THE AMERICAN ASSOCIATION OF ENDOCRINE SURGEONS

Thirty-Third Annual Meeting



April 29-May 1, 2012

Sheraton Iowa City Iowa City, Iowa

THANK YOU

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

Ethicon Endo-Surgery, Inc.

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

AMEND USA American Association of Clinical Endocrinologists American Thyroid Association Asuragen Baxter Healthcare Covidien **Ethicon Endo-Surgery, Inc.** Genzyme Corporation **Graves' Disease & Thyroid Foundation Hitachi Aloka Medical** Intuitive Surgical (da Vinci) Invuity, Inc. Medtronic Oxigene Neurovision Medical Products (IOM Solutions) Surgical Innovations LLC ThyCa: Thyroid Cancer Survivors' Association Veracyte

The American Association of Endocrine Surgeons would like to acknowledge the following companies for their generous contributions in support of the Fun Run to benefit the Paul LoGerfo Educational Research Fund:

Integrated DNA Technologies New Pioneer food co-op

Special thanks to the AAES 2012 Publication and Program Committee

Tina W. F. Yen - Chair Peter Angelos Ashok R. Shaha Herbert Chen Mark S. Cohen Marybeth Hughes Fiemu E. Nwariaku John A. Olson, Jr. Kepal N. Patel Jennifer E. Rosen David J. Terris

THE AMERICAN ASSOCIATION OF ENDOCRINE SURGEONS

Thirty-Third Annual Meeting



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AAES Secretary-Treasurer

Peter Angelos MD, PhD University of Chicago 5841 S. Maryland Avenue, MC 4052 Chicago, IL 60637 Telephone: (773) 702-4429 Fax: (773) 834-5295 Email: pangelos@surgery.bsd.uchicago.edu

American Association of Endocrine Surgeons

www.endocrinesurgery.org

AAES FUTURE MEETINGS

April 14 - 16, 2013 **Chicago, Illinois** Peter Angelos, MD, PhD

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

2015 **Nashville, Tennessee** Carmen C. Solorzano, MD

TABLE OF CONTENTS

FUTURE MEETINGS	_2
OFFICERS AND COMMITTEES	_4
PAST OFFICERS	_5
OLIVER COPE AWARD RECIPIENTS	9
HONORARY MEMBERS	11
RESIDENT/FELLOW RESEARCH & POSTER COMPETITION AWARD RECIPIENTS	
NEW MEMBERS	
CONTRIBUTORS TO PAUL LoGERFO EDUCATIONAL RESEARCH FUND	19
PAST MEETINGS	20
SPECIAL SESSIONS	22
HISTORICAL LECTURE	23
INVITED LECTURERS	24
INVITED LECTURERS AT RECENT MEETINGS	25
	29
AGENDA	_33
SCIENTIFIC PROGRAM	38
ABSTRACTS	53
ORAL POSTERS	134
ORAL POSTERS	136
CONSTITUTION & BYLAWS	142
MEMBERSHIP DIRECTORY	155
GEOGRAPHICAL MEMBERSHIP DIRECTORY	219
	232
	_233

OFFICERS, COUNCIL & COMMITTEES

PRESIDENT Ashok R. Shaha

PRESIDENT-ELECT Miguel F. Herrera

VICE PRESIDENT Thomas J. Fahey, III

SECRETARY-TREASURER Peter Angelos

RECORDER Herbert Chen

IMMEDIATE PAST PRESIDENT

Douglas B. Evans

COUNCIL

Michael J. Demeure Douglas L. Fraker Paul G. Gauger Electron Kebebew Fiemu E. Nwariaku Sareh Parangi Janice L. Pasieka Nancy D. Perrier

PUBLICATION & PROGRAM COMMITTEE

Tina W. F. Yen, Chair Peter Angelos Ashok R. Shaha Herbert Chen Mark S. Cohen Marybeth Hughes Fiemu E. Nwariaku John A. Olson, Jr. Kepal N. Patel Jennifer E. Rosen David J. Terris

MEMBERSHIP COMMITTEE

Electron Kebebew, *Chair* Fiemu E. Nwariaku Nancy D. Perrier

COMMITTEE ON EDUCATION & RESEARCH

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NOMINATING COMMITTEE

Janice L. Pasieka, *Chair* Douglas B. Evans Ashok R. Shaha

FELLOWSHIP COMMITTEE

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AACE REPRESENTATIVE

Nancy D. Perrier

ESC REPRESENTATIVE

Tracy S. Wang

NSQIP REPRESENTATIVEE

Julia Ann Sosa

AAES FOUNDATION

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

IT COMMITTEE

Peter Angelos, *Chair* Alan P.B. Dackiw Richard A. Hodin James Lee Janice L. Pasieka Michael W. Yeh

PAST OFFICERS

1980-1981

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

1981-1982

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

1982-1983

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

1983-1984

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

1984-1985

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

1985-1986

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

1986-1987

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

1987-1988

Edward Paloyan	President
Caldwell B. Esselstyn	
Stuart D. Wilson	
Jon A. van Heerden	

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

PAST OFFICERS CONT.

1989-1990

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

1990-1991

Caldwell B. EsselstynPresid	dent
Brown M. Dobyns Vice Presid	dent
Richard A. PrinzSecretary-Treas	urer
Robert D. Croom, IIIReco	rder

1991-1992

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

1992-1993

President
Vice President
Secretary-Treasurer
Recorder

1993-1994

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

1994-1995

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

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

PAST OFFICERS CONT.

1996-1997

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

1997-1998

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

1998-1999

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

1999-2000

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

2000-2001

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

2001-2002

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

2002-2003

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

Paul LoGerfoPreside	ent
Ashok R. ShahaVice-Preside	ent
Janice L. PasiekaSecretary-Treasur	rer
Geoffrey B. Thompson Record	der

PAST OFFICERS CONT.

2004-2005

John A. Kukora	President
Andrew W. Saxe	Vice-President
Janice L. Pasieka	Secretary-Treasurer
Geoffrey B. Thompson	Recorder
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2005-2006

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

2006-2007

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

2007-2008

President
Vice-President
Secretary-Treasurer
Recorder

2008-2009

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

2009-2010

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

2010-2011

Douglas B. Evans	President
Gerard M. Doherty	
Peter Angelos	
Steven K. Libutti	-

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

THE OLIVER COPE MERITORIOUS ACHIEVEMENT AWARD

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

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



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



Stanley R. Friesen, MD, PhD

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



Norman W. Thompson, MD

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

THE OLIVER COPE MERITORIOUS ACHIEVEMENT AWARD CONT.



Jon A. van Heerden, MD

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



Orlo H. Clark, MD

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



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



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

HONORARY MEMBERS

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

J. Aidan Carney, Pathologist

Stuart D. Flynn, Pathologist

Ian D. Hay, Endocrinologist

Virginia A. LiVolsi, Pathologist

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

Thomas S. Reeve, Endocrine Surgeon

F. John Service, Endocrinologist

Britt Skogseid, Endocrinologist

R. Michael Tuttle, Endocrinologist

William F. Young, Endocrinologist

RESIDENT/FELLOW RESEARCH AWARD WINNERS & POSTER Competition Winners

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

The AAES Poster Competition was established in 2007.

1990

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

Gerard M. Doherty - Bethesda, Maryland

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

1996

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

Beth A. Ditkoff - New York, New York

"Detection of Circulating Thyroid Cells in Peripheral Blood"

1997

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

K. Michael Barry - Rochester, Minnesota

"Is Familial Hyperparathyroidism a Unique Disease"

1998

Julie Ann Sosa - Baltimore, Maryland

"Cost Implications of the Different Management Strategies for Primary Hyperparathyroidism in the US"

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

1999

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

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

2000

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

2001

Nestor F. Esnaola - Houston, Texas

"Optimal Treatment Strategy in Patients with Papillary Thyroid Cancer: A Decision Analysis"

Katherine T. Morris - Portland, Oregon

"High Dehydroepiandrosterone-Sulfate Predicts Breast Cancer Progression During New Aromatase Inhibitor Therapy and Stimulates Breast Cancer Cell Growth in Tissue Culture: A Renewed Role for Adrenalectomy"

2002

Rasa Zarnegar - San Francisco, California

"Increasing the Effectiveness of Radioactive Iodine Therapy in the Treatment of Thyroid Cancer Using Trichostatin A (TSA), A Histone Deacetylast (HDAC)"

Denise M. Carneiro - Miami, Florida

"Rapid Insulin Assay for Intraoperative Confirmation of Complete Resection of Insulinomas"

2003

Petra Musholt - Hanover, Germany

"RET Rearrangements in Archival Oxyphilic Thyroid Tumors: New Insights in Tumorigenesis and Classification of Hürthle Cell Carcinoma"

Tina W.F. Yen - Houston, Texas

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

2004

Rebecca S. Sippel - Madison, Wisconsin

"Does Propofol Anesthesia Affect Intra-Operative Parathyroid Hormone Levels During Parathyroidectomy?: A Randomized Prospective Trial"

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

2005

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

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

2006

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

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

2007

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

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

2008

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

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

Poster: Pierre Leyre - Poiters, France

"Does the Risk of Compressive Hematoma After Thyroidectomy Authorize One-Day Surgery?"

2009

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

Susan C. Pitt - Madison, Wisconsin

"Tertiary Hyperparathyroidism: Is Less Than a Subtotal Resection Ever Appropriate? A Study of Long-term Outcomes"

Poster: Matthew Nehs - Boston, Massachusetts

"Inhibition of B-RAFV600 Oncoprotein Prevents Cell Cycle Progression and Invasion In Vitro and Reduces Tumor Growth and Metastasis in an In Vivo Orthotopic Model of Thyroid Cancer"

Poster: Bian Wu - Los Angeles, California

"Utilization of Parathyroidectomy in the Elderly: A Population-Based Study"

2010

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

Matthew A. Nehs - Boston, Massachusetts

"Thyroidectomy With Neoadjuvant Plx4720 Extends Survival And Decreases Tumor Burden In An Orthotopic Mouse Model Of Anaplastic Thyroid Cancer"

Poster: Aarti Mathur - Bethesda, Maryland

"Adrenal Venous Sampling in Primary Hyperaldosteronism: Standardizing A Gold Standard"

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"

2011-2012 NEW MEMBERS

ACTIVE MEMBERS

Shaghayegh Aliabadi Portland, OR

Denise Carneiro-Pla *Charleston, SC*

Sanford Dubner Lake Success, NY

Richard Jamison *Portland, OR*

Steven Kahn *Princeton, NJ*

Kelly McCoy Pittsburgh, PA **William Mendez** San Juan, PR

Jamie Mitchell Cleveland, OH

Jacob Moalem Rochester, NY

Bryan Richmond *Charleston, WV*

Brian Saunders Hershey, PA

Joel Turner Baltimore, MD Evandro Vasconcelos Curitiba, Brazil David Velazquez-Fernandez Mexico City, Mexico

Robert Wilmoth Harrogate, TN

Linwah Yip Pittsburgh, PA

Rasa Zarnegar New York, NY

ALLIED SPECIALIST MEMBERS

lan Ganly New York, NY

Philip Ituarte Los Angeles, CA **Chau Nguyen** Ventura, CA

Bhuvanesh Singh New York, NY **Jonathan Smith** *Bronx, NY*

Ralph Tufano Baltimore, MD

CORRESPONDING MEMBERS

Youben Fan Shanghai, China

Michael Krausz Haifa, Israel **Michele Minuto** Pisa, Italy

Menno Vriens Utrecht, the Netherlands

2011-2012 NEW MEMBERS CONT.

CANDIDATE MEMBERS

Melanie Goldfarb Los Angeles, CA

Raymon Grogan Chicago, IL

Adam Kabaker Maywood, IL

Amanda Laird Ann Arbor, MI **Christine Landry** *Gilbert, AZ*

Cortney Lee *Lexington, KY*

Stacey Milan Philadelphia, PA

Elliot Mitmaker Montreal, Canada **Rashmi Roy** *Princeton, NJ*

Philip Smith Charlottesville, VA

Christina Stevenson Farmington, CT

James William Suliburk *Houston, TX*

RESIDENT FELLOW MEMBERS

Hassan Al Bisher Calgary, Canada

Maria Albuja Cruz Miami, FL

Anuradha Bhama *Iowa City, IA*

Melissa Boltz Hershey, PA

Azadeh Carr Bronx, NY

Ashley Cayo Milwaukee, WI

Naomi Chen Pittsburgh, PA

Charles Chesnut III Hershey, PA

Laura Chin-Lenn Alberta, Canada

Karen Devon Chicago, IL

Filippo Filicori New York, NY

Amy Fox Ann Arbor, MI Maher Ghanem Saginaw, MI

Stephanie Goff New York, NY

David Greenblatt Madison, WI

Hasly Harsono Cleveland, OH

Tammy Holm Boston, MA

Benjamin James Hershey, PA

Judy Jin Cleveland, OH

Kourtney Kemp Minneapolis, MN

Mio Kitano Bethesda, MD

Victoria Lai Bronx, NY

Konstantinos Makris Baltimore, MD

Haggi Mazeh Madison, WI **Rosemarie Metzger** *Cleveland, OH*

Lilah Morris Houston, TX

Barnard Palmer New York, NY

Jason Prescott Boston, MA

Reza Rahbari Oakland, CA

Meena Said Los Angeles, CA

Benjamin Sigmond *Waco, TX*

Sarah Treter New Haven, CT

Brian Untch New York, NY

Bianca Vazquez Rochester, MN

Mark Versnick St. Leonards, Australia

Dana Yip Boston, MA

2011-12 CONTRIBUTORS TO THE Paul Logerfo Educational Research Fund



Shaghayegh Aliabadi Peter Angelos Jai Balkissoon Thomas A. Broadie Samuel P. Bugis Bruce Campbell Denise Carneiro-Pla Sally E. Carty John A. Chabot Herbert Chen Mark S. Cohen Herbert E. Cohn Lawrence A. Danto Shamly Dhiman Steven A. De Jong Michael J. Demeure Ouan-Yang Duh Mete Duren Douglas B. Evans Kirk Berry Faust Allan J. Fredland Paul Gauger Randall D Gaz Melanie Goldfard Clive S. Grant John Hanks Richard J. Harding Jay K. Harness Keith Heller Richard A. Hodin William Hopkins

Dr. Paul LoGerfo passed away September 16, 2003 during his tenure as President of the AAES. Dr. LoGerfo was very interested in education and clinical research, and in his honor the AAES established the Educational Research Fund to support educational and research activities of the Membership. As of press time, the following members and organizations contributed in 2011-12:

George L. Irvin, III **Richard Jamison** Philippe Kauffmann **Electron Kebebew** Barbara K. Kinder Geeta Lal James Lee John I. Lew Steven K. Libutti Dimitrios A. Linos Chung-Yau Lo Frank LoGerfo James LoGefo Jonathan S. Lokey Dougald C. MacGillivray Llovd Mack Michael R. Marohn Greg Matzke Haggi Mazeh David McAnenv Julie McGill Christopher R. McHenry Adrienne L. Melck Barbra Miller Bradford K. Mitchell Jack M. Monchik Tricia Angeline Moo-Young Peter Mowschenson Vinod Narra Patricia J. Numann Jennifer Ogilvie Randall Paul Owen Janice L. Pasieka Subhash Patel Giao O. Phan

Douglas Politz Richard A. Prinz Doris Ouintana Melanie L. Richards **Bryan Richmond** Michael Roe Sanziana Roman Irving B. Rosen Denise Schlinkert **Richard Schlinkert** Frederic N. Sebag Ashok R. Shaha Dietmar Simon **Bhuvanesh Singh** Rebecca S. Sippel Philip W. Smith Samuel Snyder Carmen C. Solorzano Julie Ann Sosa Cord Sturgeon James Suliburk Laura A. Sznyter Geoffrey B. Thompson Doug R. Trostle Robert Udelsman James J. Vopal Tracy S. Wang Ronald D. Wenger Robert J. Wilmoth Stuart D. Wilson David J. Winchester Michael W. Yeh Tina W.F. Yen Martha A. Zeiger

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 CONT.

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 Chair: Jay K. Harness and John Kukora

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

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

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

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

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

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

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

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

SPECIAL SESSIONS



Thyroid Cancer Tumor Board

Sunday, April 29 9:30am – 10:30am Moderator: **Gerard M. Doherty, MD** Speakers: **James Howe, MD, Bryan P. McIver, MB, ChB, PhD, Sareh Parangi, MD, Sanziana Roman, MD**



What Surgeons Need To Know About Thyroid Cancer

Sunday, April 29 10:30am - 11:00am **Bryan P. McIver, MB, ChB, PhD** Mayo Clinic



Presidential Address: Training of Thyroid Surgeon – From Scalpel to Robot

Monday, April 30, 2012 9:15am - 10:00am **Ashok R. Shaha, MD** Memorial Sloan-Kettering Cancer Center

HISTORICAL LECTURER



Historical Lecture: Re-Operative Parathyroid Surgery Circa 1975

Sunday, April 29 1:00pm - 1:35pm **Murray F. Brennan, MD** Memorial Sloan-Kettering Cancer Center

Dr. Murray Brennan is an oncology surgeon with special expertise in the treatment of soft tissue sarcomas, endocrine tumors, and pancreatic and stomach cancers. He was Chairman of the Department of Surgery at Memorial Sloan-Kettering Cancer Center from 1985 until June 2006—and is currently Vice President of International Programs and Director of the Bobst International Center. Dr. Brennan has lectured throughout the world and authored or co-authored more than 1.000 scientific papers and book chapters, as well as a book on soft tissue sarcoma. He has served as Director of the American Board of Surgery, Chairman of the American College of Surgeons Commission on Cancer, President of the Society of Surgical Oncology, Vice President of the American College of Surgeons, and President of the American Surgical Association. He has been awarded Honorary Fellowships in the Royal Colleges of Surgeons in Ireland, Edinburgh, England, Australasia, and the Roval College of Physicians and Surgeons of Glasgow and Canada. Dr. Brennan has received Honorary Doctorates from the Universities of Edinburgh, Otago, Goteborg and University College of London. In 1995, Dr. Brennan was honored with membership in the Institute of Medicine of the National Academy of Sciences, and in 2000 he received the American College of Surgeons' highest award, the Distinguished Service Award.

INVITED LECTURER



Strategies for Improving Surgical Performance

Monday, April 30 11:45am - 12:20pm **Atul A. Gawande, MD, MPH** Brigham and Women's Hospital

Atul Gawande is a surgeon, writer, and public health researcher. He practices general and endocrine surgery at Brigham and Women's Hospital in Boston. He is also Associate Professor of Surgery at Harvard Medical School and Associate Professor in the Department of Health Policy and Management at the Harvard School of Public Health.

His research work currently focuses on systems innovations to transform safety and performance in surgery, childbirth, and care of the terminally ill. He serves as lead advisor for the World Health Organization's Safe Surgery Saves Lives program. He is also founder and chairman of Lifebox, an international not-for-profit implementing systems and technologies to reduce surgical deaths globally.

He has been a staff writer for the New Yorker magazine since 1998. He has written three New York Times bestselling books: COMPLICATIONS, which was a finalist for the National Book Award in 2002; BETTER, which was selected as one of the ten best books of 2007 by Amazon.com; and THE CHECKLIST MANIFESTO. He has won two National Magazine Awards, AcademyHealth's Impact Award for highest research impact on health care, a MacArthur Award, and selection by Foreign Policy Magazine and TIME magazine as one of the world's top 100 influential thinkers.

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

1993John 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

1996Victor E. Gould, MD

Rush-Presbyterian-Medical Center, Chicago, Illinois The Diffuse Neuroendocrine System: Evolution of the Concept and Impact on Surgery

1997 Bertil Hamberger, MD, PhD

Karolinska Institute, Stockholm, Sweden The Nobel Prize

1998 Susan Leeman, PhD

Boston University, Boston, Massachusetts The NeuroPeptides: Substance P and Neurotensin

1999 James Hurley, MD

Cornell University, New York, New York Post-Operative Management of Differentiated Thyroid Cancer

INVITED LECTURERS AT RECENT MEETINGS CONT

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

Andrew F. Stewart, MD 2001

University of Pittsburgh, Pittsburgh, Pennsylvania Parathyroid Hormone-Related Protein: From Hypercalcemia of Malignancy to Gene Therapy from Diabetes

2002 William F. Young Jr., MD

Mayo Clinic, Rochester, Minnesota Adrenal-Dependent Hypertension: Diagnostic Testing Insights

2003 Sissy M. Jhiang, MD

The Ohio State University, Columbus, Ohio Lessons From Thyroid Cancer: Genetics and Gene Therapy

2004 Edward R. Laws Jr, MD

University of Virginia, Charlottesville, Virginia The Diagnosis and Management of Cushing's Disease

2005 **David Duick, MD**

Phoenix, Arizona Thyroid Nodules and Mild Primary Hyperparathyroidism: Examples of Clinical Perplexities or Unresolvable Conundrums

2006 Michael Bliss, PhD

University of Toronto, Ontario, Canada Harvey Cushing and Endo-Criminology

2007 Virginia A. Livolsi, MD

University of Pennsylvania, Philadelphia, Pennsylvania Thyroid Nodule FNA and Frozen Section: Partners or Adversaries

2008 F. John Service, MD, PhD

Mayo Clinic, Rochester, Minnesota Hypoglycemia in Adults – 80th Anniversary of Hyperinsulinism

INVITED LECTURERS AT RECENT MEETINGS CONT.

