup of samples with high TIL grade within the peritumoral and intratumoral regions and positive lymphocytic PD-L1 expression demonstrated a significant association with increased multifocality ($p=0.0005$), lymph node metastasis ($p=0.0124$) and extrathyroidal extension ($p=0.0396$), as well as a younger age of onset ($p=0.0371$). Poorer DFS was evident in patients with a positive PD-L1 expression, and a decreased number of CD8+ T cells ($p=0.0002$).

Conclusions: Our results confirm that lymphocytic PD-L1 expression is a significant prognostic factor in thyroid cancer. Our findings indicate that the density of CD8+ TILs in combination with lymphocytic PD-L1 expression may function as a valuable predictive biomarker in patients with thyroid cancer. Anti PD-1/PD-L1 immunotherapy may induce durable antitumor responses in thyroid cancer patients with positive TIL PD-L1 expression.

ABSTRACTS

★ 21. ESTROGEN RECEPTOR SUBTYPE EXPRESSION AND REGULATION IS ALTERED IN PAPILLARY THYROID CANCER AFTER MENOPAUSE

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Background: Incidence of papillary thyroid cancer (PTC) is highest in pre-menopausal women. However, post-menopausal women may have more aggressive disease and worse prognosis. Estrogen receptors (ER) are known to regulate growth in PTC cell lines, therefore, differences in expression and regulation of its subtypes may alter PTC tumorigenesis after menopause. This study examines ER subtype ratio expression in PTC cell lines derived from thyroid specimens of pre- and post-menopausal women, as well as potential intracellular mechanisms and mitochondrial signaling that may modulate this process.

Methods: Cell lines were harvested from PTC and normal thyroid tissue samples from pre- (n=9) and post-menopausal women (n=11) who underwent total thyroidectomy. ER α and ER β protein expression and activation of extracellular kinase (ERK) and protein kinase B (AKT) were analyzed by Western blot analysis. Matrix metalloproteinase-2 (MMP-2) activity was determined by zymography as a measure of tumor invasiveness. Mitochondrial retrograde signaling in PTC and control cell lines was altered by ethidium bromide to determine its effect on ER protein expression.

Results: ER α protein expression was increased in PTC cells compared to control cells from post-menopausal patients (p<0.05), but unchanged in pre-menopausal patients. There was no change in ER β protein expression in either group. Similar to ER α , there was increased MMP-2 activity in PTC cells from post-menopausal (p<0.01), but not pre-menopausal women. Pre-menopausal PTC cells demonstrated increased activation of ERK (p<0.05) and unchanged AKT activation compared to control cells. Conversely, post-menopausal PTC cells had decreased ERK activation (p<0.01) and increased AKT activation (p<0.05) compared to control cells. Finally, alteration of mitochondrial retrograde signaling resulted in increased ER α protein expression in PTC cells from pre-menopausal patients (p<0.05), while there was no clear effect in PTC cells from post-menopausal patients.

Conclusions: These data suggest that increased aggressiveness of PTC in post-menopausal women may be related to an increase in ER α expression. In addition, ER α expression appears to be differentially regulated by intracellular pathways and differing sensitivities to mitochondrial signaling regulation between pre- and post-menopausal women. Future studies on ER regulation in post-menopausal PTC may provide molecular targets to attenuate tumor aggressiveness.

ABSTRACTS

★ 22. ARE SESTAMIBI SCANS USEFUL FOR PATIENTS WITH SECONDARY AND TERTIARY HYPERPARATHYROIDISM UNDERGOING SURGERY?

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Background: The role of preoperative localization studies in patients with secondary (sHPT) and tertiary hyperparathyroidism (tHPT) remains poorly defined. Some routinely obtain preoperative sestamibi scans to localize ectopic glands, yet the literature suggests that these studies are unnecessary and that ectopic glands are often not imaged. Our study investigates whether obtaining preoperative sestamibi scans on patients with four-gland parathyroid hyperplasia facilitates operative management. We hypothesize that preoperative imaging facilitates parathyroidectomy in these patients by identifying ectopic glands.

Methods: Under IRB approval, we performed a retrospective review of patients who underwent neck exploration for sHPT or tHPT at our institution between 2006 and 2015. We excluded patients with primary HPT and those who did not undergo a four-gland exploration. Data reviewed included patient demographics, laboratory, radiology and pathology reports, clinical and operative notes.

Results: Of 2975 patients who underwent parathyroidectomy 70 had either sHPT (80%) or tHPT (20%). One of the 70 had lithium-induced HPT; the remainder had sHPT or tHPT related to renal failure. 21 subjects (30%) had 23 ectopic glands; two had 2ectopic glands. Ectopic locations included the thymus (44.5%), mediastinum (17.5%), tracheoesophageal groove (13%), prevertebral fascia (13%), retroesophageal location (4%), piriform sinus (4%), and carotid sheath (4%). Sestamibi scan identified 8 of the 23 ectopic glands overall (36.4%), and 5 of 6 ectopic glands in patients who underwent reoperation after initial treatment at an outside institution. Thoracotomy was required in one patient to remove two ectopic glands in the chest, one substernal and the other paratracheal. Both glands were localized preoperatively by sestamibi.

Conclusions: We found a higher rate of preoperative localization of ectopic glands than previously reported studies. Pre-operative identification of ectopic parathyroid glands in this patient population may help facilitate the operation and obviate persistent HPT and re-operation in patients with mediastinal glands. Future studies should include cost analysis to determine whether routine sestamibi scans in patients with sHPT or tHPT facilitate efficiency in the operating room and are cost-effective.

ABSTRACTS

★ 23. SKELETAL EFFECTS OF FAILED PARATHYROIDECTOMY

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Background: Previous studies have demonstrated that parathyroidectomy (PTX) improves bone mineral density and reduces fracture risk in patients with primary hyperparathyroidism (PHPT). There are no data on fracture risk in patients who have undergone failed PTX (FPTX). The aim of this study was to determine the risk of fracture after FPTX.

Methods: A retrospective cohort study of patients with biochemically confirmed PHPT managed within a vertically integrated health system between 1995 and 2015 was performed. Patients found to have hypercalcemia within 6 months of initial PTX were defined as having had failed surgery. Cox proportional hazards models were used to estimate the risk of any fracture and hip fracture in the following three comparison groups: observation, successful PTX (SPTX), FPTX.

Results: The cohort included 7199 patients, of which 5680 (79%) were observed, 1402 underwent SPTX, and 117 underwent FPTX (failure rate 7.7%). The median age was 68 years, 78% of patients were female, and 44% were non-White. Overall, 2051 patients used bisphosphonates for more than 1 year: 28% in the observation group, 29% in the SPTX group, and 38% in the FPTX group. Median follow-up time was 4.7 years, during which 1165 fractures, including 281 hip fractures, were observed. The rate of any fracture was reduced in the SPTX group (11.8%) compared to observation (17.2%) and FPTX (18.8%), $p < 0.0001$. Similarly, the rate of hip fracture was reduced in the SPTX group (1.4%) compared to observation (4.5%) and FPTX (5.1%), $p < 0.0001$. After adjusting for age, sex, and race/ethnicity, the estimated risk of any fracture (HR 1.41, 95% CI 0.92-2.15) and hip fracture (HR 1.64, 95% CI 0.73-3.69) associated with FPTX was similar to that associated with observation. SPTX was associated with reduction in hip fracture (HR 0.46, 95% CI 0.29-0.74) compared to observation. Re-operation was undertaken in 33 of the 117 patients with initial FPTX. The fracture rate was 9.1% in this group, and no hip fractures occurred.