2009 Jeffrey M. Trent, PhD

Translation Genomics Research Institute, Phoenix, Arizona Integrating Genetics, Genomics, and Biology Towards a More Personalized Medicine

2010 Alexander J.B. McEwan, MB

University of Alberta, Edmonton, Alberta, Canada The State of the Art of Radionucleotide Imaging and Therapy in Patients with Neuroendocrine Tumors

2011 Allan H. (Bud) Selig

9th Commissioner of Major League Baseball Major League Baseball - 2011 Economic and Health Related Issues



CONFERENCE INFORMATION

April 29-May 1, 2012 | Iowa City, IA

LEARNING OBJECTIVES

This program is designed for all endocrine surgeons seeking the latest developments in endocrine surgical technique and its related research. The intent of the program is to improve the quality of patient care and improve overall patient safety. Audience participation and interaction will be encouraged.

At the end of this activity, attendees will:

- 1. Participate in discussions, and explain current developments in the science and clinical practice of endocrine surgery.
- 2. Be able to explain practical new approaches and solutions to relevant concepts and problems in endocrine surgical care.
- 3. Have additional working knowledge to assist with existing and growing practices.
- 4. Possess additional information and recent developments as they relate to recently established guidelines and procedures.

CME CERTIFICATES AND EVALUATION FORMS

Please complete your evaluation form and return it to the AAES Registration Desk. You may pick up your CME Certificate at this time.

ACCREDITATION STATEMENT

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

AMA PRA CATEGORY 1 CREDITS™

The American College of Surgeons designates this educational activity for a maximum of **17** AMA PRA Category 1 CreditsTM. Physicians should only claim credit commensurate with the extent of their participation in the activity.



American College of Surgeons

Inspiring Quality: Highest Standards, Better Outcomes

DISCLOSURE INFORMATION

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

REGISTRATION

The Thirty-third Annual Meeting of the AAES will take place at the Sheraton Hotellowa City, lowa. Registration fees are (postmarked before April 6, 2012) \$375 for AAES members, \$425 for non-members, \$225 for residents, fellows, nurses, physician assistants, spouses/guests.

HOTEL ACCOMODATIONS

For the convenience of AAES members and guests, we have reserved rooms at the Sheraton Hotel- Iowa City. However, it is very important to make your hotel reservation early in order to assure yourself of availability.

Sheraton Hotel-Iowa City

210 S. Dubuque Street Iowa City, IA 52240 Reservations: 319-337-4058 or 1-800-848-1335

AAES Group Rate: \$129 single/double + tax Housing Cutoff: Friday, April 6, 2012

Reserve your room at the Sheraton Hotel-Iowa City. This newly renovated hotel is located in the heart of Iowa City, just steps away from the inviting historic pedestrian mall and the University of Iowa campus.

AIR TRAVEL

The closest airport is the Eastern Iowa Airport (CID), located in Cedar Rapids, IA. The airport is located approximately 25 miles from downtown Iowa City. The Quad City Airport (MLI) in Moline, IL is also located within 45 minutes of Iowa City.

GROUND TRANSPORTATION

Transportation and Shuttle Service

The best ground transportation options are airport shuttle or Marcos Taxi. Although other taxi companies are readily available outside of baggage claim, most will charge a fee to Iowa City as well as a fee for their drive back to the airport. Airport shuttles will run approximately \$38 one way and Marcos Taxis \$35 per ride. Both services require reservations at least 24 hours in advance.

Airport Shuttle Service

Telephone: 319-337-2340 Email: info@crshuttle.com Online Reservations: www.crshuttle.com

Marcos Taxis

Telephone: 319-337-8294

GROUND TRANSPORTATION CONT.

Town Car Service

Town cars are available by reservation. Cost is approximately \$80/one way. Telephone: 319-626-5466 Email: dispatch@limosbyexpress.com Website: www.limosbyexpress.com

WEATHER

Springtime in Iowa City is a variable time. Temperatures in late April range from low 70s to high 60s. For accurate weather closer to the date of the meeting, please check www. weather.com.

MEETING FORMAT

The 2012 meeting will use the "standard" AAES meeting format. The **Scientific Sessions** will commence Sunday afternoon and extend through Tuesday morning. The **Welcome Reception** will follow the Scientific Sessions on Sunday evening beginning at 7:00 pm **The Gala Reception and Dinner Banquet** will be held on Monday evening. The **Poster Competition** will take place on Tuesday morning.

CONTACTS

Ronald J. Weigel, MD, PhD

AAES 2012 Local Arrangements Chair University of Iowa Telephone: 319-353-7474 Email: ronald-weigel@uiowa.edu

American Association of Endocrine Surgeons

5019 W. 140th Street Leawood, KS 66224 Telephone: (913) 402-7102 Fax: (913) 273-9940 Email: <u>meetings@endocrinesurgery.org</u> Web: www.endocrinesurgery.org

Saturday, April 28, 2012

12:00pm Shuttle Departs for Golf, Hotel Main Lobby

1:00pm - 6:00pm **Annual Golf Outing**, Finkbine Country Club, University of Iowa, 1380 Melrose Avenue, Iowa City, IA

1:30pm Shuttle Departs for Tennis, Hotel Main Lobby

2:00pm Shuttle Departs for Amana Tour, Hotel Main Lobby

2:00pm – 5:00pm **Amana Tour,** Amana Colonies

2:00pm - 5:00pm **Annual Tennis Tournament**, Hawkeye Tennis & Recreational Complex, 2820 Prairie Medow Drive, Iowa City, IA

2:00pm - 5:00pm AAES Council Meeting, Johnson Room

9:30pm - 11:30 pm Young Endocrine Surgeons Social, Hearth, 126 East Washington Street, Iowa City, IA

Sunday, April 29, 2012

7:00am - 6:00pm **Registration Open**, Prefunction Area

7:00am Departure for Fun Run, Hotel Main Lobby

7:30am - 8:15am Fun Run to Benefit Paul LoGerfo Educational Research Fund, Iowa City Park

AGENDA CONT.

7:30am - 8:30am **Yoga,** Heartland Yoga

8:00am - 5:00pm **Speaker Ready Room**, Lucas Boardroom

8:30am - 9:30am **Program Directors Meeting**, Lindquist Theater

9:30am - 10:30am **Thyroid Cancer Tumor Board**, Amos Dean ABCD Moderator: Gerard M. Doherty, MD Speakers: James Howe, MD, Bryan P. McIver, MB, ChB, PhD, Sareh Parangi, MD, Sanziana Roman, MD

10:30am - 11:00am **What Surgeons Need to Know About Thyroid Cancer**, Amos Dean ABCD Speaker: Bryan P. McIver, MB, ChB, PhD Mayo Clinic

11:00am – 12Noon IT & Education Committee Meeting, Lucas Boardroom

11:00am - 12:30pm **Lunch - On Own**

12:30pm - 1:00pm Opening Session, Amos Dean ABCD New Member Introductions Paul LoGerfo Educational Research Award Ashok R. Shaha, MD

Memorial Sloan-Kettering Cancer Center

1:00pm - 1:35pm **Historical Lecture: Re-Operative Parathyroid Surgery Circa 1975**, Amos Dean ABCD Murray F. Brennan, MD Memorial Sloan-Kettering Cancer Center

1:35pm - 2:50pm **Scientific Session I: Papers 1-5**, Amos Dean ABCD Moderators: Sally E. Carty, MD; Jyortirmay Sharma, MD

2:30pm - 6:00pm Exhibits & Posters Viewing, Prefunction & Johnson Room

AGENDA CONT.

2:50pm - 3:15pm Afternoon Break & Exhibits & Poster Viewing, Prefunction & Johnson Room

3:15pm - 4:00pm **Scientific Session II: Papers 6-8**, Amos Dean ABCD Moderators: John Olson, Jr., MD, PhD; Linwah Yip, MD

4:00pm - 6:00pm **Interesting Cases**, Amos Dean ABCD Moderator: Thomas J. Fahey, III, MD New York Presbyterian Hospital - Weill Cornell Medical College

7:00pm - 10:00pm **AAES Welcome Reception**, Old Capitol Building, 21 Old Capitol, Iowa City, IA

Monday, April 30, 2012

7:00am – 7:45am AAES Foundation Meeting, Lucas Boardroom

7:00am - 8:00am **Continental Breakfast**, Prefunction Area

7:00am - 3:30pm Exhibits & Posters Viewing, Prefunction & Johnson Room

7:00am - 6:00pm **Registration Open**, Prefunction Area

7:30am - 5:00pm Speaker Ready Room, Lucas Boardroom

7:45am -9:00am Scientific Session III: Papers 9-13, Amos Dean ABCD Moderators: Tina W.F. Yen, MD, MS; Michael Yeh, MD

9:00am - 9:15am Introduction of President & Citation Awards, Amos Dean ABCD Thomas J. Fahey, III, MD; Ashok R. Shaha, MD

AGENDA CONT.

9:15am - 10:00am **Presidential Address: Training of Thyroid Surgeon - From Scalpel to Robot**, Amos Dean ABCD Ashok R. Shaha, MD Memorial Sloan-Kettering Cancer Center

10:00am - 10:30am Morning Break & Exhibits & Poster Viewing, Prefunction & Johnson Room

10:30am - 11:45am **Scientific Session IV: Papers 14-18**, Amos Dean ABCD Moderators: Douglas Fraker, MD; Rebecca S. Sippel, MD

11:45am - 12:20pm Invited Lecturer: Strategies for Improving Surgical Performance, Amos Dean ABCD Speaker: Atul A. Gawande, MD, MPH Brigham & Women's Hospital

12:20pm - 1:30pm **AAES Luncheon**, E.W. Lehman Grand Ballroom; hotelVetro, 201 South Linn Street, Iowa City, IA

1:30pm - 3:00pm **Scientific Session V: Papers 19-24**, Amos Dean ABCD Moderators: Per-Olof J. Hasselgren, MD; Geeta Lal, MD, MSc

3:00pm - 3:30pm Afternoon Break & Exhibits & Poster Viewing, Prefunction & Johnson Room

3:30pm - 5:00pm **Scientific Session VI: Papers 25-30**, Amos Dean ABCD Moderators: Cord Sturgeon, MD; Marybeth Hughes, MD

5:00pm - 6:00pm **AAES Business Meeting**, Amos Dean ABCD AAES voting members only

6:30pm - 7:15pm **New Members Reception**, North Room; Iowa Memorial Union By invitation

7:00pm - 10:00pm **Gala Reception and Dinner Banquet**, Iowa Memorial Union, 125 North Madison Street, Iowa City, IA

10:15pm - 11:30pm **New President's Reception**, hotelVetro, 201 South Linn Street, Iowa City, IA

Tuesday, May 1, 2012

7:00am - 8:00am **Continental Breakfast**, Prefunction Area

7:00am - 10:45am Exhibits & Posters Viewing, Prefunction & Johnson Room

7:00am - 12:30pm **Registration Open**, Prefunction Area

7:00am - 12Noon **Speaker Ready Room**, Lucas Boardroom

7:45am - 9:25am **Snap Shot Poster Presentations**, Amos Dean ABCD Moderators: Janice L. Pasieka, MD; Jennifer Rosen, MD

9:30am - 10:15am **Scientific Session VII: Papers 31-33**, Amos Dean ABCD Moderators: William Gillanders, MD; David Terris, MD

10:15am - 10:45am Morning Break & Exhibits & Poster Viewing, Prefunction & Johnson Room

10:45am - 12:30pm Scientific Session VIII: Papers 34-40, Amos Dean ABCD Moderators: Chris Raeburn, MD; Amelia Grover, MD

12:30pm Poster Award Presentation, Amos Dean ABCD

Sunday, April 29, 2012

8:30am - 9:30am Program Directors Meeting, Lindquist Theater

9:30am - 10:30am **Thyroid Cancer Tumor Board**, Amos Dean ABCD Moderator: Gerard M. Doherty, MD Speakers: James Howe, MD, Bryan P. McIver, MB, ChB, PhD, Sareh Parangi, MD, Sanziana Roman, MD

10:30am - 11:00am **What Surgeons Need to Know About Thyroid Cancer**, Amos Dean ABCD Speaker: Bryan P. McIver, MB, ChB, PhD Mayo Clinic

11:00am - 12:30pm Lunch - On Own

12:30pm - 1:00pm Opening Session, Amos Dean ABCD New Member Introductions Paul LoGerfo Educational Research Award Ashok R. Shaha, MD

Memorial Sloan-Kettering Cancer Center

1:00pm - 1:35pm **Historical Lecture: Re-Operative Parathyroid Surgery Circa 1975**, Amos Dean ABCD Murray F. Brennan, MD Memorial Sloan-Kettering Cancer Center

1:35pm - 2:50pm **Scientific Session I: Papers 1-5**, Amos Dean ABCD Moderators: Sally E. Carty, MD; Jyortirmay Sharma, MD

1:35pm - 1:50pm *1. PRACTICE PATTERNS AND JOB SATISFACTION IN FELLOWSHIP-TRAINED ENDOCRINE SURGEONS **Michael Tsinberg, MD**, Quan-Yang Duh, MD, Robin M. Cisco, MD, Jessica E. Gosnell, MD, Anouk Scholten, MD, Orlo H. Clark, MD, Wen T. Shen, MD University of California, San Francisco

1:50pm - 2:05pm **2.** PROSPECTIVE EVALUATION OF SELECTIVE VS IPSILATERAL VS BILATERAL CENTRAL NECK DISSECTION IN PATIENTS WITH CLINICALLY NODE NEGATIVE PAPILLARY THYROID CARCINOMA Celestino P. Lombardi, MD, Carmela De Crea, MD, Luca Sessa, MD, Piero Giustacchini, MD, Luca Revelli, MD, Rocco Bellatone, MD, **Marco Raffaelli, MD** U.O. Chirurgia Generale ed Endocrina - Policlinico A. Gemelli Università Cattolica del Sacro Cuore

2:05pm - 2:20pm ***3.** NONFUNCTIONING ASYMPTOMATIC PANCREATIC NEUROENDOCRINE TUMORS (PNETS): ROLE FOR NONOPERATIVE MANAGEMENT **Louis C. Lee, MD**, Clive S. Grant, MD, Joel G. Fletcher, MD, Michael J. Levy, MD, Diva R. Salomao, MD, Marianne Huebner, PhD Mayo Clinic

2:20pm - 2:35pm *4. SHOULD BRAF MUTATION STATUS BE USED TO DETERMINE EXTENT OF SURGERY FOR PATIENTS WITH PAPILLARY THYROID CANCER? Kathleen C. Lee, BSE, Carol Li, BSE, Eric Schneider, PhD, Yongchun Wang, MD, PhD, Helina Somervell, MSN, CRNP, Matthew Krafft, BS, Christopher B. Umbricht, MD, PhD, Martha A. Zeiger, MD Johns Hopkins University School of Medicine

2:35pm - 2:50pm ***5.** BRAF V600E STATUS ADDS INCREMENTALLY TO CURRENT RISK CLASSIFICATION SYSTEMS IN PREDICTING PAPILLARY THYROID CARCINOMA RECURRENCE

Jason D. Prescott, MD, PhD, Peter M. Sadow, MD, PhD, Richard A. Hodin, MD, Long Phi Le, MD, PhD, Randall D. Gaz, MD, Gregory W. Randolph, MD, Antonia E. Stephen, MD, Sareh Parangi, MD, Gilbert H. Daniels, MD, Carrie C. Lubitz, MD Massachusetts General Hospital

2:30pm - 6:00pm Exhibits & Posters Viewing, Prefunction & Johnson Room

2:50pm - 3:15pm

Afternoon Break & Exhibits & Poster Viewing, Prefunction & Johnson Room

3:15pm - 4:00pm **Scientific Session II: Papers 6-8**, Amos Dean ABCD Moderators: John Olson, Jr., MD, PhD; Linwah Yip, MD

 ADRENALECTOMY MAY IMPROVE QUALITY OF LIFE AND AMELIORATE METABOLIC AND CARDIOVASCULAR IMPAIRMENT IN ADRENAL INCIDENTALOMAS WITH SUBCLINICAL CUSHING'S SYNDROME
 Maurizio Iacobone, MD, Marilisa Citton, MD, Giovanni Viel, MD, Riccardo Boetto, MD, Italo Bonadio, MD, Isabella Mondi, MD, Saveria Tropea, MD, Donato Nitti, MD, Gennaro Favia, MD

University of Padua

3:30pm - 3:45pm

***7.** GPCR GENE EXPRESSION PROFILING DISCRIMINATES ILEAL FROM PANCREATIC NEUROENDOCRINE TUMOR PRIMARIES

Jennifer C. Carr, MD, Erin A. Boese, Fadi S. Dahdaleh, MD, Molly Martin, PhD, Junlin Liao, Thomas M. O'Dorisio, MD, M. Sue O'Dorisio, MD, James R. Howe, MD University of Iowa

3:45pm - 4:00pm

***8.** IS MINIMALLY INVASIVE PARATHYROIDECTOMY ASSOCIATED WITH HIGHER RECURRENCE COMPARED TO BILATERAL EXPLORATION? ANALYSIS OF OVER 1,000 CASES.

David F. Schneider, MD, Haggi Mazeh, MD, Rebecca S. Sippel, MD, Herbert Chen, MD University of Wisconsin

4:00pm - 6:00pm **Interesting Cases**, Amos Dean ABCD Moderator: Thomas J. Fahey, III, MD New York Presbyterian Hospital - Weill Cornell Medical College

^{*} Denotes Resident/Fellow Research Award Competition Paper

Monday, April 30, 2012

7:45am -9:00am **Scientific Session III: Papers 9-13**, Amos Dean ABCD Moderators: Tina W.F. Yen, MD, MS; Michael Yeh, MD

7:45am - 8:00am *9. ROBOTIC AND ENDOSCOPIC TRANSAXILLARY THYROIDECTOMIES MAY BE COST PROHIBITIVE WHEN COMPARED TO STANDARD CERVICAL THYROIDECTOMY: A COST ANALYSIS Jennifer C. Cabot, MD, Cho Rok Lee, MD, Laurent Brunaud, MD, Woong Youn Chung, MD, Thomas J. Fahey III, MD, Rasa Zarnegar, MD New York Presbyterian Hospital - Weill Cornell Medical College

8:00am - 8:15am

*10. UTILITY OF ORAL NICARDIPINE AND MAGNESIUM SULFATE INFUSION DURING PREPARATION AND RESECTION OF PHEOCHROMOCYTOMAS.

Hasan K. Siddiqi, AB, Amanda M. Laird, MD, Amy C. Fox, MD, Gerard M. Doherty, MD, Barbra S. Miller, MD, Paul G. Gauger, MD University of Michigan

8:15am - 8:30am

11. VALIDATION OF FIVE MINUTE INTRAOPERATIVE PARATHYROID HORMONE CRITERIA FOR EARLY TERMINATION OF DIRECTED PARATHYROIDECTOMY Sarah C. Oltmann, MD, Linda Hynan, PhD, Jason Tcheng, MD, Jennifer L. Rabaglia, MD, Shelby A. Holt, MD, Fiemu E. Nwariaku, MD, Stacey L. Woodruff, MD University of Texas Southwestern Medical Center

8:30am - 8:45am

***12.** YIELD OF REPEAT FINE NEEDLE ASPIRATION BIOPSY AND RATE OF MALIGNANCY IN PATIENTS WITH ATYPIA OR FOLLICULAR LESION OF UNDETERMINED SIGNIFICANCE: THE IMPACT OF THE BETHESDA SYSTEM FOR REPORTING THYROID CYTOPATHOLOGY

Joy C. Chen, MS, Stanley C. Pace, MD, Amer Khiyami, MD, Boris A. Chen, BS, Christopher R. McHenry, MD MetroHealth Medical Center, Case Western Reserve University

8:45am - 9:00am **13.** STRATEGIC COMBINATION THERAPY OVERCOMES TYROSINE KINASE COACTIVATION IN ADRENOCORTICAL CARCINOMA **Daniel T. Ruan, MD**, Chi-Iou Lin, PhD, Edward E. Whang, MD, Jacob Moalem, MD Brigham and Women's Hospital

9:00am - 9:15am Introduction of President & Citation Awards, Amos Dean ABCD Thomas J. Fahey, III, MD; Ashok R. Shaha, MD

9:15am - 10:00am **Presidential Address: Training of Thyroid Surgeon - From Scalpel to Robot**, Amos Dean ABCD Ashok R. Shaha, MD Memorial Sloan-Kettering Cancer Center

10:00am - 10:30am **Morning Break & Exhibits & Poster Viewing**, Prefunction & Johnson Room

10:30am - 11:45am **Scientific Session IV: Papers 14-18**, Amos Dean ABCD Moderators: Douglas Fraker, MD; Rebecca S. Sippel, MD,

10:30am - 10:45am ***14.** CHANGES IN BONE DENSITY AFTER SURGERY FOR PRIMARY HYPERPARATHYROIDISM

Benzon M. Dy, MD, Melanie L. Richards, MD, Ann E. Kearns, MD, Robert A. Wermers, MD, William S. Harmsen, MS, Marianne Huebner, PhD, Geoffrey B. Thompson, MD, David R. Farley, MD, Clive Grant, MD Mayo Clinic

10:45am - 11:00am

***15.** PREDICTING THE NEED FOR CALCIUM AND CALCITRIOL SUPPLEMENTATION AFTER TOTAL THYROIDECTOMY: RESULTS OF A PROSPECTIVE, RANDOMIZED STUDY

Ashley K. Cayo, MD, Tina W.F. Yen, MD, Sarah M. Misustin, PA-C, Kimberly Wall, APNP, Stuart D. Wilson, MD, Douglas B. Evans, MD, Tracy S. Wang, MD Medical College of Wisconsin

11:00am - 11:15am

***16.** PASIREOTIDE (SOM230) IS EFFECTIVE FOR THE TREATMENT OF PANCREATIC NEUROENDOCRINE TUMORS IN A MULTIPLE ENDOCRINE NEOPLASIA TYPE 1 CONDITIONAL KNOCKOUT MOUSE MODEL

Thomas J. Quinn, BS, Ziqiang Yuan, MD, Asha Adem, BS, David T. Hughes, MD, Herbert Schmid, PhD, Steven K. Libutti, MD Albert Einstein College of Medicine

^{*} Denotes Resident/Fellow Research Award Competition Paper

11:15am - 11:30am **17.** THYROIDECTOMY FOLLOWED BY FOSBRETABULIN (CA4P) COMBINATION REGIMEN APPEARS TO SUGGEST IMPROVEMENT IN PATIENT SURVIVAL IN ANAPLASTIC THYROID CANCER **Julie A. Sosa, MD**, Jai Balkissoon, MD, Shiao-ping Lu, MS, Peter Langecker, MD, Rossella Elisei, MD, Barbara Jarzab, MD, C.S. Bal, MD, Shanthi Marur, MD, Ann Gramza, MD, Frank Ondrey, MD OXIGENE, Inc.

11:30am - 11:45am ***18.** LAPAROSCOPIC APPROACH TO ADRENALECTOMY: PROTECTIVE AGAINST DEATH AND ICU LEVEL COMPLICATIONS? **Laura I. Eichhorn-Wharry, MD**, Gary B. Talpos, MD, Ilan Rubinfeld, MD Henry Ford Hospital

11:45am - 12:20pm

Invited Lecturer: Strategies for Improving Surgical Performance, Amos Dean ABCD Speaker: Atul A. Gawande, MD, MPH Brigham & Women's Hospital

12:20pm - 1:30pm AAES Luncheon, E.W. Lehman Grand Ballroom; hotelVetro

1:30pm - 3:00pm **Scientific Session V: Papers 19-24**, Amos Dean ABCD Moderators: Per-Olof J. Hasselgren, MD; John Phay, MD

1:30pm - 1:45pm **19.** UNDETECTABLE THYROGLOBULIN FOLLOWING TOTAL THYROIDECTOMY IN PATIENTS WITH LOW AND INTERMEDIATE RISK PAPILLARY THYROID CANCER- IS THERE A NEED FOR RAI?

Tihana Ibrahimpasic, MD, Iain J. Nixon, MD, Snehal G. Patel, MD, Frank L. Palmer, BA, Monica M. Whitcher, BA, Robert M Tuttle, MD, Ashok R. Shaha, MD, Jatin P Shah, MD, Ian Ganly, MD, PhD Memorial Sloan Kettering Cancer Center 1:45pm - 2:00pm

***20.** VON HIPPEL-LINDAU DISEASE-ASSOCIATED SOLID MICROCYSTIC ADENOMAS MASQUERADING AS PANCREATIC NEUROENDOCRINE TUMORS

Simon Turcotte, MD, Baris Turkbey, MD, Stephanie Barak, MD, Steven K. Libutti, MD, H. Richard Alexander, MD, W. Marston Linehan, MD, Marybeth S. Hughes, MD, Naris Nilubol, MD, Corina Millo, MD, Martha Quezado, MD, Peter L. Choyke, MD, Electron Kebebew, MD, Giao Q. Phan, MD

National Institutes of Health, National Cancer Institute

2:00pm - 2:15pm

21. TO THYROID NODULES: A HIGH RESOLUTION-MAGIC ANGLE SPINNING NUCLEAR MAGNETIC RESONANCE (HRMAS NMR)-BASED STUDY **Paolo Miccoli, MD**, Liborio Torregrossa, MD, Laetitia Shintu, PhD, Alvicler Magalhaes, Jima Nambiath Chandran, Aura Tintaru, Clara Ugolini, MD, PhD, Michele N. Minuto, MD, PhD, Fulvio Basolo, MD, Stefano Caldarelli, PhD University of Pisa

2:15pm - 2:30pm **22.** A COST-EFFECTIVENESS ANALYSIS OF ADRENALECTOMY FOR NON-FUNCTIONAL, ADRENAL INCIDENTALOMAS: IS THERE A SIZE THRESHOLD FOR RESECTION?

Tracy S. Wang, MD, MPH, Kevin Cheung, MD, Sanziana A. Roman, MD, Julie A. Sosa, MD, MA

Yale University School of Medicine

2:30pm - 2:45pm ***23.** SAME DAY THYROIDECTOMY PROGRAM: ELIGIBILITY AND SAFETY EVALUATION **Haggi Mazeh, MD**, Qasim Khan, MBBS, David F. Schneider, MD, MS, Sarah Schaefer, NP, Rebecca S. Sippel, MD, Herbert Chen, MD

University of Wisconsin

2:45pm - 3:00pm

24. AUTOPHAGIC ACTIVATION POTENTIATES THE ANTIPROLIFERATIVE EFFECTS OF TYROSINE KINASE INHIBITORS IN MEDULLARY THYROID CANCER Chi-lou Lin, PhD, Edward E. Whang, MD, Jochen H. Lorch, MD, Daniel T. Ruan, MD Brigham and Women's Hospital

3:00pm - 3:30pm

Afternoon Break & Exhibits & Poster Viewing, Prefunction & Johnson Room

^{*} Denotes Resident/Fellow Research Award Competition Paper

3:30pm - 5:00pm Scientific Session VI: Papers 25-30, Amos Dean ABCD Moderators: Cord Sturgeon, MD; Marybeth Hughes, MD

3:30pm - 3:45pm

25. RESECTION IS LESS COMPLETE AND LOCAL RECURRENCE OCCURS SOONER AND MORE OFTEN AFTER LAPAROSCOPIC ADRENALECTOMY THAN AFTER OPEN ADRENALECTOMY FOR ADRENOCORTICAL CARCINOMA

Barbra S. Miller, MD, Paul G. Gauger, MD, Gerard M. Doherty, MD University of Michigan

3:45pm - 4:00pm

26. OPEN VERSUS ENDOSCOPIC ADRENALECTOMY IN THE TREATMENT OF LOCALIZED (STAGE I/II) ADRENOCORTICAL CARCINOMA – RESULT OF A MULTI-INSTITUTIONAL ITALIAN SURVEY

Celestino P. Lombardi, MD, Marco Raffaelli, MD,Francesco Pennestri', MD, Rocco Bellatone, MD, Carmela De Crea, MD and the SICO Study Group on the Adrenal Tumors U.O. Chirurgia Generale ed Endocrina - Policlinico A. Gemelli Università Cattolica del Sacro Cuore

4:00pm - 4:15pm

*27. LONG-TERM FOLLOW UP DATA MAY HELP MANAGE PATIENT AND PARENT EXPECTATIONS FOR PEDIATRIC PATIENTS UNDERGOING THYROIDECTOMY Lilah F. Morris, MD, Elizabeth G. Grubbs, MD, Carla Warneke, PhD, Steven G. Waguespack, MD, Haengrang Ryu, MD, Anita K. Ying, MD, Erich M. Sturgis, MD, Gary L. Clayman, MD, Jeffrey E. Lee, MD, Nancy D. Perrier, MD The University of Texas MD Anderson Cancer Center

4:15pm - 4:30pm

28. NEUROKININ A LEVELS PREDICT SURVIVAL IN PATIENTS WITH WELL DIFFERENTIATED SMALL BOWEL NEUROENDOCRINE TUMORS
Anne E. Diebold, BS, J. Philip Boudreaux, MD, Yi-Zarn Wang, DDS, MD, Lowell B.
Anthony, MD, Ann Porter Uhlhorn, RN, Pamela Ryan, BSN, RN, Eugene A. Woltering, MD

LSU Health Sciences Center

4:30pm - 4:45pm

*29. EXTENT OF MODIFIED RADICAL NECK DISSECTION FOR PAPILLARY THYROID CANCER DOES NOT INFLUENCE LATERAL NECK RECURRENCE Maria B. Albuja Cruz, MD, John I. Lew, MD, Steven E. Rodgers, MD, PhD University of Miami Miller School of Medicine 4:45pm - 5:00pm ***30.** CALCULATING AN INDIVIDUAL MAXPTH TO AID DIAGNOSIS OF NORMOCALCEMIC PRIMARY HYPERPARATHYROIDISM **Judy Jin, MD**, Jamie Mitchell, MD, Joyce Shin, MD, Eren Berber, MD, Allan E. Siperstein, MD, Mira Milas, MD Cleveland Clinic

5:00pm - 6:00pm **AAES Business Meeting**, Amos Dean ABCD AAES voting members only

* Denotes Resident/Fellow Research Award Competition Paper

Tuesday, May 1, 2012

7:00am - 8:00am **Continental Breakfast**, Prefunction Area

7:00am - 10:45am **Exhibits & Posters Viewing**, Prefunction & Johnson Room

7:00am - 12:30pm **Registration Open**, Prefunction Area

7:00am - 12Noon **Speaker Ready Room**, Lucas Boardroom

7:45am - 9:25am **Snap Shot Poster Presentations**, Amos Dean ABCD Moderators: Janice L. Pasieka, MD; Jennifer Rosen, MD

7:45am - 7:55am

***P1.** THE ROLE OF SHEAR-WAVE ULTRASOUND ELASTOGRAPHY IN ESTIMATING CANCER RISK AND DETERMINING THE EXTENT OF SURGERY IN PATIENTS WITH INDETERMINATE THYROID NODULES

Jason D. Prescott, MD, PhD, Manish Dhyani, MD, Anthony Samir, MD, Hanna Arellano, BS, Richard A. Hodin, MD, Randall D. Gaz, MD, Gregory W. Randolph, MD, David Zurakowski, PhD, Dianne M. Finkelstein, PhD, Sareh Parangi, MD, **Antonia E. Stephen, MD**

Massachusetts General Hospital

7:55am - 8:05am

P2. USE OF MOLECULAR MARKERS ON FNA BIOPSIES OF THYROID NODULES, AS RECOMMENDED BY RECENT ATA GUIDELINE, MODIFIES SURGICAL TREATMENT OF THYROID NODULES AND THYROID CANCER

Alexander L. Shifrin, MD, Cindy Huang, MD, Danielle Lann, MD, Sunil Asnani, MD Jersey Shore University Medical Center

8:05am - 8:15am

***P3.** THE LONG TERM PREDICTIVE VALUE OF ADRENAL VEIN SAMPLING IN PATIENTS OPERATED FOR CONN'S SYNDROME WITH A KNOWN, CONCURRENT, CONTRALATERAL INCIDENTALOMA

Jacqueline I. Lee, MD, Sarah C. Oltmann, MD, Stacey Woodruff, MD, Fiemu E. Nwariaku, MD, Shelby Holt, MD, Jennifer Rabaglia, MD University of Texas Southwestern Medical Center

8:15am – 8:25am ***P4**. TOXIC NODULAR GOITER AND CANCER: A COMPELLING CASE FOR THYROIDECTOMY **J. Joshua Smith**, **MD**, David F. Schneider, MD, Rebecca S. Sippel, MD, Herbert Chen, MD, James T. Broome, MD, Carmen C. Solorzano, MD Vanderbilt University

8:25am - 8:35am **P5.** SHOULD LATERAL NECK DISSECTION BE PROPOSED TO ALL THE PATIENTS WITH SPORADIC MEDULLARY THYROID CARCINOMA? Marco Raffaelli, MD, **Carmela De Crea, MD**, Valentina Milano, MD, Emanuela Traini, MD, Annamaria D'Amore, MD, Guido Fadda, MD, Rocco Bellatone, MD, Celestino P. Lombardi, MD, U.O. Chirurgia Generale ed Endocrina - Policlinico A. Gemelli Università Cattolica del Sacro Cuore

8:35am - 8:45am ***P6.** PARATHYROID CRYOPRESERVATION FOLLOWING PARATHYROIDECTOMY: A WORTHWHILE PRACTICE?

Kevin Shepet, BS, Reid Usedom, Rebecca S. Sippel, MD, Herbert Chen, MD University of Wisconsin

8:45am - 8:55am ***P7.** COST AND EFFICACY OUTCOMES OF TRANSAXILLARY ENDOSCOPIC THYROIDECTOMY WITH AND WITHOUT ROBOTIC ASSISTANCE **Barnard J. Palmer, MD**, Hannah Lowe, BA, Kee-Hyun Nam, MD, Bernadette Laxa, MD, Randall P. Owen, MD, William B. Inabnet, MD Mount Sinai School of Medicine

8:55am - 9:05am **P8**. COMBINATION THERAPY IS NECESSARY TO TREAT TYROSINE KINASE COACTIVATION IN MEDULLARY THYROID CANCER **Lutske Lodewijk, MD**, Chi-Iou Lin, PhD, Menno R. Vriens, MD, Jinyan Du, PhD, Edward E. Whang, MD, Daniel T. Ruan, MD Brigham and Women's Hospital

9:05am – 9:15am **P9.** PROGNOSTIC PARAMETERS AFTER SURGERY FOR ADRENAL METASTASIS: A SINGLE INSTITUTION EXPERIENCE **Ivan R. Paunovic , MD**, Vladan R.Zivaljevic, MD, Aleksandar Dj.Diklic, MD, Katarina M. Tausanovic, MD, Radenko M.Stojanic, MD, Sandra B. Sipetic, MD Center for Endocrine Surgery, Clinical Center of Serbia, Belgrade, Serbia, Medical School University of Belgrade. Belgrade. Serbia

* Denotes Resident/Fellow Research Award Competition Paper

9:15am - 9:25am **P10.** IMAGE-GUIDED ABLATION OF LOCAL RECURRENT AND DISTANT FOCAL METASTATIC WELL-DIFFERENTIATED THYROID CANCER Jeffrey P. Guenette, BA, **Jack M. Monchik, MD**, Damian E. Dupuy, MD Warren Alpert School of Medicine at Brown University

9:30am - 10:15am **Scientific Session VII: Papers 31-33**, Amos Dean ABCD Moderators: William Gillanders, MD; David Terris, MD

9:30am - 9:45am **31.** INTRA-THYROIDAL PARATHYROID GLANDS; SMALL, BUT MIGHTY (A NAPOLEON PHENOMENON)

Guennadi Kouniavsky, MD, Haggi Mazeh, MD, David F. Schneider, MD, MS, Konstantinos Markis, MD, Rebecca S. Sippel, MD, Alan P.B. Dackiw, MD, Herbert Chen, MD, Martha A. Zeiger, MD Johns Hopkins University School of Medicine

9:45am - 10:00am **32.** TELOMERE LENGTH IS SHORTER IN AFFECTED MEMBERS WITH FAMILIAL NONMEDULLARY THYROID CANCER Mei He, MD, Brent Bian, Krisana Gesuwan, CRNP, Neelam Gulati, **Naris Nilubol, MD**, Electron Kebebew, MD National Institutes of Health, National Cancer Institute

10:00am - 10:15am

33. UNIQUE AGE-RELATED VARIATIONS IN THE PROPORTION OF PATIENTS WITH PERSISTENT DISEASE AND IN THYROGLOBULIN-DOUBLING TIME IN PATIENTS WITH PAPILLARY THYROID CARCINOMA AFTER TOTAL THYROIDECTOMY **Akira Miyauchi, MD**, Takumi Kudo, MD, Yukiko Tsushima, MD, Osamu Yamada, MD, Hiroo Masuoka, MD, Tomonori Yabuta, MD, Mitsuhiro Fukushima, MD, Minoru Kihara, MD, Takuya Higashiyama, MD, Yuuki Takamura, MD, Yasuhiro Ito, MD, Kaoru Kobayashi, MD, Akihoro Miya, MD Kuma Hospital

10:15am - 10:45am Morning Break & Exhibits & Poster Viewing, Prefunction & Johnson Room

10:45am - 12:30pm **Scientific Session VIII: Papers 34-40**, Amos Dean ABCD Moderators: Chris Raeburn, MD; Amelia Grover, MD

10:45am - 11:00am **34.** SHOULD PATIENTS WITH COWDEN SYNDROME UNDERGO PROPHYLACTIC THYROIDECTOMY? Mira Milas, MD, Jessica Mester, MS, **Rosemarie Metzger, MD, MPH**, Joyce Shin, MD, Jamie Mitchell, MD, Eren Berber, MD, Allan E. Siperstein, MD, Charis Eng, MD, PhD Cleveland Clinic

11:00am - 11:15am **35.** IS PRIOR SAME QUADRANT SURGERY A CONTRAINDICATION TO LAPAROSCOPIC ADRENALECTOMY?

Amanda Amin, MD, Haggi Mazeh, MD, Alexander B. Froyshteter, BA, Tracy Wang, MD, MPH, Douglas Evans, MD, Rebecca S. Sippel, MD, Herbert Chen, MD, Tina W. F. Yen, MD

Medical College of Wisconsin

11:15am - 11:30am

36. INVASION IN FOLLICULAR THYROID CANCER (FTC) CELL LINES IS MEDIATED BY EPHA2 AND PAKT

Yunxia O'Malley, PhD, Geeta Lal, MD, James R. Howe, MD, Ronald J. Weigel, MD, PhD, **Sonia L. Sugg, MD**

University of Iowa

11:30am - 11:45am **37.** OPEN VERSUS LAPAROSCOPIC LIVER RESECTION: THE OPTIMAL TREATMENT FOR HEPATIC METASTASES FROM CARCINOID TUMORS Emad Kandil, MD, Salem I. Noureldine, MD, Alan Koffron, MD, Bob Saggi, MD, Lu Yao, MPH, Robert Cannon, MD, **Joseph F. Buell, MD** Tulane University School of Medicine

11:45am - 12Noon **38.** GASTRO-ESOPHAGEAL REFLUX DISEASE SYMPTOMS IMPROVE SIGNIFICANTLY AFTER PARATHYROIDECTOMY

Alexandra E. Reiher, MD, Haggi Mazeh, MD, Sarah Schaefer, NP, Jon Gould, MD, Herbert Chen, MD, Rebecca S. Sippel, MD NorthShore University HealthSystem

12Noon - 12:15pm **39.** NOVEL WITHANOLIDES TARGET MEDULLARY THYROID CANCER THROUGH INHIBITION OF BOTH RET PHOSPHORYLATION AND THE MTOR PATHWAY Abbas K. Samadi, PhD, Haoping Zhang, PhD, Robert J. Gallagher, PhD, G. Rao, PhD, Kelly Kindscher, PhD, Barbara N. Timmermann, PhD, **Mark S. Cohen, MD** University of Kansas Medical Center

12:15pm - 12:30pm

40. UNILATERAL ADRENAL HYPERPLASIA: A NOVEL CAUSE OF SURGICALLY CORRECTABLE PRIMARY HYPERALDOSTERONISM.

Marilisa Citton, MD, Maurizio Iacobone, MD, Giovanni Viel, MD, Riccardo Boetto, MD, Italo Bonadio, MD, Saveria Tropea, MD, Sasa Sekulovic, MD Franco Mantero, MD, Gianpaolo Rossi, MD, Ambrosio Fassina, MD, Donato Nitti, MD, Gennaro Favia, MD University of Padua

12:30pm Poster Award Presentation, Amos Dean ABCD

The American Association of Endocrine Surgeons $$33^{\rm rd}$$ Annual Meeting



ABSTRACTS

* Denotes Resident/Fellow Research Award Competition Paper

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

ABSTRACTS

*1. PRACTICE PATTERNS AND JOB SATISFACTION IN FELLOWSHIP-TRAINED ENDOCRINE SURGEONS

Michael Tsinberg, MD, Quan-Yang Duh, MD, Robin M. Cisco, MD, Jessica E. Gosnell, MD, Anouk Scholten, MD, Orlo H. Clark, MD, Wen T. Shen, MD University of California, San Francisco

Background: There are currently 19 Endocrine Surgery fellowships in the United States and Canada, graduating 21 endocrine surgeons per year. Debates about the difficult job market for young endocrine surgeons take place every year. Many newly-trained endocrine surgeons consider taking only academic jobs in major medical centers, which usually have limited open positions. The purpose of this study was to survey fellowshiptrained endocrine surgeons and analyze their practice patterns and work-related satisfaction levels

Methods: Graduates of Endocrine Surgery fellowship programs identified using the American Association of Endocrine Surgeons website. An anonymous survey was sent via email. Participants were divided in three groups based on time since fellowship graduation: "young" (3 years in practice), "middle" (5 years in practice) and "older" (more than 5 years in practice). Results were analyzed using JMP statistical software. Data expressed as mean 4SEM

Results: The survey was sent to 78 fellowship-trained endocrine surgeons. Fifty-six (72%) responded to the survey. Time since fellowship graduation varied between 1 and 9 years (mean 3.940.28). Forty-five surgeons (80%) described their practice as academic and 11 (20%) as private. The total number of operations done in the last 12 months was 244.1417.8, of which 75.4%43.3 were endocrine cases. There were 24 surgeons in the "young" group (43%), 20 in the "middle" group (36%) and 12 in the "older" group (21%). More surgeons in the "young" group are practicing in academic settings (92%) and joined established Endocrine Surgery groups (54%) as compared to the "older" group (67% and 42%), (p=0.05). Only 4% of surgeons in the "young" group started their own practice vs. 33% in the "older" group (p=0.04). Level of satisfaction with financial compensation and lifestyle was also higher in the younger group: on a scale of 1 to 4, the mean score of satisfaction with financial compensation was 3.2 in the "older" group ys. 2.9 in the "older" group, satisfaction with lifestyle was 3.6 vs. 3.1 (p=0.009)

Conclusions: Despite widespread speculation about the difficulty of finding an academic job after fellowship training, recently-trained endocrine surgeons are more likely to practice in academic settings and join established Endocrine Surgery practices when compared to older fellowship-trained endocrine surgeons. Overall satisfaction level with lifestyle and financial compensation is higher in recently-trained surgeons.