Conclusions: FPTX is associated with a high fracture risk, similar to that seen with observation. These findings underscore the importance of maintaining high cure rates for PTX.

ABSTRACTS

★ 24. INFLUENCE OF CONCURRENT CHRONIC KIDNEY DISEASE ON INTRAOPERATIVE PARATHYROID HORMONE MONITORING DURING PARATHYROIDECTOMY FOR PRIMARY HYPERPARATHYROIDISM

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Background: The influence of chronic kidney disease (CKD) on parathyroidectomy for primary hyperparathyroidism (PHPT) has not been well established. We hypothesize that chronic kidney disease influences intraoperative parathyroid hormone (IOPTH) degradation kinetics during parathyroidectomy.

Methods: This is a retrospective cohort study of consecutive parathyroidectomy patients from 2000-2013 at our institution. Only patients with primary hyperparathyroidism with complete pre- and post-operative GFR, calcium, PTH and vitamin D lab data were included. Patients were stratified according to presence (GFR <60) or absence (GFR ≥60) of CKD. IOPTH data during parathyroidectomy at baseline, 5, 10, and 15 minutes post-excision was compared between groups. IOPTH cure criteria was defined as PTH drop ≥50% from baseline and into or below the normal range (12-65 pg/mL).

Results: Of the 2604 parathyroidectomy patients, 1059 patients had complete GFR data and met inclusion criteria: 262 had CKD (25%) while 797 (75%) did not. The CKD population had a higher median preoperative PTH (132 vs 114.5; p<0.001), and a higher median baseline PTH (224.5 vs 183; p=0.037). Patients with CKD also had higher median post-excision IOPTH levels at 5 minutes (57 vs 44; p= 0.011), 10 minutes (44 vs 33; p=0.003), and at 15 min post-excision (33.5 vs 25.5; p=0.028). There was no significant difference in IOPTH degradation slope kinetics comparing CKD to normal kidney function (-25.03 vs -20.15; p=0.159). The final median PTH measurement was significantly higher in the CKD group (34 vs 25 pg/mL; p=0.004) despite resection of either a single gland or multiple glands. Successful achievement of IOPTH criteria was also lower among the CKD group compared to patients with normal kidney function (74.7% vs 82.6%; p=0.009).

Conclusions: The presence of chronic kidney disease influences the absolute PTH levels both pre and intraoperatively in patients with PHPT having parathyroidectomy, but does not affect the degradation kinetics of intraoperative PTH levels as commonly assumed. Additional IOPTH post-excision time point testing may be required to meet the normal range criteria.

ABSTRACTS

★ 25. PREOPERATIVE GENETIC TESTING IN PHEOCHROMOCYTOMAS AND PARAGANGLIOMAS ALTERS SURGICAL APPROACH AND EXTENT OF RESECTION

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Background: Our knowledge of the susceptibility genes for pheochromocytomas/paragangliomas (PC/PGLs) has increased with routine genetic testing recommended in most national and international guidelines. However, the role or impact of preoperative genetic testing and its influence on the surgical treatment of PC/PGLs is unknown. The aim of this study was to determine the effect of routine preoperative genetic testing on the type and extent of operative intervention used in patients with PC/PGLs.

Methods: 109 patients diagnosed with PC/PGLs who underwent 118 operations had preoperative genetic testing for 9 known PC/PGLs susceptibility genes (*RET*, *VHL*, *NF1*, *SDHA-D*, *MAX*, *FH*). A retrospective analysis of a prospective database was performed to evaluate clinical factors associated with the surgical approach selected and the outcome of the surgical intervention.

Results: In 51 (47%) patients a germline mutation was detected. In 77 (65%) operations, it was the first operative intervention for the disease site (60 laparoscopic, 17 open) and 41 (35%) were reoperative interventions (36 open and 5 laparoscopic). For initial operations, variables associated with whether an open or laparoscopic approach was used were the tumor size ($p \leq 0.01$) and presence of germline mutation ($p \leq 0.05$). Sixty-eight adrenal operations were performed (54 total adrenalectomies, 14 cortical-sparing adrenalectomies). Variables significantly associated with a cortical-sparing adrenalectomy being performed were the presence of germline mutation ($p \leq 0.01$, *VHL*, *RET*, *NF1*) and tumor size (mean tumor size of 4.46 cm for total vs. 3 cm for cortical-sparing adrenalectomy, $p \leq 0.05$). In patients who had cortical-sparing adrenalectomy, 80% had adequate adrenocortical function on postoperative ACTH stimulation. In operations for functional tumors, 79% of the operations resulted in biochemical cure. Factors associated with a higher risk of persistent/recurrent disease on biochemical testing were an open surgical approach ($p \leq 0.001$), presence of metastatic disease ($p \leq 0.001$), reoperations ($p \leq 0.001$) and male gender but not age, BMI and presence of germline mutation.

Conclusions: Approximately half of patients with PC/PGLs have a germline mutation and preoperative knowledge of the type of germline mutation, in addition to other clinical variables, affects the surgical approach and extent of adrenalectomy. Therefore, surgeons should request genetic testing information before their operation to allow for informed surgical intervention.

ABSTRACTS

★ 26. LOBECTOMY FOR LOW-RISK DIFFERENTIATED THYROID CANCER: CAN POSTOPERATIVE THYROID HORMONE SUPPLEMENTATION BE AVOIDED AND STILL BE COMPLIANT WITH THE 2015 ATA GUIDELINES?

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Background: The American Thyroid Association (ATA) has recommended thyroid lobectomy as an alternative to total thyroidectomy for low-risk differentiated thyroid cancer (DTC). One benefit may be avoiding lifelong thyroid hormone supplementation. However, the guidelines recommend maintaining the TSH <2mIU/L postoperatively. Our hypothesis is that most patients will require hormone supplementation to maintain TSH <2mIU/L, minimizing one of the benefits of lobectomy. The goal of this study was to determine how often patients will have a TSH <2mIU/L following lobectomy.

Methods: This is a retrospective review of 479 consecutive patients who underwent thyroid lobectomy. Patients' medication lists were reviewed to confirm whether thyroid hormone supplementation was required preoperatively and up to 12 months postoperatively. TSH levels before surgery, 7-10 postoperative days and 2-12 months were recorded.

Results: There were 479 patients (86% women); average age was 54 years, and 412 patients (86%) underwent surgery for benign disease. 72 patients (15%) were already on thyroid hormone supplementation before thyroidectomy. Of the remaining 407 patients who did not take supplementation, 388 (95%) had TSH levels available at 7-10 days postoperatively. 216/388 (56%) presented with a TSH >2mIU/L at their first postoperative visit. Of the remaining patients with a TSH ≤2mIU/L on the first postoperative visit, 85 (52%) remained off supplementation at 2-12 months and had TSH levels available, but 34 (40%) experienced a TSH increase to >2mIU/L. Thus, 250/407 patients (61%) following lobectomy had a TSH >2 mIU/L without thyroid hormone replacement within 2-12 months of their lobectomy.

Conclusions: Most patients undergoing thyroid lobectomy will require postoperative thyroid hormone supplementation to maintain a TSH <2mIU/L. It is important to counsel patients appropriately regarding the likelihood of supplementation after lobectomy for differentiated thyroid cancer to be compliant with the 2015 ATA guidelines recommendations.

ABSTRACTS

★ 27. IMPORTANCE OF SURGEON-PERFORMED ULTRASOUND IN THE PREOPERATIVE NODAL ASSESSMENT OF PATIENTS WITH DIFFERENTIATED THYROID CANCER

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Background: A comprehensive cervical ultrasound evaluation is essential in the operative planning of patients with differentiated thyroid cancer (DTC). Reliance on radiographic reports alone may result in incomplete operative management as pathologic lymph nodes are often not palpable and evaluation of the lateral neck is not routine. This study examined the role of surgeon-performed ultrasound (SUS) in pre-operative planning for patients with DTC who had lateral neck metastases.

Methods: A retrospective review of a prospectively maintained database was conducted of patients who underwent MRND for DTC between 2013 and 2016 at our tertiary referral center. All patients had SUS performed pre-operatively by one of seven endocrine surgeons. Our findings were compared with pre-referral imaging studies to determine the number of patients who would have undergone an inadequate resection secondary to unassessed lateral neck disease.

Results: Of 60 patients who underwent MRND for DTC, 55 (92%) had pre-referral imaging of the neck (US, CT). Of these patients, 27 (49%) had positive non-palpable, cytologically confirmed, pathologic lateral neck nodes detected initially by SUS despite prior neck imaging reports. SUS detected 23/42 (55%) [Radiology US: 14/25 (56%), endocrinology US: 9/17 (53%) p= NS]. In patients who underwent CT scan prior to presentation, 4/13 (31%) had additional disease detected on SUS. This led to an alteration of the surgical strategy in these patients.

Conclusions: Our data demonstrates that reliance on standard pre-operative imaging alone would have led to an incorrect initial operation in 49% of patients. A negative prior US should not dissuade surgeons from performing a comprehensive nodal examination as half of these patients will be found to have structural disease warranting therapeutic nodal dissection. Awareness of the limitations of pre-referral imaging is important for surgeons treating patients with DTC.

ABSTRACTS

28. ESTIMATION OF THE LIFETIME PROBABILITY OF DISEASE PROGRESSION OF PAPILLARY MICROCARCINOMA OF THE THYROID ON ACTIVE SURVEILLANCE

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Background: We reported that only 8% and 3.8% of the patients with low-risk papillary microcarcinoma of the thyroid (PMCT) showed tumor enlargement (TE) by 3 mm or more and novel appearance of nodal metastasis (NM) at 10-year-active surveillance (AS), respectively. If these rates remain constant over time, as many as 32% and 15.2% of patients would show TE and NM after 40-year-AS, respectively. However, we have previously shown that disease progression rates (DPRs) are significantly lower in older patients than in younger patients, suggesting the risk of disease progression would decrease over time. Here, we estimated the lifetime (up to 85-year-old) probabilities of disease progression on AS according to the age at presentation based on decade specific DPRs.

Methods: Between 1993 and 2013, 1211 patients with PMCT aged from 20 to 79 years underwent AS: the numbers of the patients in 20s, 30s, 40s, 50s, 60s, and 70s were 37, 129, 220, 350, 308 and 167, respectively. DPRs for the age groups (here we express as R_{20s}, R_{30s}, etc.) at 10 year of AS were calculated by the Kaplan-Meier method. The lifetime probability for a certain age group was calculated as (1- cumulative probability of progression free rate calculated with R values) until the patients group become 80s, i.e., 85 years on average. For example the lifetime probability of disease progression for patients in 50s was calculated as: $1 - (1 - R_{50s}) \times (1 - R_{60s}) \times (1 - R_{70s})$.

Results: TE rates at 10-year-AS for each age group were 22.0%, 8.4%, 11.2%, 6.5%, 6.3% and 2.8%, respectively. LM rates at 10-year-AS for each age group were 16.5%, 6.1%, 3.7%, 2.4%, 0.3% and 0.6%, respectively. Lifetime probabilities of TE for each age group were estimated as 46.0%, 30.7%, 24.3%, 14.8%, 8.9% and 2.8%, respectively according to the age at presentation. Lifetime probabilities of NM for each age group were estimated as 26.9%, 12.5%, 6.8%, 3.3%, 0.9% and 0.6%, respectively.

Conclusions: On active surveillance of PMCT, the lifetime probabilities of disease progression vary greatly according to the age at presentation. We estimated these probabilities based on our actual AS data.

ABSTRACTS

29. COST-EFFECTIVENESS OF LOBECTOMY VERSUS GENETIC TESTING FOR INDETERMINATE THYROID NODULES: CONSIDERING THE COSTS OF SURVEILLANCE

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Background:

Many physicians advocate that genetic testing should replace surgery as the preferred strategy for ruling out malignancy in indeterminate thyroid nodules, but the evidence supporting this contention is controversial. Previous studies demonstrated that genetic testing is more cost-effective than surgery by avoiding an operation and postoperative complications for benign lesions. However, these analyses ignored the need for long-term surveillance of nodules classified as benign and treated non-operatively. We hypothesized that diagnostic surgery for indeterminate nodules would be more cost-effective than genetic testing after including costs of long-term surveillance.

Methods:

We used a Markov decision model to estimate the cost-effectiveness of thyroid lobectomy versus genetic testing (Afirma[®]) for evaluation of indeterminate thyroid nodules in the 5 years following diagnosis. The base case was a 40 year-old female with a 1 cm follicular neoplasm (Bethesda IV). Morbidity, mortality, natural history, and estimates of patient health state preferences (utilities) were obtained from the literature. Cost estimates were based on Medicare average reimbursement. A 3% discount rate was used for costs and quality adjusted life years (QALYs). We used probabilistic sensitivity analysis to assess whether estimates varied substantially as a result of uncertainty in parameter values.

Results:

Our model demonstrated that over a 5-year period following diagnosis of an indeterminate thyroid nodule, diagnostic lobectomy was both less costly and more effective than Afirma[®] (Lobectomy: \$6,100; 4.50 QALYs vs. Afirma[®]: \$9,500; 4.47 QALYs). Assuming a cost-effectiveness threshold of \$100,000/QALY, the probability that use of Afirma[®] is cost-effective was 8.3%. Additionally, there was only a 0.3% probability of Afirma[®] being cost-saving, and a 21.3% chance that it was QALY-improving. However, these results were highly sensitive to estimates of utilities after lobectomy and living under surveillance after Afirma[®].

Conclusions: After including costs of long-term surveillance, our analysis predicts that diagnostic lobectomy dominates genetic testing as a strategy for ruling out malignancy of indeterminate thyroid nodules. However, the results are highly sensitive to estimates of utilities, highlighting the need for more rigorous assessment of patient values and preferences in order to guide decisions about treatment for indeterminate thyroid nodules.