2. PROSPECTIVE EVALUATION OF SELECTIVE VS IPSILATERAL VS BILATERAL CENTRAL NECK DISSECTION IN PATIENTS WITH CLINICALLY NODE NEGATIVE PAPILLARY THYROID CARCINOMA Celestino P. Lombardi, MD, Carmela De Crea, MD, Luca Sessa, MD, Piero Giustacchini, MD, Luca Revelli, MD, Rocco Bellatone, MD, **Marco Raffaelli, MD** U.O. Chirurgia Generale ed Endocrina - Policlinico A. Gemelli Università Cattolica del Sacro Cuore

Background: The role of central compartment node dissection (CCD) for papillary thyroid carcinoma (PTC) in patients without any preoperative evidence of lymph node involvement (cNO) is controversial. Selective removal of enlarged nodes and prophylactic ipsilateral or bilateral CCD have been proposed, but prospective studies comparing the 3 approaches are lacking.

Methods: 186 patients with clinically unifocal and NO PTC who underwent surgery between March 2008 and October 2010 were prospectively assigned to 1 of the 3 following surgical procedures: total thyroidectomy (TT) (with/without selective removal of enlarged central compartment nodes), TT plus ipsilateral CCD (TT-IpsiCCD) and TT plus bilateral CCD (TT-BilCCD).

Results: The 3 groups included 62 patients each. No significant difference was found among them concerning age, sex, tumor size, pT and microscopic multifocal disease (P=NS). Operative time was significantly longer for ipsi- or bilateral CCD (P<0.001). Significantly more patients in the TT-BilCCD group had transient hypocalcemia than in the TT and TT-IpsiCCD groups (35 Vs 11 Vs 18, respectively – P <0.001). One patient in the TT-BilCCD experienced definitive hypoparathyroidism (P=NS). One transient and 1 definitive unilateral laryngeal nerve palsy were registered in the TT-IpsiCCD group (P=NS). No other complication occurred. Significantly more patients in the TT-BilCCD and TT-IpsiCCD groups showed node metastases than those in the TT (26 Vs 18 Vs 6 – P<0.001). The mean number of removed (12.7 Vs 1.5 Vs 6.5) and metastatic nodes (1.0 Vs 0.1 Vs 0.5) was significantly larger for TT-BilCCD than for TT and TT-IpsiCCD groups, respectively. 6/26 (23%) N1 patients in the TT-bilCCD group had bilateral metastases. No significant difference was found among the 3 groups concerning mean postoperative basal (0.1 Vs 0.1 Vs 0.1) and stimulated thyroglobulin (3.1 Vs 3.5 Vs 1.7 ng/ml) and mean post-operative radioiodine uptake (2.9% Vs 3.0% Vs 2.0%) (P=NS). At a mean follow up of 25.1 months, 1 patient in the TT-IpsiCCD experienced recurrent disease (P=NS).

Conclusions: TT seems an adequate treatment for cNO PTC, but the follow up is too short to draw definitive conclusions. CCD could be considered for better selection of patients for radioiodine treatment. Because of the lower rate of transient hypocalcemia, ipsilateral CCD could be the preferred option, but it implies the risk of overlooking contralateral metastases in about one fourth of the patients.

***3.** NONFUNCTIONING ASYMPTOMATIC PANCREATIC NEUROENDOCRINE TUMORS (PNETS): ROLE FOR NONOPERATIVE MANAGEMENT **Louis C. Lee, MD**, Clive S. Grant, MD, Joel G. Fletcher, MD, Michael J. Levy, MD, Diva R. Salomao, MD, Marianne Huebner, PhD Mayo Clinic

Background: Controversy exists regarding optimal management of incidentally discovered, small PNETs. While some authors uniformly advocate resection of these tumors, others question the positive effect of surgery for small PNETs. Our aim was to review the characteristics and outcomes of patients who underwent resection. More importantly, we reviewed a cohort of patients with PNETs who were followed nonoperatively. To our knowledge, such a cohort has not been reported.

Methods: We retrospectively reviewed patients with nonfunctioning PNETs at our institution from 1/1/2000-6/30/2011. Patients were included if the tumor was <4 cm without local invasion or metastases (tumors confined to stages I and IIa of the European Neuroendocrine Tumors Society-TNM system). Patients with familial disorders were excluded. Follow-up (F/U) for the nonoperative group (Nonop) began when tumor was first seen on imaging, including when noted in retrospect. The operative group (Op) F/U date began at operation. F/U end date was obtained from the patient's chart or by direct contact.

Results: Study patients (n=134) were separated into Nonop (n=77) and Op (n=57). Nonop patients (median age 67; range 31-94) had a median tumor size of 1.0 cm (range 0.3-4.0 cm). Excluding 5 patients with no F/U, mean F/U was 52 months (range 2-154 months). Median tumor size did not change throughout F/U. 22 of 77 were confirmed as a PNET with biopsy, while the remaining were diagnosed on imaging. In the Op group (median age 59; range 27-82), median tumor size was 1.8 cm (range 0.5-3.9 cm). Excluding 5 patients with no F/U, mean F/U was 45 months (range 3-148 months). Five of the 57 patients did not have a PNET on final pathology, but instead had a different benign tumor. Overall, 46% of the Op patients had some type of complication, over half of them were due to a class B or C pancreatic leak. No recurrence was seen in the Op group, including 6 patients with positive lymph nodes (mean F/U 38 months, range 8-81 months). There was no morbidity in the Nonop group and no disease specific mortality in either group.

Conclusions: Small nonfunctioning PNETs usually exhibit minimal or no growth over many years. The morbidity of pancreatic surgery must be carefully considered in light of the potentially benign and indolent behavior of these tumors. For incidentally identified small PNETs, nonoperative management may be advocated as long as serial imaging demonstrates minimal growth without suspicious features.

 *4. SHOULD BRAF MUTATION STATUS BE USED TO DETERMINE EXTENT OF SURGERY FOR PATIENTS WITH PAPILLARY THYROID CANCER?
 Kathleen C. Lee, BSE, Carol Li, BSE, Eric Schneider, PhD, Yongchun Wang, MD, PhD, Helina Somervell, MSN, CRNP, Matthew Krafft, BS, Christopher B. Umbricht, MD, PhD, Martha A. Zeiger, MD
 Johns Hopkins University School of Medicine

Background: Recent studies report that BRAF V600E mutation is associated with aggressive clinicopathologic features of papillary thyroid cancer (PTC), including the presence of lymph node metastases. Some authors even propose using BRAF status to determine extent of surgery. However, prospective cohort studies that include patients who have undergone routine central lymph node dissection (CLND) are lacking in the literature. To address this problem we examined the prognostic utility of the BRAF mutation status in 60 consecutive patients who underwent total thyroidectomy and routine CLND for PTC.

Methods: Under IRB approval 60 patients diagnosed with PTC on FNA were included. All patients underwent total thyroidectomy (TT) and routine CLND. BRAF mutation status was determined retrospectively in fresh frozen or intraoperative FNA samples with a colorimetric assay. Associations between BRAF mutation status and clinicopathologic features of PTC were examined using chi-square tests.

Results: There were 48 females and 12 males with a mean age of 44.9 years (SD = 11) and mean size of 2 cm (SD = 0.8); 42 (70%) had BRAF positive tumors, 18 (30%), negative; 33 (55%) had lympho-vascular invasion, 27 (45%) did not; 12 (20%) had positive surgical margins, 48 (80%) did not; and 35 (58%) had positive lymph nodes, 25 (42%) did not. BRAF mutation status was not significantly associated with any clinocopathologic features of PTC. Specifically, of the 42 BRAF positive tumors, 27 (64%) had lymph node metastases whereas 15 (36%) did not; of the 18 BRAF negative tumors, 8 (44%) had metastases whereas 10 (56%) did not (p=0.153).

Conclusions: Although recent studies have suggested that BRAF mutation status be used in the determination of surgical management of patients with PTC including extent of lymph node dissection, the studies are predominantly retrospective in design and do not evaluate patients who have undergone routine CLND. Therefore, the relationship between BRAF status and LN metastases cannot be accurately determined. While the number of patients in this study is limited, it underscores the prematurity in utilizing BRAF mutation status to determine the surgical management of patients with PTC. It also emphasizes the need for well designed prospective studies in order to accurately assess the true relationship between BRAF status and clinicopathologic features of PTC, particularly LN metastases.

***5.** BRAF V600E STATUS ADDS INCREMENTALLY TO CURRENT RISK CLASSIFICATION SYSTEMS IN PREDICTING PAPILLARY THYROID CARCINOMA RECURRENCE

Jason D. Prescott, MD, PhD, Peter M. Sadow, MD, PhD, Richard A. Hodin, MD, Long Phi Le, MD, PhD, Randall D. Gaz, MD, Gregory W. Randolph, MD, Antonia E. Stephen, MD, Sareh Parangi, MD, Gilbert H. Daniels, MD, Carrie C. Lubitz, MD Massachusetts General Hospital

Background: Papillary thyroid cancer (PTC) recurrence can be difficult to predict. None of the conventional risk classification systems incorporate BRAF mutational status. We assessed the independent value of BRAF status in predicting 5-year PTC recurrence compared to current risk classification systems.

Methods: Clinical and pathological data were collected on a historical cohort of serial patients undergoing total thyroidectomy for PTC at an academic center from 2000-2005. Single nucleotide primer extension PCR BRAFV600E testing was performed on paraffin-embedded blocks. We examined associations between existing risk classification schemes and 5-year clinical recurrence using Cox proportional hazards regression modeling, both without and with tumor BRAF mutational status incorporated. The incremental predictive value of BRAF status was assessed using model discrimination metrics.

Results: The mean age of the 356 patients in the cohort was 43.4 (15-84), and 24% were male. The 5-year cumulative incidence of recurrent PTC was 15%. Of the 252 paraffin-embedded surgical pathology blocks available for genotyping, 205 (81%) reactions were successful. The BRAFV600E mutant was present in 110 (54%). The 5-year cumulative incidence of recurrence was 20% in BRAFV600E patients versus 8% in BRAFwt patients. There was no significant difference in tumor size, extrathyroidal extension, or proportion of patients who recurred between the groups with and without complete BRAF testing. Of the tested risk classification systems, most were associated with 5-year PTC recurrence and demonstrated moderate discrimination of high versus low risk of recurrence (c-index range 0.554-0.627). BRAFV600E was significantly associated with recurrence when added to the following algorithms: AMES (HR 2.60 [1.10-6.14]), MACIS (HR 2.58 [1.09-6.13]), AJCC-TNM (HR 2.51 [1.11, 5.66]), ATA recurrence-risk category (HR 2.59 [1.20-6.10]) and model discrimination improved (incremental c-index range 0.047-0.084).

Conclusions: Incorporation of BRAF status into existing risk-classification systems improved the discrimination of PTC recurrence in patients undergoing total thyroidectomy across a range of algorithms. Pre- or post-operative data on BRAF mutational status can aid clinicians in predicting PTC recurrence.

6. ADRENALECTOMY MAY IMPROVE QUALITY OF LIFE AND AMELIORATE METABOLIC AND CARDIOVASCULAR IMPAIRMENT IN ADRENAL INCIDENTALOMAS WITH SUBCLINICAL CUSHING'S SYNDROME
Maurizio Iacobone, MD, Marilisa Citton, MD, Giovanni Viel, MD, Riccardo Boetto, MD, Italo Bonadio, MD, Isabella Mondi, MD, Saveria Tropea, MD, Donato Nitti, MD, Gennaro Favia, MD University of Padua

Background: Adrenalectomy represents the definitive treatment in clinically evident Cushing's Syndrome, while the most appropriate treatment in case of subclinical Cushing's Syndrome (SCS) in adrenal incidentalomas remains controversial, either surgery and follow-up being recommended. This study was aimed to compare the outcome of adrenalectomy or conservative management in adrenal incidentalomas with SCS concerning the main hormonal laboratory parameters, metabolic and cardiovascular abnormalities and patient's health-related quality of life.

Methods: Twenty patients underwent laparoscopic adrenalectomy for SCS in incidentally discovered adenomas, while 15 patients were managed conservatively. The main hormonal laboratory parameters of corticosteroidal secretion, arterial blood pressure (BP), glycometabolic control parameters, lipid profile, body mass index (BMI), bone mass density (BMD), and quality of life (by the SF-36 questionnaire) were assessed pre and postoperatively.

Results: The 2 groups were equivalent concerning demographics, all examined preoperative laboratory data and length of follow-up (mean 5 yrs, range 2-10). In the surgical group, no postoperative morbidity occurred; a normalization of all laboratory corticosteroidal parameters was achieved; while never in the conservative group (p<0.01). In the surgical group, 2 of 15 hypertensive patients (13%) became normotensive; 6 (40%) reduced the need for antihypertensive drugs; both systolic and diastolic BP significantly. To the contrary, in the conservative group BP levels remain stationary or increased (p<0.01). In the surgical group, 10% of patients suffering from preoperative diabetes or glucose intolerance was cured, 44% reduced the need for hypoglycemizing drugs or ameliorated laboratory glycometabolic parameters. Lipid profile ameliorated in 21%; a significant decrease of BMI occurred, whilst in the conservative group no significant ameliorations or some worsening occurred for each item (p<0.01). A slight deteriorations of BMD occurred in both groups (p=NS). SF-36 comparison of health-related quality of life confirmed a significant amelioration in the surgical group for both mental and physical component (p<0.01).

Conclusions: Adrenalectomy can be more beneficial than conservative management in some SCS patients. Surgery may achieve remission of laboratory hormonal abnormalities, improve BP values, glycemic control, lipid profile, BMI and quality of life.

*7. GPCR GENE EXPRESSION PROFILING DISCRIMINATES ILEAL FROM PANCREATIC NEUROENDOCRINE TUMOR PRIMARIES Jennifer C. Carr, MD, Erin A. Boese, Fadi S. Dahdaleh, MD, Molly Martin, PhD, Junlin

Liao, Thomas M. O'Dorisio, MD, M. Sue O'Dorisio, MD, James R. Howe, MD University of Iowa

Background: The incidence of neuroendocrine tumors (NETs) has increased significantly, and 10-15% of patients present with liver metastases of unknown primary site. Differences in gene expression between ileal NETs (INETs) and pancreatic NETs (PNETs) could be useful for diagnosis, especially in tumors of unknown primary site. Initial genome expression studies have identified G-protein coupled receptors (GPCR) as a promising group of genes for further study.

Methods: RNA was extracted from tumor and corresponding surrounding tissues from 11 ileal and 15 pancreatic NET patients, and quantitative PCR performed for 380 GPCR genes. Differentially expressed genes between normal and tumor tissues from each site were identified, and those with p values of <0.05 were further examined. The RT2 Profiler system was used to normalize data to GAPDH, POLR2A, and HPRT1. A two-tailed student's t-test was then used to evaluate for statistical significance.

Results: Fifty genes were identified with significant changes in expression (p<0.05) between normal tissue and INETs, and 47 in PNETs. In INETs, there were 32 genes showing both a significant change in expression and >5-fold change, and 16 in PNETs. Noteworthy genes with significant fold-changes in INETs included: the opioid receptor (63.4 fold up-regulated), the oxytocin receptor (OXTR, 19.1 fold up-regulated), and the G-protein coupled receptor 113 (GPR113, 12.4 fold up-regulated); in PNETs: the somatostatin receptor 2 (6.0 fold up-regulated) and the adenosine receptor A1A (ADORA1, 22.0 fold down-regulated). We focused on creating a profile with up- or down-regulated genes that would allow for discrimination of INETs or PNETs origin. In all INETs, 2 genes were identified that were significantly (p=0.02) up-regulated by >5-fold: OXTR and GPR113. No PNETs shared this profile of up-regulated by >5-fold: OXTR and GPR113. In PNETs the most complete profile accounted for 73% (11/15) of patients: 2 genes, ADORA1 and the secretin receptor, were both down-regulated by >5-fold. Only one ileal sample (9%) shared this profile, and this patient had a poorly differentiated NET.

Conclusions: Differential expression patterns of a panel of as few as 2 GPCR genes successfully discriminate between ileal and pancreatic NET sites. This panel suggests new targets for diagnosis and therapy, and should prove useful for identifying primary sites from liver metastases of unknown origin.

***8.** IS MINIMALLY INVASIVE PARATHYROIDECTOMY ASSOCIATED WITH HIGHER RECURRENCE COMPARED TO BILATERAL EXPLORATION? ANALYSIS OF OVER 1,000 CASES.

David F. Schneider, MD, Haggi Mazeh, MD, Rebecca S. Sippel, MD, Herbert Chen, MD, University of Wisconsin

Background: Minimally invasive parathyroidectomy (MIP) relies on intraoperative parathyroid hormone (ioPTH) and localization studies to target a single gland with a shorter operation, smaller incision, and fewer complications. Recently, the durability of this approach has been questioned, and some advocate for routine open parathyroidectomy (OP) with bilateral exploration. This study compared outcomes between patients treated with MIP versus OP for patients with primary hyperparathyroidism (PHPT).

Methods: A retrospective review of a prospectively collected parathyroid database was performed to identify cases of PHPT with single adenomas (SA) between 2001 and 2011. Operations were classified as OP when both sides were explored. Kaplan-Meier estimates were plotted for disease-free survival, and these curves were compared by the log-rank test. Univariate comparisons were made with the student's t-test or Chi-squared test where appropriate. P<0.05 was considered significant.

Results: Of the 1,783 parathyroid operations performed at our institution, 1,083 were initial neck surgeries for HPT with SA. 928 (85.69%) were MIP and 155 (14.31%) were OP. Median follow-up time was 9.1 months (range 0 – 116.6 months). There was no difference in the rates of persistence (0.22% MIP vs. 0% OP, p = 0.61) or short-term recurrence (2.48% MIP vs. 1.94% OP, p = 0.68) between the two groups. However, the Kaplan-Meier estimates began to separate beyond eight years follow-up; considering the period beyond eight years alone, there was 8.11% recurrence in MIP vs. 0% in OP. The OP group did experience a higher incidence of transient hypocalcemia postoperatively (1.94% vs. 0.11%, p = 0.01).

Conclusions: MIP appears equivalent to OP in single-gland disease. While patients undergoing OP experienced more transient hypocalcemia, patients undergoing MIP appear to have a higher long-term recurrence rate. Therefore, proper patient selection and counseling of these risks is necessary for either approach.

*9. ROBOTIC AND ENDOSCOPIC TRANSAXILLARY THYROIDECTOMIES MAY BE COST PROHIBITIVE WHEN COMPARED TO STANDARD CERVICAL THYROIDECTOMY: A COST ANALYSIS

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Background: Multiple extracervical thyroidectomy techniques have been developed over the past decade, including gasless transaxillary endoscopic and robotic approaches. Although there is much enthusiasm for the adoption of these techniques, the cost associated with these different approaches has not been formally analyzed. The purpose of this study was to perform a cost analysis based on US medical costs, comparing the standard cervical (SC), gasless transaxillary endoscopic (TAE), and gasless transaxillary robotic (TAR) thyroidectomy approaches.

Methods: A retrospective review of 140 patients who underwent hemi- or total thyroidectomy using the SC, TAE, or TAR technique at two experienced tertiary referral centers was conducted. Each approach was evaluated using a cost analysis model. Key cost variables included operating room charges, anesthesia fee, consumables cost, equipment depreciation, and maintenance cost. Demographic and perioperative variables included age, sex, BMI, operative time, central neck dissection, extent of thyroidectomy, length of stay, and perioperative complications. Sensitivity analyses were performed to assess the influence of individual cost variables.

Results: Mean operative time for the SC approach was 121 4 18.9 minutes. The TAE (185 4 26.0 min) and TAR (166 4 29.4 min) approaches were significantly longer (SC-TAE p<0.001, SC-TAR p<0.001, and TAE-TAR p=0.01). Total cost for the SC, TAE, and TAR approaches were \$9028 4 \$891, \$12,505 4 \$1222, and \$13,671 4 \$1,383, respectively. Total cost was significantly higher for the TAE (1.39x) and TAR approaches (1.51x) than the SC technique (SC-TAE p<0.0001, SC-TAR p<0.001, TAE-TAR p=0.001). Operative time (p=0.0067) significantly impacted total cost. For total thyroidectomy, the total cost of TAE and SC techniques became equivalent when the TAE operative time decreased to 122 minutes. The TAR approach became cost effective compared to the SC technique when the TAR operative time was less than 78 minutes. Increasing the yearly caseload did not resolve the cost difference.