ABSTRACTS

30. FAILING TO INTERVENE ON THYROID CANCER: A STUDY OF THE NATIONAL CANCER DATABASE

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Background: The concept of failure to intervene (FTI) was first introduced in pancreatic cancer in the context of patients with an operable malignancy that did not undergo surgical resection. These patients were older, less educated, more likely to be black and to have a lower income. Additionally, they had a worse overall survival than those who had surgery. Here, we investigate FTI in the thyroid cancer population. We define the patients with operable thyroid cancer who do not undergo surgery, define risk factors for FTI, and evaluate overall survival.

Methods: We identified patients with histology codes corresponding to papillary, follicular, and medullary thyroid cancer in the National Cancer Database. We subdivided these patients into three categories: "FTI", "No Surgery: Intentional (NSI)", and "Surgery". Risk factors for FTI were studied using univariate and multivariate logistic regression. Survival differences between the three groups were studied using Cox Hazards modeling.

Results: Of the groups studied 294,087(96.6%) underwent surgical resection, 8,939(2.9%) were NSI, and 1,579(0.5%) were FTI. Those in the FTI group were older than the surgery group (51.0±19.3 versus 49.9±15.4, p<0.001), more likely to be male (32.1% versus 23.8%, p<0.001), black (12.3% versus 6.9%, p<0.001), have Medicare (34.9% versus 18.9%, p<0.001), or be uninsured (8.0% versus 2.8%, p<0.001). On multivariable analysis, risk factors for FTI were lack of insurance (OR=3.86[3.16-4.70], p<0.001), stage IVc disease (OR=4.22[3.34-5.34], p<0.001), and Asian (OR=2.14[1.75-2.62], p<0.001) or black race (OR=2.04[1.73-2.40], p<0.001). There was a significant overall survival advantage for the Surgery group as compared to the FTI (Cox Hazard Ratio=7.0 95%CI[6.7-7.2], p<0.001) and NSI groups (Cox Hazard Ratio=3.7 95%CI [3.3-4.1], p<0.001).

Conclusions: Nearly 97% of thyroid cancer patients in the United States undergo surgical resection. Not having a surgical resection corresponds to a significant decrease in survival. Non-white race and lack of insurance were risk factors for FTI. Further work needs to be done to identify and appropriately treat this subset of patients who would benefit from resection.

ABSTRACTS

31. HAS INTRAOPERATIVE NEUROMONITORING OF RECURRENT NERVES AN IMPACT ON POSTOPERATIVE NERVE PALSY RATE? A PROSPECTIVE STUDY.

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Background: Recurrent nerve palsy (RNP) is a major complication of thyroidectomy. Rate of transient RNP varies from 5 to 20% and definitive from 0.5 to 3%. Rates of transient and definitive RNP are correlated. For years, intraoperative neuromonitoring (IONM) has been widely used. Although IONM becomes a standard of care, its impact for protecting nerves remains debatable. The aim of this study was to evaluate the effect of IONM during total thyroidectomy on postoperative RNP rate.

Methods: A prospective study, including 1328 patients (79.89% females), with a median age of 51.16 years (18-80) and a median BMI of 25.56kg/m² (16.36-56.39) operated on for total thyroidectomy (+central lymph-node dissection in 29), was conducted from March 2012 to June 2014 in 13 centers (ClinicalTrials.gov number- NCT01551914). Use of IONM was left to surgeons' choice. Postoperative laryngoscopy was systematically performed at day 1-2 and at 6 months (if postoperative RNP). Univariate, multivariate analyses and propensity score (sensitivity analysis) were performed to compare RNP between both groups.

Results: IONM was used in 807 patients (60.77%). Postoperative abnormal vocal cord mobility was diagnosed in 131 patients (9.92%; 5.76% partial and 4.17% complete RNP). In IONM group, 69 had RNP (8.55%: 4.71% partial, 3.84% complete RNP). In non-IONM group, 62 had RNP (12.11%: 7.42% partial, 4.69% complete RNP). In univariate analysis, age, BMI, cancer in thyroid, eu- or hyperthyroidism, thyroid's weight, sex, thyroiditis or not had no impact on RNP rate. Only IONM was associated with a lower RNP rate (OR=0.68 - IC_{95%}=[0.47;0.98] - p=0.04) but IONM had no impact on postoperative RNP in multivariate analysis (OR=0.74 - IC_{95%}=[0.47;1.17] - p=0.19), or using a propensity score (OR=0.76 - IC_{95%}=[0.53;1.07] - p=0.11). There was no difference of definitive RNP (1.24% in non-IONM group versus 0.77%, p=0.39 – Fisher test), data were missing for 67 patients. IONM has a high reliability to predict absence of RNP: sensitivity, specificity, positive and negative predictive values of IONM for detecting normal postoperative vocal cord mobility were respectively 29%, 98%, 61% and 94%.

Conclusions: Use of IONM does not decrease postoperative RNP rate. Due to its high specificity, IONM is useful to predict normal vocal cord mobility.

ABSTRACTS

32. IMPACT OF AUTOFLUORESCENCE-BASED IDENTIFICATION OF PARATHYROIDS DURING TOTAL THYROIDECTOMY ON POSTOPERATIVE HYPOCALCEMIA: A BEFORE-AFTER CONTROLLED STUDY.

Fares Benmiloud¹, Guillaume Penaranda², Anne Denizot¹

¹*Endocrine Surgery Unit, Hopital Europeen Marseille*, ²*Biostatistics, Laboratoire Alphabio-Marseille*

Background: Near-infrared (NIR) light has recently been shown to facilitate intraoperative autofluorescence-based identification of parathyroids. However, the impact of this emerging technique on surgical performance and patient outcome during total thyroidectomy (TT) remains unknown.

Methods: In this before-after controlled study, we compared all consecutive patients who underwent TT with the intraoperative use of the Fluobeam® NIR camera (NIR+ group) and those operated on without NIR (NIR- group), by the same surgeon. The NIR- group and NIR+ group patients underwent surgery from January 2015 to January 2016 (Period 1) and from February 2016 to September 2016 (Period 2), respectively. In parallel, we also compared all consecutive patients who underwent surgery without NIR by another surgeon in the same unit: Control groups 1 and 2, for Period 1 and 2, respectively. Patients with combined parathyroid disease and/or lymph node dissection were excluded from the study. Main outcomes included postoperative hypocalcemia (corrected serum calcium < 2mmol/l), parathyroid identification, autotransplantation and inadvertent resection rates.

Results: Overall, 513 patients were included in this study: 153, 93, 180 and 87 patients in NIR- group, NIR+ group, Control 1 group and Control 2 group, respectively. In the NIR+ group, postoperative hypocalcemia rate was significantly lower (5.2% vs 20.9%, $p<0.05$), mean number of identified parathyroids was significantly higher (3.1 ± 0.9 vs 2.6 ± 1.0 per patient, $p<0.05$) and parathyroid autotransplantation rates was significantly lower (2.1% vs 15% of patients, $p<0.05$) than in the NIR- group, although no difference was observed in inadvertent resection rates. All NIR 259 images suspected to correspond to parathyroids were confirmed via naked eye assessment. Parathyroids were identified via NIR camera before they were visualized by the surgeon in 68% of patients in the NIR+ group. In the control groups, the mean number of identified parathyroids improved significantly from Period 1 to Period 2 (2.9 ± 1.0 vs 2.5 ± 1.1 , $p<0.05$), although autotransplantation, inadvertent resection and postoperative hypocalcemia rates (16.1% vs 19.5%, pNS) were not different.