Conclusions: Gasless transaxillary thyroidectomy is significantly more expensive than standard cervical thyroidectomy. Significant reductions in TAE and TAR operative times reduce this cost difference. The greater expense of the TAE and TAR techniques are offset in countries with a larger reimbursement for endoscopic and robotic procedures but may be prohibitive in countries with a flat reimbursement schedule.

***10.** UTILITY OF ORAL NICARDIPINE AND MAGNESIUM SULFATE INFUSION DURING PREPARATION AND RESECTION OF PHEOCHROMOCYTOMAS. **Hasan K. Siddiqi, AB**, Amanda M. Laird, MD, Amy C. Fox, MD, Gerard M. Doherty, MD, Barbra S. Miller, MD, Paul G. Gauger, MD University of Michigan

Background: Patient outcomes after pheochromocytoma resection have improved with developments in peri-operative management. Calcium channel blockade with nicardipine (NC) is an alternative to phenoxybenzamine (PB) for pre-operative preparation. Intra-operative magnesium sulfate (MgSO4) infusion is often used for its cardiovascular stabilizing properties. We hypothesized that preparation with NC would be clinically equivalent to PB for pheochromocytoma resection, and that MgSO4 infusion would have no significant effect on intra-operative hemodynamic stability.

Methods: A retrospective review included 85 consecutive patients who underwent pheochromocytoma resection at a single academic medical center (1999-2011). Pre-operative patient preparation included either PB (n=78) or NC (n=7). 51% received MgSO4 intra-operatively (+MgSO4) while 49% did not (-MgSO4). Pre-operative characteristics, intra-operative hemodynamics, and post-operative outcomes were compared among groups (results expressed as mean +/- standard error, or percentage).

Results: There was no difference in NC vs. PB or +MgSO4 vs. -MgSO4 groups for preblockade mean systolic blood pressure (SBP), age or gender. 33% of NC and 56% of PB patients were on beta-blockers during the preparatory period (p=NS). Pre-induction hemodynamic stability was similar between NC and PB groups [SBP (NC=115+/-12mmHg vs. PB=126+/-3mmHg, p=NS); tachycardia (NC=0% vs. PB=4%, p=NS)]. Intra-operative hemodynamics were comparable between NC and PB groups, with no significant differences in transient hypotension (NC=29% vs. PB=25%, p=NS) or transient hypertension (NC=29% vs. PB=25%, p=NS). Intra-operative hemodynamics were equivalent regardless of MgSO4 use, with no significant difference in transient hypotension (+MgSO4=31% vs. -MgSO4=24%, p=NS), transient hypertension (+MgSO4=31% vs. -MgSO4=18%, p=NS) or sustained tachycardia (+MgSO4=6% vs. -MgSO4=3%, p=NS). For all comparisons, there were no significant differences in 30day outcomes including myocardial infarction, pulmonary embolism, and death.

Conclusions: The use of NC is clinically equivalent to PB in pre-operative preparation for pheochromocytoma resection. NC seems to be a safe alternative for preparation when PB use is limited by availability, cost or patient tolerance. Intra-operative use of MgSO4 does not appear to have a significant effect on hemodynamic parameters.

11. VALIDATION OF FIVE MINUTE INTRAOPERATIVE PARATHYROID HORMONE CRITERIA FOR EARLY TERMINATION OF DIRECTED PARATHYROIDECTOMY Sarah C Oltmann, MD, Linda Hynan, PhD, Jason Tcheng, MD, Jennifer L. Rabaglia, MD, Shelby A. Holt, MD, Fiemu E. Nwariaku, MD, Stacey L. Woodruff, MD University of Texas Southwestern Medical Center

Background: A 5 minute (m) intraoperative parathyroid hormone (ioPTH) decline of >65% from baseline and return into normal PTH range has previously been proposed as a new criteria for early termination of minimally invasive parathyroidectomy (MIP). These criteria have not yet been validated on additional patient (pt) populations.

Methods: Retrospective chart review of pts undergoing MIP for PHPT at a county hospital. IoPTH values taken pre-incision, at 5m, and 10m were reviewed and operative outcomes recorded. Receiver operating characteristic (ROC) analyses were performed to examine 5m ioPTH with a decline of >65% from baseline with normalization, as well as the previously used 10m ioPTH decline of >50% with normalization as gold standard, and the respective ability to predict cure of PHPT.

Results: 128 pts underwent parathyroidectomy from 2005 to 2011. 37 pts did not qualify for MIP for various reasons (secondary or tertiary hyperparathyroidism, planned thyroid surgery, concern for carcinoma, failure of localization studies). 91 pts with PHPT underwent attempted MIP and were included in the study. 81 (89%) were completed in an MIP fashion. Mean age was 55 years (SD412). 84% were female. 85(93%) had SGD. 6(7%) had MGD. ROC analyses revealed an area under the curve (AUC) of 0.887 for our 10m criteria. 5m >65% decline and normalization of PTH had an AUC of 0.747. Using the >65% decline, 39 pts (46%) would have early termination (data available on 85 pts, 4 pts had PTH checked post-op only, no ioPTH). No MGD pts were missed with these criteria. Median follow up was 7.1 months (1 week to 6.7 years). 1 pt with persistent disease, and no recurrence to date.

Conclusions: The proposed 5m criteria closely predict SGD vs. MGD. A >65% decrease with normalization of ioPTH at 5m post-excision would safely allow early termination of the operation in 46% of patients, comparable to the previously reported 50.4%. These new ioPTH criteria based on the rate of decline at 5m post-excision may shorten operative times for half of MIP cases.

***12.** YIELD OF REPEAT FINE NEEDLE ASPIRATION BIOPSY AND RATE OF MALIGNANCY IN PATIENTS WITH ATYPIA OR FOLLICULAR LESION OF UNDETERMINED SIGNIFICANCE: THE IMPACT OF THE BETHESDA SYSTEM FOR REPORTING THYROID CYTOPATHOLOGY

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Background: The Bethesda System for Reporting Thyroid Cytopathology (BSRTC) was implemented to improve the management of nodular thyroid disease. A new cytologic category, atypia/follicular lesion of undetermined significance (A/FLUS), was created for which a repeat fine-needle aspiration biopsy (FNAB) is recommended in 3-6 months. The objective of this study was to determine the yield of repeat FNAB and the rate of malignancy in thyroid nodules categorized as A/FLUS and to examine the impact of the BSRTC on the management of nodular thyroid disease.

Methods: A retrospective review of patients who underwent FNAB of a thyroid nodule from 2008 to 2011 was completed. Patients were divided into pre-BSRTC and BSRTC groups and a comparative analysis of cytopathologic diagnoses, rates of repeat biopsy and rates of malignancy was performed.

Results: FNAB was performed in 630 patients, 273 in the pre-BSRTC and 357 in the BSRTC group. Rates of nondiagnostic, benign, suspicious for malignancy, and malignant cytology were similar between the two groups. There was a decrease in follicular/ Hurthle cell neoplasm cytology (11% vs. 3%). There was no difference in the rate of malignancy (5.5% vs. 5.0%, p=0.86). Fewer operations were performed after the implementation of the BSRTC (28% vs. 21%, p=0.05) and more patients underwent repeat FNAB (2.9% vs. 10%, p<0.001). There were 60 (17%) patients with A/FLUS, 55 with complete follow-up data. Two patients who died from unrelated causes and 3 who were lost to follow-up were excluded. Repeat FNAB was performed in 23 patients, which was benign (9), A/FLUS (7), suspicious for malignancy (4), nondiagnostic (2) and follicular neoplasm (1). Twenty-nine (53%) patients underwent thyroidectomy, 19 for suspicious sonographic features, family history of thyroid cancer and/or compressive symptoms, and 10 based on the results of repeat FNAB. Six (21%) of the 29 patients were diagnosed with cancer. Four patients are awaiting surgery, 2 are awaiting repeat biopsy and 11 patients with no abnormal sonographic or clinical findings have elected to be followed with ultrasound and clinical examination.

Conclusions: In patients with A/FLUS, repeat FNAB yielded a definitive diagnosis in 61% and the overall rate of malignancy was 21%. Implementation of the BSRTC resulted in an increase in repeat FNAB, a reduction in the number of thyroidectomies and no change in the overall rate of malignancy.

13. STRATEGIC COMBINATION THERAPY OVERCOMES TYROSINE KINASE COACTIVATION IN ADRENOCORTICAL CARCINOMA **Daniel T. Ruan, MD**, Chi-Iou Lin, PhD, Edward E. Whang, MD, Jacob Moalem, MD Brigham and Women's Hospital

Background: Monotherapy with a tyrosine kinase inhibitor is ineffective against adrenocortical carcinoma (ACC) because of tyrosine kinase coactivation. We hypothesized that strategic combination regimens could overcome tyrosine kinase coactivation and compensatory oncogenic signaling.

Methods: We used a kinome array to generate a comprehensive profile of 202 unique tyrosine kinases before and after treatment with sunitinib in H295R and SW13 cells. Array results were validated by immunoblotting and the effects of single agent and strategic sunitinib-based combination regimens were determined by the MTS assay.

Results: Kinome profiling and immunoblotting confirmed quenching of the primary targets FLT-3, VEGFR-2 and RET after sunitinib treatment. Ten tyrosine kinases were activated by sunitinib treatment: ERK, HCK, Chk2, YES, CREB, MEK, MSK, p38, FGR and AXL. Immunoblotting confirmed that ERK was the most hyperactivated tyrosine kinase after sunitinib treatment. The minimum inhibitory concentration (ICmin) of sunitinib and the ERK inhibitor PD98059 were 10 nM and 50 nM, respectively. Monotherapy with sunitinib and PD98059 at their ICmin concentrations after 48 hours reduced proliferation by 23% and 19% in H295R, and by 25% and 24% in SW13 cells. However, strategic combination treatment with sunitinib and PD98059 decreased proliferation by 68% and 64% at 48 hours in H295R and SW13 cells, respectively (p<0.05). The effects of combination treatment were synergistic, since they exceeded the sum of the individual agents used alone.

Conclusions: We describe the first preclinical model to develop strategic combination therapy to overcome tyrosine kinase coactivation in ACC. Since many tyrosine kinase inhibitors are readily available, this model can be immediately tested in clinical trials for patients with advanced ACC.

***14.** CHANGES IN BONE DENSITY AFTER SURGERY FOR PRIMARY HYPERPARATHYROIDISM **Benzon M. Dy, MD**, Melanie L. Richards, MD, Ann E. Kearns, MD, Robert A. Wermers, MD, William S. Harmsen, MS, Marianne Huebner, PhD, Geoffrey B. Thompson, MD, David R. Farley, MD, Clive Grant, MD Mayo Clinic

Background: Patients with primary hyperparathyroidism (1HPT) are most often devoid of classical symptoms at the time of presentation but often have decreased bone mineral density (BMD) and an increased fracture risk. Following successful surgery for 1HPT, there is a differential response in BMD recovery. Our objective is to determine the frequency and degree of BMD improvement after successful surgery for 1HPT and to identify preoperative parameters associated with the reversal of bone loss.

Methods: A review of patients with either osteopenia or osteoporosis who had a curative operation for 1HPT and both pre- and post-operative BMD studies at a single institution was conducted. Laboratory values, pathology and outcomes were used to compare patients with declining, moderate improvement (0.1 to 5%) and improvement (>5%) in BMD on postoperative DEXA scan.

Results: 1991 of 3531 patients (56%) who underwent parathyroidectomy for 1HPT had osteopenia or osteoporosis. 420 patients had a DEXA scan performed at our institution preoperatively and within 36 months after successful surgery for 1HPT. The hip and lumbar spine were most frequently measured on DEXA scan (hip n= 403, spine n=340). When the worse site for either the hip or spine were assessed, 38% of patients had improvement, 31% had moderate improvement, and 31% had declining BMD. Patients who improved at the worse site were younger compared to those who moderately improved or worsened (63.5 vs. 67.1 vs. 67.1 years, p = 0.02). Preoperative urinary Ca levels were higher in patients who improved (356 vs. 257 vs. 223 mg/mL, p= 0.01). When assessing average hip and spine BMD changes within the 326 patients having both measured, the percentage of patients with improvement, moderate improvement, and declining BMD in the hip was (25%, 50%, 25%) compared with (36%, 36%, 28%) in the spine, p=0.10. Patients with declining average spine and hip BMD had lower preoperative vit D levels (spine - 51 vs 73 vs 70 ng/mL, p=0.006, hip - 54 vs. 114 vs 60 ng/dL, p=0.04). There was no difference in preoperative use of bisphosphonates, serum Ca or PTH levels.

Conclusions: BMD improves in over two-thirds of patients after parathyroidectomy for 1HPT. The hip and lumbar spine respond similarly to surgical intervention. Although it is difficult to predict which patients will have improved BMD after surgery for 1HPT, the majority of patients with preoperative osteopenia and osteoporosis objectively benefit from surgical intervention.

***15.** PREDICTING THE NEED FOR CALCIUM AND CALCITRIOL SUPPLEMENTATION AFTER TOTAL THYROIDECTOMY: RESULTS OF A PROSPECTIVE, RANDOMIZED STUDY

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Background: The optimal protocol for the detection and treatment of postoperative hypoparathyroidism after total thyroidectomy is unknown. We hypothesized that a single PTH level the morning after surgery would identify patients likely to become symptomatic after discharge and sought to determine the ideal treatment of at-risk patients.

Methods: We report a prospective, randomized study of patients who underwent total thyroidectomy. Serum calcium (mg/dL) and PTH (pg/mL) levels were obtained on the morning of postoperative day 1 or earlier if the patient reported hypocalcemic symptoms. If PTH was ≥10, patients received no supplementation unless symptomatic; if PTH was <10, patients were randomized to receive calcium, calcium and calcitriol, or no supplementation. Data collected included age, gender, pre- and postoperative calcium, PTH, and 25OH vitamin D levels, extent of surgery (central neck dissection, parathyroid autotransplantation), final pathology (gland weight, tumor size, parathyroid tissue removed, number of malignant/total lymph nodes), and presence of hypocalcemic symptoms.

Results: Of 127 consecutive patients, 99 (78%) had a postoperative PTH \ge 10 and 28 (22%) had a PTH<10. Hypocalcemic symptoms were reported in 11 (11%) of the 99 patients with PTH \ge 10; all were transient and managed with outpatient calcium. Of 28 patients with PTH<10, 5 (18%) had symptoms requiring IV calcium and came off protocol. Of the remaining 23 patients, 20 were randomized to supplementation and only 9 had symptoms; 5 were randomized to calcium and 4 to calcium/calcitriol. On univariate and multivariate logistic regression analysis, age, central neck dissection, parathyroid removal/autotransplantation, and preoperative calcium, PTH, and 25OH vitamin D were not associated with a postoperative PTH<10 or symptoms. There was a weak correlation between postoperative calcium and PTH levels (Spearman coefficient 0.46; R2=0.16).

Conclusions: A single postoperative PTH level should be the standard management for patients after total thyroidectomy. Multiple blood draws are unnecessary, as the sensitivity and negative predictive value of a PTH<10 the morning after surgery are 100% for clinically significant hypoparathyroidism. All patients with PTH≥10 can be safely discharged without supplementation. Given the small number of patients randomized with PTH<10, it is unclear if calcitriol is needed in addition to calcium supplementation for these higher-risk patients.

***16.** PASIREOTIDE (SOM230) IS EFFECTIVE FOR THE TREATMENT OF PANCREATIC NEUROENDOCRINE TUMORS IN A MULTIPLE ENDOCRINE NEOPLASIA TYPE 1 CONDITIONAL KNOCKOUT MOUSE MODEL

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Background: The incidence of pancreatic neuroendocrine tumors (PNETs) is increasing and innovative treatment strategies are needed. A novel long acting release somatostatin analogue, pasireotide (SOM230), has improved agonist activity at somatostatin receptor (SSTR) subtypes 1, 2, 3 and 5. Using a transgenic mouse model of Multiple Endocrine Neoplasia Type 1 (MEN1) that develops functional PNETs (insulinomas), we tested the effect of SOM230 on insulin secretion, glucose levels and survival.

Methods: Eight 12 month-old conditional Men1 knockout mice, with elevated insulin levels and hypoglycemia, were separated into two groups. The treatment group (N=4) received monthly subcutaneous injections of SOM230 (160mg/Kg/month [64mg/ml]) for 3 months. The control group (N=4) received monthly subcutaneous injections of phosphate buffered saline (PBS) for 3 months. Every 7 days, the mice were fasted and serum insulin and glucose levels were determined by enzyme-linked immunosorbent assay (ELISA) and enzymatic colorimetric assay, respectively. In addition, changes in body weight and effect on survival were determined.

Results: At baseline there was no difference between mean insulin and glucose levels between the two groups. On day 7 following injection of PBS, the control group showed a significant increase in serum insulin from $1.078 \times g/L40.13$ to $1.427 \times g/L40.195$ (p=0.0246) and no significant change in serum glucose (4.288mmol/L40.305 to 4.209mmol/L40.351 p=0.7409). On day 7 following injection with SOM230, there was a significant decrease in serum insulin levels from $1.051 \times g/L40.2737$ to $0.3652 \times g/L40.167$ (p=0.0052) and a significant increase in serum glucose from 4.25mmol/L40.453 to 7.122mmol/L41.058 (p=0.0025), a value in the normal range. The overall difference between the groups was also significant (p=0.002). These differences were sustained throughout the three month study period. No drug resistance or toxicity was observed. The overall survival at three months was improved in the SOM230 treatment group (4/4, 100%) compared with the control group (1/4, 25%) (p=0.0240).

Conclusions: Monthly injection with SOM230 significantly decreases insulin levels, increases glucose levels, and prolongs survival in a transgenic mouse model of PNETs (insulinomas). Further studies of the effects of SOM230 in patients with PNETs and those carrying MEN1 mutations are warranted.

17. THYROIDECTOMY FOLLOWED BY FOSBRETABULIN (CA4P) COMBINATION REGIMEN APPEARS TO SUGGEST IMPROVEMENT IN PATIENT SURVIVAL IN ANAPLASTIC THYROID CANCER

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Background: Anaplastic thyroid cancer (ATC) is an aggressive tumor for which there is a paucity of data due to the rarity of the disease and its rapid lethality. Controversy continues about the relative role of surgery in disease management.

Methods: The FACT trial was a randomized (2:1), controlled Phase 2/3 trial conducted at 40 sites in 11 countries to assess the safety and efficacy of carboplatin and paclitaxel with the vascular disrupting agent CA4P (experimental arm) or without CA4P (control arm) in ATC, 2007-11. Patients were permitted to have had surgery (and/or chemo-, radiation therapy) prior to enrollment, which was stratified based on surgery exposure. Patients with cancer-related surgery (thyroidectomy) were compared to those without surgery with regard to demographic/clinical characteristics, CA4P combination regimen-treatment effect, and overall survival. 1-year and median survival were estimated via Kaplan Meier, and hazard ratios (HRs) and 95% CIs by Cox regression analysis.

Results: 80 patients were enrolled; 44 (55%) had undergone prior cancer-related surgery (30 CA4P, 14 control), of whom 31 (70%) had near-total/total thyroidectomy (20 CA4P, 11 control). Among patients without surgery, 25 were in the CA4P arm and 11 in the control arm. Baseline characteristics for surgery and non-surgery patients were similar (p=NS), with an average age of 58 vs 66 years (respectively); 55% vs 53% were female, and 89% in both groups had Stage IVC disease. 48% (surgery) vs 31% (no surgery) had prior radiation, and 30% (surgery) vs 36% (no surgery) had prior chemotherapy. Median survival for patients who had cancer-related surgery was 8.2 months (95% CI 3.0, 11.1) in the CA4P arm vs. 4.0 months (95% CI 2.4, 9.5) in the control arm, resulting in a HR of 0.65 (0.32, 1.31) and a suggested associated reduction in risk of death of 35%. 1-year survival was 33% in the CA4P arm vs. 8% in the control arm. In contrast, median survival for patients who had no prior surgery was 4.0 months (95% CI 2.4, 7.1) in the CA4P arm and 4.6 months (95% CI 0.3, 8.9) in the control arm (HR 0.88 [0.41, 1.86]). 1-year survival was 17% in the CA4P arm vs 10% in the control arm.

Conclusions: In this largest prospective randomized study ever conducted in ATC, thyroidectomy followed by CA4P combination regimen appears to suggest improvement in overall patient survival. The relative role of surgery with adjuvant CA4P will be further elucidated in the anticipated FACT2 trial.

18. LAPAROSCOPIC APPROACH TO ADRENALECTOMY: PROTECTIVE AGAINST DEATH AND ICU LEVEL COMPLICATIONS? **Laura I. Eichhorn-Wharry, MD**, Gary B. Talpos, MD, Ilan Rubinfeld, MD

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Background: Laparoscopic adrenalectomy has been adopted as the procedure of choice for most elective adrenalectomies and is increasingly used for larger masses and even oncologic resections. Previously the pre-existing comorbidities of the patients have not been a focus of the comparison, nor has the severity of the adverse outcomes analyzed. We hypothesized that laparoscopic adrenalectomy is less likely to result in ICU level complications or death than open adrenalectomy, despite baseline comorbidity mix.

Methods: Using the National Surgical Quality Improvement Program (NSQIP) participant use files for 2005-2009, all laparoscopic and open adrenalectomies were identified by current procedural terminology. Adverse outcomes tracked in NSQIP were mapped to Clavien level based on need for ICU care. Grade 4 events were: postoperative septic shock, postoperative dialysis, pulmonary embolism, myocardial infarction, cardiac arrest, prolonged ventilatory requirements, need for reintubation. Death is Clavien grade 5. Preop conditions assessed were based on high interest proven variables from NSQIP semi-annual reports and included: American Society of Anesthesiology class, wound class, gender, preoperative functional status, preoperative albumin level, azotemia, thrombocytopenia, emergency case, and age >70 years. Univariate and multivariate analysis were used to compare the two groups using SPSS software (SPSS 20, IBM, NY).

Results: There were 1980 Laparoscopic and 592 Open procedures. Age, gender and race did not significantly differ. Clavien 4 and 5 complications occurred in 45(7.6%) of open and 35 (1.8%) of laparoscopic. The univariate odds ratio showed a 4.6 fold greater likelihood that a patient would have an ICU level complication (p<.001), and 4.9 odds ratio of Death (p<.001) if open rather than laparoscopic surgery was performed. Regression modeling showed persistence of the protective effect of laparoscopic adrenalectomy even after adjusting for comorbidities with a multivariate odds ratio of 3.3 (P<.001).

Conclusions: Laparoscopic approach to adrenalectomy has an independent protective effect on ICU level complications and mortality when compared to open procedures. This correlation persists even after correcting for multiple co-morbidities.

19. UNDETECTABLE THYROGLOBULIN FOLLOWING TOTAL THYROIDECTOMY IN PATIENTS WITH LOW AND INTERMEDIATE RISK PAPILLARY THYROID CANCER- IS THERE A NEED FOR RAI?

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Background: The efficacy of RAI in patients who have an undetectable thyroglobulin (Tg) level following total thyroidectomy for well differentiated papillary thyroid cancer (PTC) is questionable. The objectives of this study were to report the risk of recurrence in patients with PTC managed with postop RAI and without RAI who had an undetectable Tg level following total thyroidectomy.

Methods: Following approval by the Institutional Review Board, 1129 consecutive patients who had total thyroidectomy for PTC between 1986 and 2005, were identified from our institutional database of 1810 patients treated for WDTC at MSKCC. Of these, 424 patients had an undetectable Tg (defined as a Tg <lug/ml) of whom 80 were classified as low, 218 intermediate and 124 high risk using GAMES criteria. Patient, tumor and treatment characteristics were collected on the low and intermediate risk patients. Recurrence was defined as any structural abnormality on clinical examination or imaging and confirmed by FNA. Disease specific survival (DSS) and recurrence free survival (RFS) were calculated using the Kaplan-Meier method. Univariate analysis was carried out by the log rank test and multivariate analysis by Cox proportional hazards method.

Results: In the low risk group (n=80), 35 were managed with RAI and 45 without. Comparison of patient and tumor characteristics showed patients treated with RAI were more likely to have T2 tumors (40% versus 18%, p=0.027). There were no disease specific deaths in either group. There was 1 neck recurrence in the cohort managed without RAI. Patients managed without RAI had a similar RFS to patients managed with RAI (96% vs 100%, p=0.337). In the interrmediate risk group (n=218) , 135 were managed with RAI and 83 without. Comparison of patient and tumor characteristics showed patients managed without RAI were more likely to be older patients (>45yrs: 90% versus 39%, p=0.000) with smaller tumors (pT1T2: 97% versus 62%, p=0.000) and negative neck disease (N0: 88% versus 37%,p=0.000). There were no disease specific deaths in either group. There were 7 recurrences of which 6 were in the RAI cohort (5 regional, 1 distant) and 1 in the non-RAI cohort (1 regional). Patients managed without RAI had a similar RFS to patients managed with RAI (97% vs 96%, p=0.234).

Conclusions: Postoperative RAI does not influence RFS in select low and intermediate risk group patients who have undetectable Tg following total thyroidectomy for PTC.

*20. VON HIPPEL-LINDAU DISEASE-ASSOCIATED SOLID MICROCYSTIC ADENOMAS MASQUERADING AS PANCREATIC NEUROENDOCRINE TUMORS Simon Turcotte, MD, Baris Turkbey, MD, Stephanie Barak, MD, Steven K. Libutti, MD, H. Richard Alexander, MD, W. Marston Linehan, MD, Marybeth S. Hughes, MD, Naris Nilubol, MD, Corina Millo, MD, Martha Quezado, MD, Peter L. Choyke, MD, Electron Kebebew, MD, Giao Q. Phan, MD National Institutes of Health, National Cancer Institute

Background: Patients with von Hippel-Lindau disease (VHL) commonly develop benign pancreatic serous cystic lesions and neuroendocrine tumors (PNET) with malignant potential. Solid microcystic adenomas (SMCA), a rare benign tumor more frequently described in VHL patients, sometimes cannot be differentiated from PNET until histological examination. We report the rate and characteristics of SMCA in a cohort of VHL patients who had resection for solid tumors though to be PNET by pre-operative imaging.

Methods: Analyses were performed on databases of patients operated for a preoperative diagnosis of PNET since 1994 at one institution. Pathology slides were reviewed for histological and radiological correlations. Blinded to the pathological diagnoses, radiologists reviewed available digitalized pre-operative abdominal CT and MRI scans. Maximum Standardized Uptake Values (SUV) were calculated for patients with pre-operative FDG-PET scans. The longest diameters of lesions were used to estimate tumor volume doubling time.

Results: For 55 VHL patients, 74 pancreatic resections were performed: 3 total pancreatectomies (TP), 13 pancreaticoduodenectomies (PD), 18 distal pancreatectomies (DP) and 40 enucleations. Ten patients (18.2%) underwent resections (2 TP, 1 PD and 7 DP) for dominant tumors assumed to be PNET based on pre-operative imaging and intraoperative ultrasound, but had SMCA on final pathology. The average size of SMCA that led to surgery was 3.7 4 0.4 cm. Thirty-nine patients had digitalized pre-operative imaging available for blinded review. Among 60 solid tumors identified, 4 out of 11 pathologically-proven SMCA were still misdiagnosed as PNET based on homogeneous arterial contrast-enhancement, 5 found more consistent with SMCA and 2 had uncertain diagnosis. There was no statistical difference between the mean doubling time of SMCA (1400 4 365 days) and PNET (1301 4 287 days). Among 21 patients who underwent FDG-PET scans, the mean maximum SUV was higher for 17 PNET lesions (12.1 4 1.2; range 3.9 to 18.9) compared to 6 SMCA lesions (4.7 4 0.9; range 3.1 to 8.9; p=0.004).

Conclusions: SMCA can mimic PNET on radiologic imaging in VHL patients because of slow growth and contrast-enhancement. Although FDG-PET uptake may help distinguish PNET from SMCA, a high index of suspicion is needed to minimize operations performed for SMCA and to counsel patients of their risks of undergoing pancreatectomy for a lesion with no known malignant potential.

 21. TO THYROID NODULES: A HIGH RESOLUTION-MAGIC ANGLE SPINNING NUCLEAR MAGNETIC RESONANCE (HRMAS NMR)-BASED STUDY
 Paolo Miccoli, MD, Liborio Torregrossa, MD, Laetitia Shintu, PhD, Alvicler Magalhaes, Jima Nambiath Chandran, Aura Tintaru, Clara Ugolini, MD, PhD, Michele N. Minuto, MD, PhD, Fulvio Basolo, MD, Stefano Caldarelli, PhD University of Pisa

Background: About 20% of all cytological specimens obtained from thyroid nodules are classified as "indeterminate". Because only 15% to 20% of these lesions are malignant, up to 85% of the patients in this subgroup may undergo unnecessary surgery. The approach here developed is based on the premise that metabolic changes will pre-empt the development of morphologic modifications associated with malignancy. The aim is then to evaluate the potential of ex-vivo Magnetic Resonance Spectroscopy (MRS) metabolomics studies to assist in the diagnostic evaluation of indeterminate thyroid lesions.

Methods: 72 patients with solitary thyroid nodules ranging from 1 to 8.5 cm (mean size, 3.2741.7 cm) were studied. Mean age was 42.8417.9 yr (range 9-88 yr). All patients underwent total thyroidectomy with the indication of: malignancy (28 patients), citologically indeterminate (thyr 3) lesion (40), and benign goiter (4). Post-surgery biopsies were analysed by High-Resolution Magic Angle Spinning (HRMAS)-MRS. Principal Component Analysis (PCA) was applied to highlight the statistically significant spectroscopic differences between lesions and control tissues. A minimal reduced model for classification of the lesions into benign and malignant cases was built using an Ortogonal Projection to Latent Structure Discriminant Analysis (O-PLS-DA), a supervised statistical tool of classification.

Results: HRMAS-MRS of biopsies points out a clear distinction between lesions and their healthy counterpart control tissues. The metabolic signature of this difference was assessed. A partial but significant discrimination between benign and malignant tissues, with a p-value of 9.10-4 and a Q2 of 0.37 was obtained. The robustness of the model was assessed using a 999 permutations validation model, which showed that the observed separation was not imposed by the labeling of the groups but intrinsic to the lesion histological classification. Variations in lactate, taurine lipids, choline, phosphocholine, myo-inositol and scyllo-inositol were selected by the model as being the most significant sources of discrimination.

Conclusions: HRMAS-MRS on biopsies is capable of supporting metabolomics discrimination between papillary thyroid carcinoma and benign lesions. Studies on a larger cohort will be required to enhance the significance of the model in the case of follicular lesions and are under way.

22. A COST-EFFECTIVENESS ANALYSIS OF ADRENALECTOMY FOR NON-FUNCTIONAL, ADRENAL INCIDENTALOMAS: IS THERE A SIZE THRESHOLD FOR RESECTION?

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Background: Adrenocortical cancer (ACC) is a rare, but aggressive, malignancy. Current AAES/AACE guidelines recommend resection of most nonfunctional adrenal tumors ≥4 cm due to increased risk of ACC. This study evaluates the cost-effectiveness of adrenalectomy for nonfunctional adrenal tumors.

Methods: A decision tree was constructed for patients with a nonfunctional, 4 cm adrenal incidentaloma with no radiographic suspicion for ACC. Patients were randomized to adrenalectomy, surveillance as per AACE/AAES guidelines, or no follow-up. Incremental cost-effectiveness ratio (ICER) includes costs of all subsequent care, including missed ACC. ICER was determined from the societal perspective and is reported in \$/life-year-saved (LYS), with a cost-effectiveness threshold of \$50,000/LYS. Input data were obtained from the literature and Medicare. Sensitivity analyses were performed.

Results: In the base-case analysis, assuming a 2.0% probability of ACC for a 4 cm tumor, surgery was more cost-effective than continued surveillance (\$25,843/LYS). Both the surgery and surveillance arms of the model were considerably more cost-effective than the arm where patients received no follow-up (\$35/LYS and \$8/LYS, respectively), due to the significant mortality associated with advanced ACC among those patients whose diagnosis was missed initially. Sensitivity analysis demonstrated that the model was most sensitive to patient age, tumor size, probability of ACC, mortality of ACC, and cost of hospital stay. Surgery remained more cost-effective with an increased probability of ACC; at a risk threshold between 1.0-1.25%, ICER ranged from \$70,997/LYS to \$48,756/LYS. For 2-6 cm tumors, ICER ranged from \$84,948/LYS to \$5,755/LYS; the threshold for cost-effectiveness was met for incidentalomas between 3 and 4 cm. For 4 cm tumors, surgery was cost-effective at age 60 (\$41,012/LYS), but was no longer cost-effective by age 65 (\$80,139/LYS). The model was not sensitive to the cost and complications related to adrenalectomy, regardless of open vs. laparoscopic approach.

Conclusions: In our model, adrenalectomy was cost-effective for tumors >3cm in size and in patients <65 years, primarily due to the aggressiveness of ACC. Current AACE/ AAES guideline recommendations for the resection of adrenal incidentalomas \geq 4 cm appear to be cost-effective. Consideration for adrenalectomy in smaller tumors should be balanced with surgical expertise in order to optimize surgical outcomes.

***23.** SAME DAY THYROIDECTOMY PROGRAM: ELIGIBILITY AND SAFETY EVALUATION

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Background: Despite the trend to perform various procedures in an outpatient setting, same day thyroidectomy (SDT) has not gained widespread acceptance due to concerns of life threatening complications such as bleeding, airway compromise, and hypocalcemia. We have previously shown that postoperative parathyroid hormone (PTH) testing reliably identified patients at risk for hypocalcemia and we implemented it to our routine practice. The aim of this study is to describe a single institution SDT results before and after the implementation of postoperative PTH testing.

Methods: The prospective thyroid database was reviewed to identify patients that underwent thyroid surgery between 2005 and 2011 by a single surgeon. We compared the outcomes of patients who underwent in-patient and SDT surgery. Routine postoperative PTH testing for SDT commenced in 2010, and we also compared results from before and after that date.

Results: During the study period 608 patients underwent thyroid surgery. Lobectomy was performed in 278 (46%) and total thyroidectomy in 330 (54%) patients. Of the entire cohort, 298 (49%) were performed as SDT. The rate of same day thyroid lobectomies (SDTL) gradually increased over the years from 69% to 91% (mean 75%) while the rate of same day total thyroidectomy (SDTT) substantially increased after the implementation of postoperative PTH testing (9% vs. 66%, p<0.00001). Patients undergoing SDTL had similar low complication rate as inpatient lobectomy (2% vs. 2%, p=0.82). Patients with SDTT had similar rates of transient hypocalcemia and bleeding as compared to inpatients (6% vs. 10%, p=0.20 and 0% vs. 1%, p=0.23, respectively). After 2010, all patients were scheduled for SDT unless otherwise specifically requested by the patient. Only four (3%) patients that were scheduled for SDT were converted to inpatient – one due to epistaxis caused by traumatic nasal intubation and the other three requested to stay due to patient preference. No SDT patient required readmission. There was no significant difference between the subgroups for age, gender, lab values, thyroid size, or the presence of malignancy.

Conclusions: Same day thyroidectomy is safe and can be routinely performed. None of the SDT patients stayed overnight due to neck surgery complications and overnight observation would not have prevented any readmissions.

24. AUTOPHAGIC ACTIVATION POTENTIATES THE ANTIPROLIFERATIVE EFFECTS OF TYROSINE KINASE INHIBITORS IN MEDULLARY THYROID CANCER Chi-lou Lin, PhD, Edward E. Whang, MD, Jochen H. Lorch, MD, Daniel T. Ruan, MD Brigham and Women's Hospital

Background: Autophagy is an evolutionarily conserved mechanism that allows cells to evade stress-induced death. We hypothesized that inhibition of autophagy would enhance the anticancer efficacy of RET-targeted therapy in medullary thyroid cancer (MTC).

Methods: MTC-1.1 and TT MTC cell lines were treated with the tyrosine kinase inhibitors sunitinib or sorafenib in the presence or absence of everolimus (an mTOR inhibitor that activates autophagy) or siRNA directed against Atg-5 (an effector required for autophagy activation with no other function). LC3-II protein expression was assayed as a marker of autophagic activation. Viable cell number was assayed using MTS.

Results: Sunitinib and sorafenib each induced LC3-II protein expression, indicating that both activate autophagy. Atg-5 silencing resulted in a loss of LC3-II expression and diminished the antiproliferative effects of sunitinib and sorafenib by 25% (p<0.01) and 28% (p<0.01) in MTC-1.1 cells and by 28% (p=0.01) and 27% (p<0.01) in TT cells, respectively. In contrast, everolimus robustly induced LC3-II expression and increased the antiproliferative effects of sunitinib and sorafenib by 24% (p<0.01) and 27% (p<0.01) in MTC-1.1 cells and by 20% (p=0.03) and 23% (p = 0.01) in TT cells, respectively. Atg-5 silencing abrogated everolimus-induced increases in the efficacy of sunitinib and sorafenib, a finding that suggests the effects of everolimus on tyrosine kinase inhibitor efficacy are largely mediated through an autophagy-dependent mechanism.

Conclusions: Despite the observation that autophagy is a pro-survival mechanism in many contexts, loss of autophagy diminishes the efficacy of sunitinib- and sorafenib-mediated RET inhibition in MTC. Our findings suggest that autophagic activation should be combined with targeted RET therapy for patients with advanced MTC.

25. RESECTION IS LESS COMPLETE AND LOCAL RECURRENCE OCCURS SOONER AND MORE OFTEN AFTER LAPAROSCOPIC ADRENALECTOMY THAN AFTER OPEN ADRENALECTOMY FOR ADRENOCORTICAL CARCINOMA Barbra S. Miller, MD, Paul G. Gauger, MD, Gerard M. Doherty, MD University of Michigan

Background: Controversy surrounds the use of laparoscopy for resection in patients with adrenocortical carcinoma (ACC). This study evaluates the hypothesis that outcome is equivalent in patients undergoing laparoscopic adrenalectomy (LA) compared to open adrenalectomy (OA).

Methods: This study is a retrospective review of 217 patients (157 Stage 1-3) with ACC referred to a multidisciplinary adrenal clinic between 2005 and 2011. Data collected for the 157 patients undergoing resection with curative intent included demographics, operative and pathology reports, adjuvant therapy received and outcome. Student's t-test and Kaplan-Meier survival curves were used to compare data (p=0.05 considered significant).

Results: 157 patients [64% female, median age 47 years (range 18-80y), median follow-up 26.5 months (1-188)] were identified. 46 patients underwent LA and 111 patients underwent OA. Median tumor size of those undergoing LA was 7.4 cm (range 3.3-16.5) vs. 12.0 cm (range 5-28) (median stage=2) for OA (median stage=3). Of those who had LA, 26.6% were Stage 3 (not suspected pre- or intraoperatively). No adjacent organs or vessels were resected in the LA group vs. 34/55 (61%) Stage 3 OA cases. Thirty percent of patients undergoing LA had positive margins or notation of intraoperative tumor spill (4 others "close" or <1 mm) vs. 16% of OA (p=0.04). Incidence of tumor bed or peritoneal recurrence at initial recurrence was 85.7% LA and 40% OA (p<0.01). The time to recurrence after LA was significantly shorter as shown by Kaplan-Meier analysis (p=0.014). Those undergoing LA died at a median of 20.7 months (6.9-55.2) after surgery compared to 26.7 months (5.5-126.1) than those undergoing OA (p=0.14).

Conclusions: LA is not equivalent to OA for ACC based on site and timing of initial tumor recurrence. Incomplete or flawed resection is significantly greater in the LA group. Intraoperative evaluation during laparoscopy is insensitive for detection of Stage 3, missing the findings in over one quarter of patients. Local tumor recurrence occurs sooner and more often after LA. It is the surgeon's opportunity and responsibility to limit local and peritoneal recurrence as distant metastases likely cannot be influenced by type of surgery. The lack of survival difference between LA and OA should be interpreted cautiously as LA patients had smaller lower stage tumors and should have had better outcomes.

26. OPEN VERSUS ENDOSCOPIC ADRENALECTOMY IN THE TREATMENT OF LOCALIZED (STAGE I/II) ADRENOCORTICAL CARCINOMA - RESULT OF A MULTI-INSTITUTIONAL ITALIAN SURVEY

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Background: Although the role of endoscopic adrenalectomy (EA) for the resection of adrenocortical carcinoma (ACC) is still debated, the more frequent incidental diagnosis of ACC, registered in the last two decades, led to an increased rate of ACC treated by EA. The aim of this study was to compare the oncologic effectiveness of conventional adrenalectomy (CA) versus EA in the treatment of patients with localized ACC.

Methods: Two hundred seventy-eight patients with histological diagnosis of ACC were included in an Italian multi-institutional surgical survey. Among these, 156 patients with localized ACC (stage I/II) who underwent radical surgery were included in a retrospective analysis. They were divided in two groups on the basis of the surgical approach, conventional (CA-G) or endoscopic (EA-G). A comparative analysis of the demographic, operative and pathological characteristic of the two groups was performed. Oncologic effectiveness of the procedures was evaluated comparing the disease-free survival (DFS), type of recurrence and overall survival (OS) between the two groups.

Results: Thirty patients underwent EA and 126 CA. The two groups were well matched for age, sex, lesion size and stage (P=NS). The rate of adrenal incidentaloma was significantly higher in the EA-G (25/30 Vs 59/126) whereas the rate of secreting tumor was significantly higher in the CA-G (58/126 Vs 4/30) (P<0.01). No differences in terms of mean operative time and postoperative complication were observed between the two groups (P=NS). The mean follow-up time was similar between the two groups (P=NS). No cases of tumor fragmentation and peritoneal carcinomatosis were recorded in both groups. The mean time to recurrence was 28.6427.7 months in the CA-G and 26426.4 months in the EA-G (P=NS). The local recurrence rate was 11.8% for CA-G and 12.5% for EA-G (P=NS). Distant metastases were recorded in 17.2% of patients in the CA-G and 8.3% in the EA-G (P=NS). No significant differences were found between the two groups in terms of 5-years DFS (58.2% Vs 38.3%) and 5-years OS (66.5% Vs 47.5%) (P=NS).

Conclusions: The results of the present series demonstrate that CA and EA may be comparable in terms of DFS and OS for patients with localized ACC. When the principles of surgical oncology are respected, EA can achieve adequate surgical resection in the case of stage I/II ACC.