Conclusions: Autofluorescence-based visualization of the parathyroids using NIR light during total thyroidectomy helped to significantly reduce postoperative hypocalcemia rates and to improve identification and preservation of the parathyroids.

ABSTRACTS

33. FAMILIAL ISOLATED PRIMARY HYPERPARATHYROIDISM ASSOCIATED WITH GERMLINE GCM2 MUTATIONS IS MORE AGGRESSIVE AND HAS LOWER BIOCHEMICAL CURE RATE

Mustapha El Lakis¹, Bin Guan², Sunita Agarwal², James Welch², William Simonds², Stephen Marx², Naris Nilubol¹, Dhaval Patel², Lily Yang², Roxanne Merkel², Electron Kebebew¹

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Background: Approximately 10% of primary hyperparathyroidism (PHPT) cases are hereditary. Hereditary PHPT may be syndromic (MEN1-4, hyperparathyroidism-jaw tumor syndrome) or nonsyndromic (familial isolated hyperparathyroidism, FIHP). Recently, activating mutations in the *GCM2* gene (*GCM2*) was identified in FIHP kindred. The aim of this study was to determine the clinical and biochemical characteristics, parathyroid pathology and outcome of *GCM2*-mutation positive FIHP.

Methods: We performed a retrospective analysis of clinical manifestation, parathyroid pathology, and operative outcome in *GCM2* germline mutation positive patients (19 patients from 7 kindred) compared to patients with sporadic PHPT (457 patients).

Results: Age at diagnosis (54 ± 1.57 years), gender distribution (female: male =2:1) and race/ethnicity were similar between the *GCM2* group and the sporadic PHPT group. Preoperative calcium was similar between the two groups but the preoperative intact PTH was higher in patients with *GCM2*-associated PHPT as compared to patients with sporadic PHPT (239.1 ± 394 vs. 136 ± 113 , $p=0.005$). The rate of multigland disease was significantly higher in the *GCM2* group as compared to the sporadic group (77.8% vs. 14.3%; $p<0.001$). One patient in the *GCM2* group had parathyroid carcinoma and none in the sporadic group (5.3% vs. 0%; $p=0.04$). The biochemical cure rate was significantly lower in the *GCM2* group as compared to the sporadic group (86.7%; vs. 99.1%, $p<0.001$).

Conclusions: Patients with FIHP due to germline *GCM2* mutation have higher preoperative PTH levels, higher rate of multigland disease, lower biochemical cure rate and a risk of parathyroid cancer. Knowledge of these clinical characteristics could optimize the surgical management of *GCM2* mutation associated FIHP.

ABSTRACTS

34. A POLYCLONAL ORIGIN OF PARATHYROID TUMORS IS COMMON AND IS ASSOCIATED WITH MULTIPLE GLAND DISEASE IN PRIMARY HYPERPARATHYROIDISM

Yuhong Shi¹, Pedram Azimzadeh¹, Shannon Wentworth¹, Janice Ferlitch¹, James Koh², Nariman Balenga¹, John A. Olson, Jr.¹

¹University of Maryland School of Medicine, ²Duke University

Background: Parathyroid tumors have long been considered monoclonal neoplasms, a principle that predicts single gland disease and forms the rationale for focused parathyroidectomy in primary hyperparathyroidism (PHPT). We reported that flow sorting of parathyroid adenoma cells allows for functional and genetic analysis of purified oxyphil and chief cells, and reveals that up to 35% of parathyroid tumors are polyclonal (Proc Natl Acad Sci USA, 111(8):3092, 2014). We sought to confirm these findings in an expanded cohort of patients and assess for clinical relevance.

Methods: Parathyroid tumor samples procured from 286 female PHPT patients under an IRB- approved protocol at two institutions were analyzed for clonal status (mono- vs. polyclonal) by methylation-sensitive polymerase chain reaction amplification of polymorphic alleles at two independent X-linked loci (HUMARA and PGK). Tumor clonal status was compared with clinical variables and operative findings. Statistical analysis was performed using SPSS software and significance was established at $P < 0.05$.

Results: A total of 176 (62%) patients were informative for one or more polymorphic alleles. Unequivocal assignment of clonal origin was made in 119 (68%) tumors, of which 64 (54%) were monoclonal and 55 (46%) were polyclonal. Comparison of tumor clonal status to clinical variables in patients with complete clinicopathologic data (N=82) showed that while biochemical and demographic features were no different between tumor types, patients with polyclonal tumors more often had multiple gland disease (RR 4.066, CI 1.016 - 16.26; $p = 0.039$).

Conclusions: This work represents the first assessment of the frequency and clinical significance of parathyroid tumor clonal status in PHPT. These results confirm our published findings that PHPT is often the result of polyclonal parathyroid tumors, a conclusion that refutes the idea that all parathyroid tumors are monoclonal. While biochemical and demographic features of patients with both types of parathyroid tumors are similar, patients with polyclonal tumors more often have multiple gland disease. The etiology of polyclonal parathyroid tumors is unknown, but likely is different from monoclonal tumors. This finding supports the notion that PHPT is a heterogeneous disorder and reinforces the importance of developing a better understanding of underlying parathyroid tumor biology as a basis of improving treatment of PHPT.

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POSTER DISPLAYS

★ Denotes Resident/Fellow Research Award Competition Poster

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

POSTER DISPLAYS

POSTER GROUP 1: ADRENAL

★ 01. THE IMPACT OF LYMPH NODE STATUS ON PROGNOSIS IN ADRENOCORTICAL CARCINOMA

Suraj Panjwani¹, Maureen D. Moore¹, Katherine D. Gray¹, Brendan M. Finnerty¹, Laurent Brunaud², Thomas J. Fahey, III¹, Rasa Zarnegar¹

¹Weill Cornell Medicine, ²CHU Nancy-Hospital Brabois Adultes, University de Lorraine

02. THE ADRENAL MYELOLIPOMA: WHAT DO WE REALLY KNOW?

Mary Umahi Obasi, Jenny Bingling Wu¹ Ghaneh Fananapazir, **Michael J Campbell**
University of California, Davis

★ 03. A MULTI-INSTITUTIONAL ANALYSIS OF ADRENALECTOMY FOR SECONDARY MALIGNANCY

Heather Wachtel¹, Robert E. Roses², Lindsay E. Kuo², Brenessa M. Lindeman³, Douglas L. Fraker², Richard A. Hodin¹, Ali Tavakkoli³, Matthew A. Nehs³, Sareh Parangi¹, Antonia Stephen¹, Carrie C. Lubitz¹

¹Massachusetts General Hospital, ²University of Pennsylvania, ³Brigham and Women's Hospital

★ 04. MODERN, THIN-SLICE CONTRAST ENHANCED ADRENAL-DIRECTED CT SCAN FOR SUBTYPE CHARACTERIZATION IN PATIENTS WITH PRIMARY ALDOSTERONISM