*27. LONG-TERM FOLLOW UP DATA MAY HELP MANAGE PATIENT AND PARENT EXPECTATIONS FOR PEDIATRIC PATIENTS UNDERGOING THYROIDECTOMY Lilah F. Morris, MD, Elizabeth G. Grubbs, MD, Carla Warneke, PhD, Steven G. Waguespack, MD, Haengrang Ryu, MD, Anita K. Ying, MD, Erich M. Sturgis, MD, Gary L. Clayman, MD, Jeffrey E. Lee, MD, Nancy D. Perrier, MD The University of Texas MD Anderson Cancer Center

Background: While total thyroidectomy (TTx) in pediatric patients (pts) can cure or prevent thyroid cancer, it commits patients to a lifetime of thyroid hormone titration and serial laboratory assessments. We explored long-term hypothyroidism, hypoparathyroidism, and replacement therapy outcomes to better facilitate decision-making pertaining to clinical expectations.

Methods: All pediatric pts undergoing TTx (2/01-7/11) at our institution were retrospectively reviewed. Age, procedure, pathology, frequency of biochemical hypothyroidism (TSH>10), number of lab assessments, and medication changes over time were recorded. Treatment-related hypothyroidism (TRHypo) was defined as intentional replacement withdrawal.

Results: 74 pts (median age 12.5, range 3.8 to 18.7 yrs) had the following histologic diagnoses: differentiated thyroid cancer (DTC, n=38), medullary carcinoma (MTC, n=16), and benign disease(n=20; 16 with MEN2A). 45 (60.8%) pts had >1 year postoperative follow up (f/u) (median f/u of this group 3.06 yrs, range 1.03 to 9.23 yrs). 19/45 (42.2%) pts had at least 1 period of self-reported medication non-compliance, and this was not significantly associated with age at TTx (p=0.29). Non-TRHypo occurred in 14/45 (31.1%) of pts during postop year (POY) 1. 29/30 DTC pts had > 1 episode of TSH > 10 during POY 1 of which 64% were treatment-related. 3/15 (20%) pts without DTC (MTC or benign disease) experienced non-TRHypo in POY1; this was not associated with age. The median number of TSH assessments during POY1 was 4 (range 2-8); of the 22 with > 3 years f/u, the number of assessments decreased significantly by POY3 (p=0.0002). Transient hypoparathyroidism occurred in 27%. In pts with > 1 year f/u, those with hypoparathyroidism had twice as many labs drawn in POY1 as those with normal parathyroid function (median lab draws/yr 8.0 vs. 3.5, p < 0.0001). 42.5% of families reported concerns: behavioral issues (14.9%), difficulty at school (10.6%), fatigue (8.5%), and weight gain (8.5%). 40% were concomitant with abnormal thyroid function tests.

Conclusions: Over 40% of pediatric pts were unable to fully comply with postop medication regimens. Non-TRHypo can occur in up to 1/3 of pts. Behavioral problems were not always associated with hypothyroidism. Postop hypoparathyroidism doubles the number of labs obtained. These data may help families better understand and prepare for TTx sequelae and refine decisions regarding timing of prophylactic thyroidectomy.

28. NEUROKININ A LEVELS PREDICT SURVIVAL IN PATIENTS WITH WELL DIFFERENTIATED SMALL BOWEL NEUROENDOCRINE TUMORS Anne E. Diebold, BS, J. Philip Boudreaux, MD, Yi-Zarn Wang, DDS, MD, Lowell B. Anthony, MD, Ann Porter Uhlhorn, RN, Pamela Ryan, BSN, RN, **Eugene A. Woltering, MD**

LSU Health Sciences Center

Background: Recent European investigations demonstrated that persistently elevated (> 50 pg/ml) plasma neurokinin A (NKA) levels are associated with a poor short term survival in patients with midgut neuroendocrine tumors (NETS). We conducted a prospective evaluation of the prognostic accuracy of NKA levels in patients from the United States with midgut NETS. We hypothesized that persistently elevated NKA levels (> 50 pg/ml) will have a poor short term survival.

Methods: The charts of 183 patients with metastatic well differentiated NETS of the jejunum or ileum followed with serial plasma NKA levels were reviewed. Patients were grouped according to their NKA values, and median, six, twelve, and eighteen month survival rates were calculated. Group one patients had NKA levels < 50pg/ml. Group two patients at one point had NKA levels >50 pg/ml but subsequently fell to < 50pg/ ml. Group three patients had NKA values currently and consistently >50pg/ml.

Results: Group one patients (n=145) have not yet reached their median survival and have six, twelve and eighteen month survival rates of 99%, 98%, 95%, respectively. Thirteen of fourteen (93%) of group two patients are currently alive. Group three patients (n=24) have a median survival of 20 months, and six, twelve, and eighteen month survival rates of 78%, 63%, and 57%, respectively. The difference in the median survival of Group 1 vs. Group 3 was highly statistically significant (p<.0001).

Conclusions: Patients with midgut NETS who have serial NKA levels <50 pg/ml have an excellent short term prognosis, while patients with NKA levels >50 pg/ml have a poor short term prognosis.

***29.** EXTENT OF MODIFIED RADICAL NECK DISSECTION FOR PAPILLARY THYROID CANCER DOES NOT INFLUENCE LATERAL NECK RECURRENCE **Maria B. Albuja Cruz, MD**, John I. Lew, MD, Steven E. Rodgers, MD, PhD University of Miami Miller School of Medicine

Background: Wide variability exists in the number of lymph nodes that are removed during modified radical neck dissection (MRND) for papillary thyroid cancer (PTC). Although extensive lymphadenectomy is performed with the goal of minimizing disease recurrence, it is unclear if this strategy is effective. This study seeks to determine the relationship between number of lymph nodes removed during MRND and the incidence of disease recurrence.

Methods: A retrospective review was performed of 121 patients with PTC with lateral neck involvement (levels 2-5) who underwent MRND at a single institution from January 1990 through July 2011. Data were analyzed for patient demographics, operative procedure, lymph node involvement, complications, radioactive iodine therapy and recurrence of disease. Patients who developed recurrent disease in the lateral neck after MRND were compared to those who remained disease free. Recurrent disease was defined by the presence of biopsy-proven PTC in the same lateral compartment 6 months or greater following MRND.

Results: Among 121 patients who underwent MRND for PTC, the mean age was 46.7 years with a female-to-male ratio of 1.8:1. The median follow-up was 21.9 months. Mean number of lymph nodes removed from the lateral compartment was 20.3 [range 2-86]. Recurrent disease was found in 11 patients (9%). The median time to recurrence from MRND was 19.2 months (range 7.9-139.9). Mean number of lymph nodes removed was 18.2 in the recurrence group vs. 20.3 in the non-recurrence group. This difference was not statistically significant (p=0.54). There was no significant difference in the mean number of positive lymph nodes removed (4.5 in the recurrence group vs. 4.2 in the non-recurrence group; p=0.24). Adjuvant radioactive iodine ablation was confirmed for 90.9% of patients in the recurrence group vs. 83.6% of patients in the non-recurrence group. Six patients overall (5%) developed complications related to MRND, including wound infection (n=1), lymphocele (n=2), spinal accessory nerve injury (n=2), and phrenic nerve injury (n=1).

Conclusions: Recurrence of PTC after MRND is unrelated to the number of lymph nodes removed. This study suggests that attempts to maximize the number of lymph nodes removed during MRND for PTC may not be necessary.

***30.** CALCULATING AN INDIVIDUAL MAXPTH TO AID DIAGNOSIS OF NORMOCALCEMIC PRIMARY HYPERPARATHYROIDISM **Judy Jin, MD**, Jamie Mitchell, MD, Joyce Shin, MD, Eren Berber, MD, Allan E. Siperstein, MD, Mira Milas, MD Cleveland Clinic

Background: A nomogram created in 2009 defined the normal range for PTH by total serum calcium (Ca), age, and 25-OH vitamin D (D25), based on values from a healthy population. When applied to an initial surgical cohort, the nomogram accurately classified patients with primary hyperparathyroidism (PHP). The goal of this study was to evaluate the clinical utility of the nomogram to confirm PHP, especially in challenging scenarios where normocalcemic PHP and D25 deficiency coexist.

Methods: The nomogram calculates an expected maximal upper limit of normal PTH unique for each person, using the formula: maxPTH = 120-[6*Ca]-[1/2*D25]+[1/4*age]. Diagnosis of PHP is suspected when measured serum PTH level is greater than the calculated maxPTH level. To verify this prediction against surgical and histologic findings from patients with PHP, we analyzed a cohort not involved with the original development of the model. Normocalcemic PHP (NCPHP) was defined as normal Ca levels (8.5-10.5 mg/dL) with elevated PTH (>60 pg/mL) at all preoperative measurements. Vitamin D deficiency was defined as D25<30 ng/mL.

Results: Between Jan 2007 and Dec 2010, 653 patients with PHP underwent surgery. All patients had abnormal parathyroid glands excised at the time of operation and the results were confirmed by surgical pathology reports. Overall and including those with classical presentation (high Ca and PTH), the nomogram predicted PHP in 97% of patients. 264 patients had NCPHP; 166 patients had NCPHP (mean Ca 9.940.6 mg/dL) with low D25 levels and thus made initial diagnosis of PHP more challenging. When the nomogram was used to calculate maxPTH, it predicted PHP correctly in 153/166 patients (92%), despite concurrent and untreated vitamin D deficiency. In the 98 patients with normal vitamin D status at surgical consultation, the nomogram correctly identified PHP in 96/98 (98%) of patients. The nomogram was better at predicting patients with NCPHP who had normalized D25 levels, however, the difference was not statistically significant (2, p=0.09).

Conclusions: The maxPTH nomogram, developed in a healthy population cohort, also functions as expected to classify patients with PHP correctly. We currently use it as an adjunctive diagnostic tool for NCPHP patients regardless of vitamin D status and repletion, but are validating it prospectively within primary care clinics. This tool may reassure primary care providers and surgeons alike to embark on appropriate and timely management of PHP.

31. INTRA-THYROIDAL PARATHYROID GLANDS; SMALL, BUT MIGHTY (A NAPOLEON PHENOMENON) **Guennadi Kouniavsky, MD**, Haggi Mazeh, MD, David F. Schneider, MD, MS, Konstantinos Markis, MD, Rebecca S. Sippel, MD, Alan P.B. Dackiw, MD, Herbert Chen, MD, Martha A. Zeiger, MD, Johns Hopkins University School of Medicine

Background:Intra-thyroidal parathyroid adenomas (ITPA) are a rare entity that challenges the surgeon attempting to perform a minimally invasive parathyroidectomy. To date, the characteristics of ITPA have been limited to case series. The purpose of this study was to describe the experience of two high volume endocrine surgery centers and to discover characteristics that distinguish single ITPA from single adenomas that are cervical, but not intra-thyroidal.

Methods:Under IRB approval we retrospectively reviewed parathyroid databases from two institutions. Included were patients operated between January 2002 and June 2011 for primary hyerparathyroidism (PHPT) who had parathyroid adenomas within the thyroid gland. Patients with sub-capsular parathyroid glands were excluded. Demographics, symptoms, laboratory values, preoperative imaging, type of operation, pathology, and outcomes were recorded. Patients with single ITPAs were also compared to age and sex-matched controls with non-intrathyroidal single adenomas with a ratio of 1:3.

Results:Of 4,868 patients who underwent parathyroidectomy we identified 53 (1%) of patients with ITPA. The mean age was 5442 years and 77% were female. Sestamibi and ultrasound scans were performed in 50 (94%) and 18 (34%) of patients, and identified the adenoma in 35 (70%) and 11 (61%), respectively. In 4 (8%) patients previous parathyroidectomy had been attempted. Single adenomas were identified in 44 (83%), double adenomas in 4 (8%), and hyperplasia in 5 (9%) patients. Lobectomy was performed in 17 (32%) of patients while intrathyroid dissection was used to resect the parathyroid gland in 36 (68%). Cure was achieved in all patients and none recurred. Two patients (4%) had permanent hypocalcemia. In the case-control comparison of patients with single non intra-thyroidal adenomas, patients with ITPA had smaller glands (325447 vs. 772461 mg, p<0.0001) and were more frequently discovered as part of a bilateral neck exploration (43% vs. 16%, p<0.0001). However, no significant difference was identified between the groups with regards to demographics, symptoms, preoperative laboratory values, or outcome.

Conclusions: This is the first and only large case-control series comparing ITPA to patients with extra-thyroidal single adenomas. Single ITPAs are smaller than non intra-thyroidal adenomas, but patients with ITPAs present with similar laboratory values and symptoms. Recognition of this rare entity can lead to successful outcomes.

32. TELOMERE LENGTH IS SHORTER IN AFFECTED MEMBERS WITH FAMILIAL NONMEDULLARY THYROID CANCER Mei He, MD, Brent Bian, Krisana Gesuwan, CRNP, Neelam Gulati, **Naris Nilubol, MD**, Electron Kebebew, MD National Institutes of Health, National Cancer Institute

Background: No susceptibility gene(s) for familial non-medullary thyroid cancer (FNMTC) has been identified. It is controversial, whether short telomere length and inherited or acquired genetic defects in telomere length and maintenance are associated with familial diseases and increased risk of cancers including FNMTC. The aim of this study was to determine whether telomere length, telomerase activity and six-proteins (shelterin) involved in regulating telomere length and/or telomerase activity are altered in comprehensively screened kindreds with FNMTC.

Methods: Blood samples were collected from 6 families with FNMTC (13 affected, 35 unaffected), and 30 control cases (10 sporadic benign thyroid disease, 10 sporadic thyroid cancer, 10 non-thyroid disease). All unaffected family members had screening thyroid ultrasound and thyroid fine needle aspiration biopsy, if a thyroid nodule was present, to exclude a thyroid cancer diagnosis. Both DNA and RNA were extracted from peripheral blood lymphocytes. Quantitative PCR (Q-PCR) and RT-PCR was performed to analyze relative telomere length (RTL), and gene copy number and mRNA expression (hTERT, TRF1, TRF2, RAP1, TIN2, TPP1, POT1), respectively.

Results: Affected members had shorter telomere length as compared with unaffected members in kindreds with FNMTC and control groups ($p \le 0.01$). However, there was no significant difference in hTERT gene copy number or hTERT mRNA expression between affected and unaffected members with FNMTC. We also found no significant difference in DNA copy number and mRNA expression for TRF1, TRF2, RAP1, TIN2, TPP1 and POT1 between affected and unaffected members with FNMTC.

Conclusions: Telomere length is shorter in affected members with FNMTC. Altered copy number or expression in hTERT, TRF1, TRF2, RAP1, TIN2, TPP1 and POT1 do not appear to account for the difference in telomere length between affected and unaffected members with FNMTC.

33. UNIQUE AGE-RELATED VARIATIONS IN THE PROPORTION OF PATIENTS WITH PERSISTENT DISEASE AND IN THYROGLOBULIN-DOUBLING TIME IN PATIENTS WITH PAPILLARY THYROID CARCINOMA AFTER TOTAL THYROIDECTOMY **Akira Miyauchi, MD**, Takumi Kudo, MD, Yukiko Tsushima, MD, Osamu Yamada, MD, Hiroo Masuoka, MD, Tomonori Yabuta, MD, Mitsuhiro Fukushima, MD, Minoru Kihara, MD, Takuya Higashiyama, MD, Yuuki Takamura, MD, Yasuhiro Ito, MD, Kaoru Kobayashi, MD, Akihoro Miya, MD Kuma Hospital

Background: Tumor size, extrathyroidal extension, node and distant metastases, age and gender are classical prognostic factors for papillary thyroid carcinoma (PTC). Recently we reported that serum thyroglobulin-doubling time (Tg-DT) was the only independent prognostic factor on multivariate analysis in patients with PTC who underwent total thyroidectomy and who do not have Tg antibody (Tg-Ab) (Thyroid, 21: 707, 2011). Detectable Tg after total thyroidectomy implies biochemical persistent disease (BPD). Here, we report unique age-related variations in proportion of patients with BPD and in Tg-DT in patients with PTC after total thyroidectomy.

Methods: Between January 1998 and December 2004, 1515 patients with PTC underwent total thyroidectomy in our hospital. After excluding patients with Tg-Ab, 426 patients with 4 or more serum Tg measurements at TSH <0.1 mIU/L condition were selected for further analysis. There were 349 females and 77 males, aged from 14 to 81 years with a mean of 51.5 years. The TNM Stage was Stage I, II, III, IVa, and IVc in 33, 74, 130,175, and 14 patients, respectively. Patients were followed for 20-143 months with a median of 86.7 months. Tg-DT was computed. Multivariate analyses were performed to find factors that associate with short Tg-DT.

Results: Of the 426 patients, 142 (33%) had BPD. In these patients, Tg-DT showed a wide range of variation, being <2 years, 2 to 6 years, >6 years, and negative values due to decrease in Tg levels in 33, 20, 17, and 72 patients, respectively. For 88 patients with 3 or fewer detectable Tg levels, Tg-DT was not calculated, and 196 patients demonstrated undetectable Tg levels only (biochemical remission). Tg-DT <2 years, indicating rapid tumor growth, was associated with only age and not with other classical prognostic factors. Proportion of the patients with BPD was significantly higher in young patients <40 years and old patients >60 years than middle-aged patients, being 40.5 %, 41.2 %, and 26.8 %, respectively (P < 0.05). However, the proportion of patients with Tg-DT <2 years increased with age, being 5.9 % in young patients, 14.8% in meddle-aged patients, and 46.8% in old patients.

Conclusions: 1. Only the age at surgery independently associated with Tg-DT < 2 years. 2. Proportion of the patients with BPD was significantly higher in young patients and old patients than middle aged patients. 3. Proportion of the patients with short Tg-DT increased with age.

34. SHOULD PATIENTS WITH COWDEN SYNDROME UNDERGO PROPHYLACTIC THYROIDECTOMY? Mira Milas, MD, Jessica Mester, MS, **Rosemarie Metzger, MD, MPH**, Joyce Shin, MD, Jamie Mitchell, MD, Eren Berber, MD, Allan E. Siperstein, MD, Charis Eng, MD, PhD Cleveland Clinic

Background: Cowden syndrome (CS) is a dominantly inherited condition predisposing to benign and malignant tumors in multiple organ systems. Definitive diagnosis is made by detection of a germline mutation in the PTEN tumor suppressor gene (PTEN+). Recent work at our center has identified a 30% lifetime risk for differentiated thyroid cancer (DTC) in PTEN+ patients. However, less is known about their DTC clinical features, associated benign thyroid disease, or outcomes from dedicated screening programs. Our goal was to characterize these important aspects of CS.

Methods: Our center maintains a database of 2723 prospectively recruited CS and CS-like patients with known genetic analysis. We identified 225 PTEN+ patients whose treatment occurred at our center (n=25) or at other hospitals nationwide (n=200). Medical records were reviewed for data related to benign and malignant thyroid disorders.

Results: Of 225 PTEN+ patients, 32 (14%) had DTC. Median age at diagnosis was 35 yrs compared to 49 yrs for SEER population data. Histology was 57% classical papillary, 28% follicular variant papillary, 14% follicular and 6% anaplastic cancer. Mean tumor size was 14 mm and 54% were multifocal. Distant (n=1) and cervical (n=2) metastases were rare. Of the 25 patients treated at our center, 16 underwent 1st formal thyroid screening or 2nd opinion evaluation. They ranged in age from 7-51 yrs, and 14 were newly diagnosed as PTEN+. Thyroid ultrasound (US) revealed thyroiditis or goiters in all patients older than 13 yrs, leading to FNA in 7 (64%), thyroidectomy in 3 (27%), and new DTC diagnosis in 2 (18%). Severe autism in 3 patients (ages 21-23 yrs) required intraoperative sedation for US and poses challenges for ongoing surveillance of their goiters. Nine of 25 patients are followed for previous diagnoses including benign disease requiring multiple partial thyroidectomies by age 42 (n=5), Hashimoto's thyroiditis (n=1), or cancer detected by age 36 (n=3).

Conclusions: The prevalence and lifetime risk of DTC and benign thyroid disease are significantly high in PTEN+ patients with CS. Thyroiditis and nodules are seen by adolescence, and age at DTC diagnosis is 14 yrs younger than the general population. This suggests a need for earlier screening than currently advised by ATA and NCCN guidelines. Furthermore, the risks observed may justify consideration of prophylactic total thyroidectomy in select, if not all, patients, particularly those with developmental disorder

35. IS PRIOR SAME QUADRANT SURGERY A CONTRAINDICATION TO LAPAROSCOPIC ADRENALECTOMY?

Amanda Amin, MD, Haggi Mazeh, MD, Alexander B. Froyshteter, BA, Tracy Wang, MD, MPH, Douglas Evans, MD, Rebecca S. Sippel, MD, Herbert Chen, MD, Tina W. F. Yen, MD

Medical College of Wisconsin

Background: Laparoscopic adrenalectomy has become the standard of care for resection of most adrenal lesions. Previous abdominal surgery may present a challenge to safely completing the procedure laparoscopically. The aim of this study is to evaluate the impact of previous same side upper abdominal surgery on laparoscopic adrenalectomies performed at two tertiary centers.

Methods: A retrospective analysis of prospective databases was performed to include patients that underwent laparoscopic transabdominal adrenalectomy at two tertiary centers between 2001 and 2011. Data included patient's demographics as well as detailed surgical history. Intraoperative course and postoperative complications were documented. Patients with and without previous same side upper abdominal surgeries were compared.