Veljko Strajina, Alaa Sada, Geoffrey B Thompson, David R Farley, Melanie L Richards, James C Andrews, Irina Bancos, William F Young, Travis J McKenzie
Mayo Clinic, Rochester, MN

★ 05. PREVALENCE OF ADRENAL INCIDENTALOMAS AND ADHERENCE TO PRACTICE GUIDELINES IN A VETERAN POPULATION

Konstantinos I Makris, Alexandra W Buffie, John T Sigalos, Danielle L Clark, Samir Awad
Baylor College of Medicine

★ 06. A MULTICENTER EVALUATION OF THE SURGICAL LEARNING CURVE FOR POSTERIOR RETROPERITONEOSCOPIC ADRENALECTOMY

Otis M Vrielink¹, Anton F Engelsman², Patrick H J Hemmer¹, Jakob de Vries¹, Wessel M C M Vorselaars³, Menno R Vriens³, Andreas Karakatsanis⁴, Per Hellman⁴, Mark S Sywak², Barbara L van Leeuwen¹, Mostafa el Mounni¹, Schelto Kruijff¹

¹University Medical Center Groningen, ²Royal North Shore Hospital, ³University Medical Center Utrecht, ⁴Uppsala University Hospital

POSTER DISPLAYS

07. SILENCING STMN1 EXPRESSION DECREASES AGGRESSIVE PHENOTYPE IN ADRENOCORTICAL CARCINOMA

Anna Aronova¹, Irene M Min¹, Michael J Crowley¹, Brendan M Finnerty¹, Theresa Scognamiglio¹, Yifang Liu¹, Timothy G Whitsett², Michael J Demeure², Olivier Elemento¹, Rasa Zarnegar¹, Thomas J Fahey, III¹

¹Weill Cornell Medical College/New York Presbyterian Hospital, ²Translational Genomics Research Institute

★ 08. ANALYSIS OF POSTOPERATIVE BIOCHEMICAL VALUES AND CLINICAL OUTCOMES AFTER ADRENALECTOMY FOR PRIMARY ALDOSTERONISM

Andrew J Swearingen, Allan Siperstein, Joyce Shin, Judy Jin, Vikram Krishnamurthy, Rosebel Monteiro, Eren Berber
Cleveland Clinic

POSTER GROUP 2: PANCREAS/CARCINOID/NEUROENDOCRINE

09. FOLLOW-UP IN ADULT PATIENTS WITH PANCREATOGENIC HYPOGLYCEMIA CAUSED BY SPORADIC MICRO- OR MACRO- INSULINOMATOSIS – 15 YEARS OF EXPERIENCE IN ONE CENTER

Aycan Akca, Starke Achim, Peter E. Goretzki
Lukaskrankenhaus Neuss

★ 10. META-ANALYSIS OF RECURRENCE AFTER CURATIVE SURGERY OF PANCREATIC NEUROENDOCRINE TUMORS

Cansu G Genc¹, Casper H.J. van Eijck², Elisabeth J.M. Nieveen van Dijkum¹
¹Academic Medical Center Amsterdam, ²Erasmus Medical Center

★ 11. MANAGEMENT OF MEN1 RELATED NON-FUNCTIONING PANCREATIC NETS: A SHIFTING PARADIGM. RESULTS FROM THE DUTCHMEN1 STUDY GROUP.

Sjoerd Nell¹, Helena M. Verkooijen¹, Carolina R.C. Pieterman¹, Wouter W. de Herder², Ad. R. Hermus³, Olaf M. Dekkers⁴, Anouk N. van der Horst-Schrivers⁵, Madeleine L. Drent⁶, Peter Bisschop⁷, Bas Havekes⁸, Inne H.M. Borel Rinkes¹, Gerlof D. Valk¹, Menno R. Vriens¹

¹University Medical Center Utrecht, ²Erasmus Medical Center, ³Radboud University Medical Center, ⁴Leiden University Medical Center, ⁵University Medical Center Groningen, ⁶VU University Medical Center, ⁷Academic Medical Center, ⁸Maastricht University Medical Center

POSTER DISPLAYS

★ 12. SPORADIC INSULINOMAS, CLINICAL OUTCOME CORRELATED TO MUTATION IN YY1 AND MEN1

Johan Kugelberg, Ludvig Tidehag, Peter Stålberg, Peyman Björklund, Olov Norlén, Per Hellman
Uppsala University

★ 13. AP1 IS REQUIRED FOR NOTCH1 ACTIVATION BY HDAC INHIBITORS IN NEUROENDOCRINE CANCERS

Samuel Jang^{1,2}, Haining Jin¹, Madhuchhanda Roy³, Ajitha Dammalapati³, April Harrison³, Zviadi Aburjania¹, Renata Jaskula-Sztul¹, Herbert Chen¹
¹University of Alabama at Birmingham, ²Howard Hughes Medical Institute, ³University of Wisconsin School of Medicine and Public Health

POSTER GROUP 3: Parathyroid

★ 14. 4DCT IS SUPERIOR TO ULTRASOUND AND SESTAMIBI FOR LOCALIZING RECURRENT PARATHYROID DISEASE

Moska Hamidi¹, Michael Sullivan², George Hunter³, Leena Hamberg³, Nancy Cho², Atul Gawande², Francis Moore², Matthew Nehs²
¹Western University, ²Brigham and Women's Hospital, ³Massachusetts General Hospital

★ 15. INTRAOPERATIVE PTH MONITORING PREDICTS OPERATIVE SUCCESS IN PATIENTS WITH NORMOHORMONAL PRIMARY HYPERPARATHYROIDISM

Heather Stuart¹, Basem Azab¹, Eden Amdemichael¹, Josefina Farra¹, Janice Pasieka², John I Lew¹
¹University of Miami, ²University of Calgary

16. PARATHYROID HYPERCELLULARITY IN BIOPSIED NORMAL GLANDS DOES NOT PREDICT FAILURE IN SPORADIC PRIMARY HYPERPARATHYROIDISM FROM SINGLE GLAND DISEASE

Mashaal Dhir, Kristina Langenborg, Raja R Seethala, Linwah Yip, Sally E Carty, **Kelly L McCoy**
University of Pittsburgh Medical Center

★ 17. FOUR-DIMENSIONAL COMPUTED TOMOGRAPHY (4D-CT) IS SUFFICIENT TO GUIDE A FOCUSED PARATHYROIDECTOMY AMONG PATIENTS WITH PRIMARY HYPERPARATHYROIDISM: A COMPARISON OF 4D-CT, SINGLE PHOTON EMISSION COMPUTED TOMOGRAPHY (MIBI-SPECT/CT), AND SIMULTANEOUS 4D-CT-MIBI-SPECT/CT COMBINED.

Catherine McManus, Jennifer H Kuo, Randy Yeh, Abbey Fingeret, John Chabot, James Lee
Columbia University Medical Center

POSTER DISPLAYS

★ 18. IS THE INCIDENCE OF PARATHYROID CARCINOMA CONTINUING TO INCREASE? A 30-YEAR SEER DATABASE ANALYSIS

Winifred M Lo¹, Naris Nilubol¹, Nancy D Perrier², Electron Kebebew¹, Dhaval T Patel¹
¹National Cancer Institute, ²University of Texas MD Anderson Cancer Center

★ 19. SURGERY FOR PRIMARY HYPERPARATHYROIDISM: ADHERENCE TO CONSENSUS GUIDELINES IN AN ACADEMIC HEALTH SYSTEM

Eric J. Kuo¹, Mostafa A. Al-Alusi¹, Lin Du², Albert Shieh¹, Angela M. Leung¹, Michael W. Yeh¹
¹UCLA David Geffen School of Medicine, ²UCLA Fielding School of Public Health

POSTER GROUP 4: Thyroid

★ 20. A DOUBLE BLIND RANDOMIZED CONTROL TRIAL COMPARING BILATERAL SUPERFICIAL CERVICAL PLEXUS BLOCK AND LOCAL WOUND INFILTRATION IN TOTAL THYROIDECTOMY

Michael G White¹, Megan K Applewhite², Jennifer Anderson¹, Benjamin James³, Andrew Benjamin¹, Scott Grant¹, Alejandro Plana¹, Peter Angelos¹, Edwin L Kaplan¹, Raymon H Grogan¹
¹The University of Chicago, ²Albany Medical Center, ³Indiana University

★ 21. UNPLANNED HOSPITAL VISITS AFTER SAME-DAY ENDOCRINE SURGERY

Tasce Bongiovanni¹, Carolyn Seib¹, Joseph Ross^{1,2}, Insoo Suh¹
¹University of California, San Francisco, ²Clinical Scholars Program, Robert Wood Johnson Foundation

★ 22. NONOPERATIVE MANAGEMENT OF DIFFERENTIATED THYROID CANCER IN CALIFORNIA: A POPULATION LEVEL ANALYSIS OF 29,978 PATIENTS

Eric J. Kuo¹, James X. Wu¹, Ning Li², Michael W. Yeh¹, Masha J. Livhits¹
¹UCLA David Geffen School of Medicine, ²UCLA David Geffen School of Medicine

★ 23. INCREASED INCIDENCE OF DELAYED HEMORRHAGE FOLLOWING SUTURELESS THYROID SURGERY

Anton Engelsman, Kathryn Sutton, Philip Townend, Stan Sidhu, Leigh Delbridge, Mark Sywak
Royal North Shore Hospital

★ 24. END-STAGE RENAL DISEASE PATIENTS HAVE A HIGHER INCIDENCE OF THYROID CANCER: A SYSTEMATIC REVIEW AND META-ANALYSIS

Stephanie Y. Chen¹, Shani J. Fruchter², John A. Chabot¹, James A. Lee¹, Jennifer H. Kuo¹
¹New York-Presbyterian-Columbia, ²Palisades Medical Center

POSTER DISPLAYS

★ 25. MULTIMORBIDITY IS ASSOCIATED WITH MARKEDLY INCREASED RISK OF ADVERSE OUTCOMES IN OLDER PATIENTS FOLLOWING THYROIDECTOMY: A POPULATION-BASED STUDY

Carolyn D Seib, Holly Rochefort, Kathryn Chomsky-Higgins, Wen T Shen, Jessica E Gosnell, Quan-Yang Duh, Emily Finlayson, Insoo Suh
University of California, San Francisco

26. REOPERATION FOR PERSISTENT/RECURRENT PAPILLARY THYROID CARCINOMA: OUTCOMES IN 100 CASES

Matthew L Hung, **James X Wu**, Ning Li, Masha J Livhit, Michael W Yeh
UCLA David Geffen School of Medicine

27. THE RELATIONSHIP BETWEEN THE LOCATION OF THE PRIMARY TUMOR AND THE PATTERN OF LATERAL NECK METASTASES DOES NOT JUSTIFY LIMITED LATERAL NECK DISSECTION IN PAPILLARY THYROID CARCINOMA

Marco Raffaelli¹, Carmela De Crea¹, Luca Sessa¹, Serena E Tempera¹, Pietro Princi¹, Celestino P Lombardi¹, Rocco Bellantone¹
¹*U.O. Chirurgia Endocrina e Metabolica, Università Cattolica del Sacro Cuore - Policlinico Universitario A. Gemelli*

28. EXPRESSION OF HIF-1A IN MEDULLARY THYROID CANCER IDENTIFIES A SUBGROUP WITH POOR PROGNOSIS

Lutske Lodewijk¹, Paul J van Diest¹, Petra van der Groep¹, Natalie ter Hoeve¹, Abbey Schepers², Hans Morreau², Johannes J Bonenkamp³, Ilse C.H. van Engen - van Grunsven³, Ilse C.H. van Engen - van Grunsven³, Schelto Kruijff⁴, Bettien M. van Hemel⁴, Thera P Links⁴, Els J.M. Nieveen van Dijkum⁵, Susanne van Eeden⁶, Gerlof D Valk¹, Inne H.M. Borel Rinkes¹, Menno R Vriens¹
¹*University Medical Center Utrecht*, ²*Leids University Medical Center*, ³*Radboud University Medical Center*, ⁴*University Medical Center Groningen*, ⁵*Academic Medical Center Amsterdam*, ⁶*Academic Medical Center Amsterdam*

★ 29. IL-2, IL-10 AND IL-17A INDUCED MHC CLASS I EXPRESSION IN CONCOMITANT HASHIMOTO'S THYROIDITIS WITH PAPILLARY THYROID CANCER OVERCOMES IMMUNE ESCAPE IN VITRO

Jiaqian Hu, Tian Liao, Duo Wen, Tingting Zhang, Ning Qu, Rongliang Shi, Guohua Sun, Qinghai Ji
Department of Head and Neck Surgery, Fudan University Shanghai Cancer Center

POSTER DISPLAYS

30. TOTAL THYROIDECTOMY IS A FREQUENT MANAGEMENT CHOICE FOR “SUSPICIOUS” AFIRMA NODULES

Trevor E. Angell, Justine A. Barletta, Kyle Strickland, Kristine Wong, Brenessa Lindeman, Ellen Marqusee, Edward S Cibas, Jeffrey F. Krane, Nancy L Cho, Atul A Gawande, Francis D Moore, Jr, Gerard M Doherty, **Matthew A Nehs**
Brigham and Women's Hospital

31. INTEGRIN-LINKED KINASE INCREASES CHEMOKINE SECRETION IN BOTH PAPILLARY THYROID CANCER CELLS AND THYROID FIBROBLASTS

Samantha McCarty¹, Lyndsay Boyd², Kevin Adik², Motoyasu Saji¹, John Phay¹, Matthew Ringel¹, **Lawrence A Shirley¹**
¹Ohio State University Wexner Medical Center, ²Ohio State University

★ 32. GENDER AND RACIAL DISPARITIES IN SURVIVAL AFTER SURGERY AMONG PAPILLARY AND FOLLICULAR THYROID CANCER PATIENTS: 45-YEAR EXPERIENCE

Ammar Asban, Rongbing Xie, Jeanne Love, Courtney J Balentine, James K Kirklin, Chen Herbert
University of Alabama at Birmingham

★ 33. PARATHYROID HORMONE LEVELS DO NOT PREDICT THE NEED FOR CALCIUM SUPPLEMENTATION AFTER THYROIDECTOMY

Zeyad T Sahli, Alireza Najafian, Stacie Kahan, Eric Schneider, Martha Zeiger, Aarti Mathur
Johns Hopkins

34. NIFTP RECLASSIFICATION: ALL THE NEWS THAT'S FIT TO PRINT

Josefina C Farra, Darcy A Kerr, Juliet J Ray, Thomas Joyal, John I Lew
University of Miami

★ 35. GEOGRAPHIC VARIATION IN THE INCIDENCE AND MORTALITY RATES OF THYROID CARCINOMA: A SEER DATABASE STUDY

Ambria Moten¹, Miriam Lango²
¹Temple University Hospital, ²Fox Chase Cancer Center

★ 36. RECLASSIFICATION OF ENCAPSULATED FOLLICULAR VARIANT OF PAPILLARY THYROID CARCINOMA DECREASES THE RATE OF MALIGNANCY IN GENE EXPRESSION CLASSIFIER SUSPICIOUS THYROID NODULES

Michael Lui, Anna Kundel, Jennifer Ogilvie, Kepal Patel
NYU Langone Medical Center

POSTER DISPLAYS

POSTER GROUP 5: Other

★ 37. USE OF ULTRASOUND AND FINE NEEDLE ASPIRATION BY ENDOCRINE SURGEONS: AN ANALYSIS OF THE CMS-PUF DATABASE

Mamoona Khokhar¹, Vikram Krishnamurthy², John Chabot¹, James Lee¹, Jennifer Kuo¹
¹*Columbia University*, ²*Cleveland Clinic*

★ 38. A MODEL FOR A CAREER IN ENDOCRINE SURGERY

Bona Ko¹, Christopher McHenry²
¹*Case Western School of Medicine*, ²*MetroHealth System*

POSTER DISPLAYS

POSTERS FROM ENDOCRINE SOCIETY – NEW!

The following posters have been selected by the Endocrine Society for display with the AAES posters as part of the AAES and Endocrine Society poster exchange.

ENDO-01. PARATHYROID CARCINOMA: REPORT OF NINE CASES FROM A UNIVERSITY HOSPITAL IN SAO PAULO, BRAZIL

Alessandra Raphael Novelli, Adriano Namó Cury, Nilza Maria Scalissi and Manuela GM Rocha-Braz

Irmandade da Santa Casa de Misericórdia de São Paulo, Brazil

ENDO-02. COMPARISON OF LOCAL HISTOPATHOLOGY AND A CENTRAL PATHOLOGY PANEL IN DIAGNOSTIC THYROID NODULE SURGERY FROM A MULTICENTER, BLINDED STUDY

Michael Shanik¹, Thomas C Blevins², Paul Y Casanova-Romero³, Jonathan Lokey⁴, Justin W Fontenot⁵, Alexander L Shifrin⁶, Krishnakumar Rajamani⁷, Urooj Imtiaz⁸, Katie Beliveau⁸, Neil M Barth⁸

¹*Endocrine Associates of Long Island*, ²*Texas Diabetes and Endocrinology*, ³*Palm Beach Diabetes & Endocrine Specialists*, ⁴*University Medical Group; Greenville Health System*, ⁵*Lafayette Arthritis & Endocrine Clinic*, ⁶*Jersey Shore University Medical Center*, ⁷*Rochester Regional Health*, ⁸*Veracyte Inc.*

ENDO-03. PLASMA DERIVED EXOSOMAL MICRORNAS SIGNATURES AS NOVEL BIOMARKERS FOR PARATHYROID TUMOURS WITH & WITHOUT MEN1 MUTATION

Gurjeet Kaur, Sanjay Bhadada

Postgraduate Institute of Medical Education & Research, India

ENDO-04. NONINVASIVE FOLLICULAR THYROID NEOPLASMS WITH PAPILLARY-LIKE NUCLEAR FEATURES AND INDETERMINATE CYTOLOGY ARE AFIRMA GEC SUSPICIOUS WHICH FACILITATES SURGICAL TREATMENT

Peter M Sadow¹, Virginia Anne LiVolsi², Gregory W Randolph³, Richard Mack Harrell⁴, Richard T Kloos⁵, Ronald A Ghossein⁵

¹*Harvard Medical School*, ²*University of Pennsylvania School of Medicine*, ³*Massachusetts General Hospital*, ⁴*Memorial Healthcare System*, ⁵*Veracyte, Inc.*, ⁶*Memorial Sloan Kettering Cancer Hospital*

ENDO-05. SIMILARITIES IN POSTSURGICAL VS NONSURGICAL PATIENTS WITH HYPOPARATHYROIDISM: POST HOC ANALYSIS FROM RECOMBINANT HUMAN PARATHYROID HORMONE (RHPTH[1-84], PARATHYROID HORMONE RDNA) REPLACE STUDY

Michael Mannstadt¹, Maria Luisa Brandi², John P. Bilezikian³, Bart Lyman Clarke⁴, William D. Fraser⁵, Alan Krasner⁶, Hjalmar Lagast⁷, Hak-Myung Lee⁶, Lars Rejnmark⁸, Dolores M. Shoback⁹ and Tamara J. Vokes¹⁰

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Dartmouth Hitchcock Medical Center

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McGill University Health Center, Canada

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Wai Wai Lin¹, Janice L Gilden², Phyto Thazin Myint¹, Caroline Tomas¹, Katherine E Jackson-Flech³
¹Presence Saint Joseph Hospital, Chicago, ²Presence Saints Mary and Nazareth Medical Center and Chicago Medical School at Rosalind Franklin University of Medicine and Science, ³Presence Saints Mary and Elizabeth Medical Center

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Andy Cheng¹, Linda Cherney Stafford¹, Joseph Imbus¹, Nicole Brys¹, Dawn M. Elfenbein², David Schneider¹
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IN MEMORIAM

Yoshihide Fujimoto, MD



On July 23, 2016, a great mentor and ambassador for endocrine surgery was lost with the passing of Professor Yoshihide Fujimoto. Professor Fujimoto was a long-time member of the IAES and served as president from 1987 to 1989. Professor Fujimoto was a great mentor, educator and surgeon. He will be dearly missed by his wife of 63 years, Yuriko as well as his family, many friends and distinguished colleagues.

Professor Fujimoto was born in Kyoto, Japan on July 11, 1926. He received his Doctor of Medicine from the University of Tokyo in 1951 and his Doctor of Philosophy from the University of Tokyo in 1960. From 1963-64 he was a research associate at Harvard University School of Medicine. He started his career at the University Tokyo School of Medicine, and was professor of surgery at Tokyo Women's Medical College from 1981-1992. He served as both Vice-director, then Director of the Endocrine Institute between the years 1989-1992. In addition to his membership in the IAES, Professor Fujimoto was also a member of the Japan Endocrine Society (council 1985-1989, 91-93, Miyake-sho 1988) and the Japan Association of Endocrine Surgeons (chief 1988-1991).

His contributions to Endocrine Surgery are numerous. He leaves behind a legacy of dedicated endocrine surgeons whom he trained and mentored throughout his career. He will be missed, but not forgotten.

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