Results: Of the total 217 patients, 38 (18%) had previous relevant surgery (RS) and 179 (82%) had no relevant surgery (NRS). The groups had similar age (564 2 vs. 5241 years, p=0.07), gender (63% vs. 57% females, p=0.51), and tumor size (4.240.1 vs. 4.640.2 cm, p=0.63). Adhesion were more common in the RS group (63% vs. 18%, p<0.001); however the mean operative time (173416 vs. 14846, p=0.1) and the intraoperative complication rate (3% vs. 3%, p=0.55) were not significantly different. The rate of conversion to open surgery was higher in the RS group (11% vs. 3%, p=0.05) and importantly, all of the conversions in the RS group followed prior open procedures. Adhesions were the cause of conversion in only one patient in the RS group. Mean length of stay and rate of postoperative complications were comparable between the groups (1.940.1 vs. 2.2402, p=0.92 and 13% vs. 7%, p=0.12).

Conclusions: Laparoscopic adrenalectomy in patients with previous same side abdominal surgery is feasible and safe, with comparable outcomes to those without relevant surgery. Previous open procedures may be associated with higher rates of conversion to open surgery.

36. INVASION IN FOLLICULAR THYROID CANCER (FTC) CELL LINES IS MEDIATED BY EPHA2 AND PAKT Yunxia O'Malley, PhD, Geeta Lal, MD, James R. Howe, MD, Ronald J. Weigel, MD, PhD, **Sonia L. Sugg, MD** University of Iowa

Background: EphA2 is a tyrosine kinase receptor overexpressed in many cancers and associated with poor prognosis and increased metastasis. pAkt is increased in thyroid cancer, especially in follicular and poorly differentiated types, and is important in the regulation of thyroid cancer invasion and metastasis. We investigated the role of EphA2 and Akt in the FTC-133 and FTC-238, 2 closely related human FTC cell lines with different invasive phenotypes.

Methods: Western blot was used to measure the total protein expression in cell lines, and immunohistochemistry was performed on thyroid tissue microarrays. Thyroid cell lines were cultured in to 90% confluence and transfected with siRNA or cDNA. Invasion assays were performed using Matrigel chambers and invaded cells were assayed with MTT.

Results: EphA2 protein was expressed in the thyroid cancer cell lines FTC 133, 236, 238, KAT 18, TPC1, and WRO by Western analysis. It was also expressed in benign and malignant human thyroid tumors, but not in normal thyroid by IHC staining. FTC-238 had a more than 2 fold expression of EphA2 and 5 fold increase in invasion compared with FTC-133 (p<0.001). In FTC-238, treatment with EphA2 siRNA decreased EphA2 expression 4 fold and reduced invasion 2 fold (p<0.001). Protein levels of pAkt were also significantly decreased. Overexpression of EphA2 in FTC-133 increased invasion 2-4 fold (p<0.05), and significantly increased pAkt protein levels. Akt siRNA and Akt inhibitors decreased pAkt levels and invasion without changing EphA2 levels.

Conclusions: EphA2 is expressed in human thyroid cancer and mediates invasion in the follicular thyroid cell lines FTC-133 and -238. pAKT, an important regulator of thyroid cancer metastasis, is attenuated by EphA2 knockdown, providing evidence that EphA2 may act through pAkt to mediate invasion. EphA2 and pAKT may be candidates for targeted therapy against metastatic thyroid cancer.

37. OPEN VERSUS LAPAROSCOPIC LIVER RESECTION: THE OPTIMAL TREATMENT FOR HEPATIC METASTASES FROM CARCINOID TUMORS Emad Kandil, MD, Salem I Noureldine, MD, Alan Koffron, MD, Bob Saggi, MD, Lu Yao, MPH, Robert Cannon, MD, **Joseph F. Buell, MD** Tulane University School of Medicine

Background: The optimal treatment for hepatic metastases from carcinoid tumors remains controversial due to the often indolent nature of these tumors and rarity of this malignancy. Over the last few decades, increased understanding of the hepatic anatomy and the advancements in technology has extended the scope laparoscopic liver surgery. More surgeons are willing to perform aggressive resections in patients with isolated hepatic carcinoid tumor metastases, potentially, to improve survival. We sought to compare the outcome in patients with isolated hepatic metastases from carcinoid tumors treated with open versus laparoscopic liver resection.

Methods: A retrospective analysis of our prospectively collected liver surgery database was performed. All consecutive patients who underwent liver resection for isolated hepatic carcinoid tumor metastases were included. Patients were divided into two groups depending on surgical approach, laparoscopic group and open group.

Results: From March 2001 through December 2010, 36 patients with liver-only carcinoid tumor metastases treated surgically were identified. Twenty one open and fifteen laparoscopic liver resections were performed. Three (20%) major resections were performed in the laparoscopic group and five (24%) in the open group. Two cases in the laparoscopic group required a conversion. The two groups were similar in terms of gender, body mass index (BMI), size of the metastatic lesion and extent of liver resection (p> 0.05). The laparoscopic group required shorter operative time (2.741.3 vs. 5.240.9 hours, p<0.001), had less intraoperative blood loss (158.34104.2 vs. 885.74488 ml, p=0.03) and shorter hospital stay (3.241.7 vs 7.641.7 days, p<0.001). No patients required transfusion in the laparoscopic group while 8 (38%) patients required one in the open group (p=0.01). Complications were reported in 7 (33%) cases of the open group and 3 (20%) cases of the laparoscopic group (p=0.21). There was no perioperative mortality in both groups. The 3-year overall survival rate for the laparoscopic group was 100% compared to 71.4% for the open group.

Conclusions: To our knowledge this is the first reported study comparing laparoscopic versus open liver resection in the treatment of liver metastases from carcinoid tumors. Metastases from carcinoid tumors are often responsive to debulking and curative resection. These tumors are often vascular but this series confirms these tumors can safely be managed laparoscopically.

 38. GASTRO-ESOPHAGEAL REFLUX DISEASE SYMPTOMS IMPROVE SIGNIFICANTLY AFTER PARATHYROIDECTOMY
 Alexandra E. Reiher, MD, Haggi Mazeh, MD, Sarah Schaefer, NP, Jon Gould, MD, Herbert Chen, MD, Rebecca S. Sippel, MD
 NorthShore University HealthSystem

Background: Primary hyperparathyroidism can be associated with a myriad of symptoms, including those related to gastro-esophageal reflux disease (GERD). However, it is unclear which symptoms of GERD improve after parathyroidectomy. Our goal was to prospectively assess for changes in specific GERD symptoms after parathyroidectomy using a validated questionnaire.

Methods: Using the GERD health-related quality of life (GERD-HRQL) questionnaire, symptoms of heartburn were prospectively assessed before and 6 months after treatment of hyperparathyroidism with parathyroidectomy at a single academic institution. This validated questionnaire includes 10 items, with a Likert scale of 0-5. Scores range from 0-45, with a lower score indicating fewer/less severe symptoms.

Results: Pre- and post-operative surveys were available for 51 patients. Average age at time of surgery was 5942 years, and 78% of patients were female. Average BMI was 30.7 kg/m2. Surgery significantly improved the overall questionnaire score (13.941.4 vs. 5.041.0, p<0.0001). Greater than 50% improvement was recorded in 69% of patients following parathyroidectomy. Overall scores for each question significantly improved after surgery, including symptoms of dysphagia (p=0.001), presence of heartburn lying down (p=0.0008) or standing up (p=0.004), and overall satisfaction with symptoms (p<0.0001). However, the number of patients on anti-reflux medication before and after surgery was not significantly different (34 vs. 29 patients, p=0.17).

Conclusions: All symptoms of GERD significantly improved following surgery for hyperparathyroidism. Despite the significant decrease in symptoms, there was not a significant change in the number of patients who remained on anti-reflux therapy. For patients with symptoms of GERD, a trial off anti-reflux medications after parathyroidectomy should be considered.

39. NOVEL WITHANOLIDES TARGET MEDULLARY THYROID CANCER THROUGH INHIBITION OF BOTH RET PHOSPHORYLATION AND THE MTOR PATHWAY Abbas K. Samadi, PhD, Haoping Zhang, PhD, Robert J. Gallagher, PhD, G. Rao, PhD, Kelly Kindscher, PhD, Barbara N. Timmermann, PhD, **Mark S. Cohen, MD** University of Kansas Medical Center

Background: While the incidence of medullary thyroid cancer (MTC) has grown yearly, survival statistics even with newer targeted therapies have not significantly improved long-term, warranting development of novel therapies with less toxicity and more durable efficacy. Our group recently isolated several novel withanolide compounds from the Solanaceae Physalis plant and completed structure-activity relationships of these compounds to identify lead withanolides that are highly potent against MTCs. Given our prior experience with other withanolides in multiple cancers including thyroid cancers, we hypothesize that these novel compounds will inhibit RET phosphorylation as well as the mTOR pathway in MTC cells as a mechanism of antiproliferation and apoptosis in these cells.

Methods: TT and DRO81-1 MTC cells were treated with five novel withanolide derivatives (X001, X003, X005, X032, and X033) as well as with withaferin A, 17-AAG, vandetanib, and XL184. Cell viability and proliferation was studied using MTS and trypan blue assays. Apoptosis was determined by flow cytometry with Annexin V/PI staining and confirmed by caspase 3 activation and PARP cleavage using Western blot analysis. Long-term cytotoxic effect on MTC cells was studied using clonogenic assay. Suppression of RET tyrosine kinase, mTOR, Akt, ERK1/2, HSF-1, 4E-BP1, and p70S6kinase1 phosphorylation was determined by Western blot analysis.

Results: The novel withanolides X001, X003, X032, and X033 reduced cell viability in both MTC cell-lines in a time-dependant and dose-dependant manner with IC50 levels of 290-690nM compared to 2.4uM for 17-AAG, 350nM for vandetanib, and 60nM for XL184. The withanolides induced apoptosis in MTC cells at less than 500nM of drug. Apoptosis was confirmed with activation of caspase 3 and PARP cleavage at concentrations of 250nM. The withanolides not only suppressed RET and Akt phosphorylation and protein expression in a concentration and time-dependent manner but also uniquely suppressed mTOR activity and translational activity of 4E-BP1 and protein synthesis mediated by p70S6kinase1 activation at IC50 levels of drug.

Conclusions: Novel withanolide drugs from the Physalis plant selectively and potently inhibit MTC cells in vitro. Unlike other targeted therapies, these compounds not only inhibit RET kinase activity but also target the Akt/mTOR prosurvival pathway in MTC cells. Further translational studies are warranted to evaluate their clinical potential.

40. UNILATERAL ADRENAL HYPERPLASIA: A NOVEL CAUSE OF SURGICALLY CORRECTABLE PRIMARY HYPERALDOSTERONISM.

Marilisa Citton, MD, Maurizio Iacobone, MD, Giovanni Viel, MD, Riccardo Boetto, MD, Italo Bonadio, MD, Saveria Tropea, MD, Sasa Sekulovic, MD Franco Mantero, MD, Gianpaolo Rossi, MD, Ambrosio Fassina, MD, Donato Nitti, MD, Gennaro Favia, MD University of Padua

Background: Primary Hyperaldosteronism is a relatively frequent cause of arterial hypertension. It may be caused by APA (Aldosterone Producing Adenoma, correctable by unilateral adrenalectomy) or IAH (Idiopathic Adrenal Hyperplasia, usually considered a bilateral disease without any indication to surgery). This study was aimed to assess the effective rate and the results of surgery in unilateral IAH.

Methods: Thirty-five patients underwent surgery because of primary hyperaldosteronism following successful lateralization of the hypersecretion by adrenal venous sampling (AVS). Demographics, imaging and biochemical evaluation (aldosterone renin ratio, ARR), kalemia and blood pressure levels were assessed pre and postoperatively. Biochemical disease cure was defined by the normalization of ARR and kalemia levels. Pathology was categorized as APA (well circumscribed, isolated adrenocortical adenoma), diffuse (diffuse thickening of the gland without nodules) and nodular Hyperplasia (multiple micro-macronodules).

Results: No surgery-related morbidity occurred. Pathology revealed 9 APA (25.7%), 23 nodular (65.7%) and 3 diffuse Hyperplasia (8.6%). No statistically significant differences were found between APA and Hyperplasia patients concerning sex ratio, age (50.2 years vs 48.6 years), ARR, kalemia, preoperative blood pressure levels, body mass index, size of the prevalent adrenal nodule at imaging techniques (14 vs 12 mm). Bilateral adrenal involvement was evident at preoperative imaging in 10 patients (11.1% in APA vs 34.6% in hyperplasia patients, p=0.23). At the early follow up (6 months after surgery), biochemical cure was achieved in all patients; blood pressure levels normalized or significantly reduced in 88.8% in APA vs 84.6% in Hyperplasia patients (p=NS). At a prolonged follow-up (mean 6 yrs) 97% of patients remained biochemically cured; only one patient with nodular Hyperplasia experienced a biochemical recurrence of the disease.

Conclusions: Unilateral adrenal Hyperplasia is more common than anticipated, representing the 74.3% of cases in lateralized primary hyperaldosteronism. It may share the same features of APA, although it may present as a bilateral disease at imaging techniques in one third of cases. When AVS is successful in lateralizing the disease, unilateral adrenalectomy achieves excellent long-term results in term of biochemical cure and blood pressure control regardless the results of pathology; recurrences of the disease are rare.

ORAL POSTERS

*P1. THE ROLE OF SHEAR-WAVE ULTRASOUND ELASTOGRAPHY IN ESTIMATING CANCER RISK AND DETERMINING THE EXTENT OF SURGERY IN PATIENTS WITH INDETERMINATE THYROID NODULES

Jason D. Prescott, MD, PhD, Manish Dhyani, MD, Anthony Samir, MD, Hanna Arellano, BS, Richard A. Hodin, MD, Randall D. Gaz, MD, Gregory W. Randolph, MD, David Zurakowski, PhD, Dianne M. Finkelstein, PhD, Sareh Parangi, MD, **Antonia E. Stephen, MD**

Massachusetts General Hospital

P2. USE OF MOLECULAR MARKERS ON FNA BIOPSIES OF THYROID NODULES, AS RECOMMENDED BY RECENT ATA GUIDELINE, MODIFIES SURGICAL TREATMENT OF THYROID NODULES AND THYROID CANCER

Alexander L. Shifrin, MD, Cindy Huang, MD, Danielle Lann, MD, Sunil Asnani MD Jersey Shore University Medical Center

*P3. THE LONG TERM PREDICTIVE VALUE OF ADRENAL VEIN SAMPLING IN PATIENTS OPERATED FOR CONN'S SYNDROME WITH A KNOWN, CONCURRENT, CONTRALATERAL INCIDENTALOMA

Jacqueline I. Lee, MD, Sarah C. Oltmann, MD, Stacey Woodruff, MD, Fiemu Nwariaku, MD, Shelby Holt, MD, Jennifer Rabaglia, MD University of Texas Southwestern Medical Center

*P4. TOXIC NODULAR GOITER AND CANCER: A COMPELLING CASE FOR THYROIDECTOMY

J. Joshua Smith, **MD**, David F. Schneider, MD, Rebecca S. Sippel, MD, Herbert Chen, MD, FACS, James T. Broome, MD, Carmen C. Solorzano, MD Vanderbilt University

P5. SHOULD LATERAL NECK DISSECTION BE PROPOSED TO ALL THE PATIENTS WITH SPORADIC MEDULLARY THYROID CARCINOMA?

Marco Raffaelli, MD, **Carmela De Crea, MD**, Valentina Milano, MD, Emanuela Traini, MD, Annamaria D'Amore, MD, Guido Fadda, MD, Rocco Bellatone, MD, Celestino P. Lombardi, MD

U.O. Chirurgia Generale ed Endocrina - Policlinico A. Gemelli - Università Cattolica del Sacro Cuore

*P6. PARATHYROID CRYOPRESERVATION FOLLOWING PARATHYROIDECTOMY: A WORTHWHILE PRACTICE?

Kevin Shepet, BS, Reid Usedom, Rebecca S. Sippel, MD, FACS, Herbert Chen, MD, FACS University of Wisconsin

ORAL POSTERS CONT.

*P7. COST AND EFFICACY OUTCOMES OF TRANSAXILLARY ENDOSCOPIC THYROIDECTOMY WITH AND WITHOUT ROBOTIC ASSISTANCE **Barnard J. Palmer, MD**, Hannah Lowe, BA, Kee-Hyun Nam, MD, Bernadette Laxa, MD, Randall P. Owen, MD, William B. Inabnet, MD Mount Sinai School of Medicine

P8. COMBINATION THERAPY IS NECESSARY TO TREAT TYROSINE KINASE COACTIVATION IN MEDULLARY THYROID CANCER Chi-Iou Lin, PhD, Menno R. Vriens, MD, Jinyan Du, PhD, **Lutske Lodewijk, MD**, Edward E. Whang, MD, Daniel T. Ruan, MD Brigham and Women's Hospital

P9. PROGNOSTIC PARAMETERS AFTER SURGERY FOR ADRENAL METASTASIS: A SINGLE INSTITUTION EXPERIENCE **Ivan R. Paunovic, MD**, Vladan R.Zivaljevic, MD, Aleksandar Dj.Diklic, MD, Katarina M. Tausanovic, MD, Radenko M.Stojanic, MD, Sandra B. Sipetic, MD Center for Endocrine Surgery, Clinical Center of Serbia, Belgrade, Serbia, Medical School University of Belgrade, Belgrade, Serbia

P10. IMAGE-GUIDED ABLATION OF LOCAL RECURRENT AND DISTANT FOCAL METASTATIC WELL-DIFFERENTIATED THYROID CANCER Jeffrey P. Guenette, BA, **Jack M. Monchik, MD**, Damian E. Dupuy, MD Warren Alpert School of Medicine at Brown University

POSTER DISPLAYS

11. EXTRACAPSULAR NODAL DISEASE IS AN INDEPENDENT PREDICTOR OF DEATH AFTER LATERAL CERVICAL LYMPHADENECTOMY FOR PAPILLARY THYROID CANCER

Rodrigo Arrangoiz, MD, Miriam Lango, MD, Tianyu Li, PhD, Colleen Veloski, MD, Thomas Galloway, MD, Ranee Mehra, MD, Drew Ridge, MD, PhD Fox Chase Cancer Center

12. EXCESSIVE WEIGHT GAIN AFTER TOTAL THYROIDECTOMY: MYTH OR REALITY? Ngan Lai, BA, Laurel Bessey, BS, Kevin Shepet, BS, Herbert Chen, MD, Rebecca S. Sippel, MD

University of Wisconsin

13. MEDICAL OR SURGICAL THERAPY FOR PRIMARY ALDOSTERONISM: POST-TREATMENT FOLLOW UP AS A SURROGATE MEASURE OF COMPARATIVE OUTCOMES.

Gregory A. Kline, MD, **Janice L. Pasieka, MD**, Adrian Harvey, MD, Estifanos Debru, MD, Benny So, MD, Valerian C. Dias, PhD University of Calgary

14. QUALITY OF LIFE (QOL) IN PATIENTS WITH BENIGN THYROID GOITERS (PRE AND POST- THYROIDECTOMY): A PROSPECTIVE STUDY

Anjali Mishra, MS, PDC, Mayilvaganan Sabaretnam, MS, Gyan Chand, MS, Gaurav Agarwal MS, PDC, Amit Agarwal, MS, Ashok K. Verma, MS, Saroj K. Mishra, MS Sanjay Gandhi Postgraduate Institute of Medical Sciences

15. THE IMPACT OF LYMPH NODE RATIO ON SURVIVAL IN PAPILLARY THYROID CANCER

David F. Schneider, MD, MS, Herbert Chen, MD, Rebecca S. Sippel, MD University of Wisconsin

16. THE ENDOCRINE SURGERY JOB MARKET: A SURVEY OF FELLOWS AND DEPARTMENT CHAIRS

Joyce J. Shin, MD, Mira Milas, MD, Jamie Mitchell, MD, Eren Berber, MD, Allan E. Siperstein, MD Cleveland Clinic

17. SIGNIFICANCE OF SIZE OF LYMPH NODE METASTASIS ON POST-SURGICAL STIMULATED THYROGLOBULIN LEVELS IN PAPILLARY THYROID CARCINOMA AFTER PROPHYLACTIC UNILATERAL CENTRAL NECK DISSECTION **Brian H. Lang, MS**, Alex H. Tang, MBBS, Tony W. Shek, MBBS, Chung-Yau Lo, MS University of Hong Kong

POSTER DISPLAYS CONT

18. HYPERCALCEMIA IN PATIENTS ON LITHIUM-TREATMENT IN THE NETHERLANDS: A CROSS-SECTIONAL STUDY.

Bernard M. Houweling, MD, Bas A. Twigt, MD, Eline J Regeer, MD, PhD, Ralph W Kupka, MD, PhD, Inne HM Borel Rinkes, MD, PhD, Gerlof D. Valk, MD, PhD, Menno R. Vriens, MD, PhD University Medical Centre Utrecht

19. MODIFIED 4-DIMENSIONAL COMPUTED TOMOGRAPHY WITH SPECIALIZED VOLUME RENDERING AS A PREOPERATIVE TOOL FOR PRIMARY HYPERPARATHYROIDISM

Timothy A. Platz, DO, Ajay N. Panchal, MD, Amed N. Abdelhalim, MD, Adrienne E. Groman, MS, William G. Cance, MD Roswell Park Cancer Institute

20. BRAF V600E TESTING FOR MALIGNANT FINE NEEDLE ASPIRATION BIOPSY – IS IT NECESSARY?

Naomi H. Chen, MD, Sally E. Carty, MD, Michaele J. Armstrong, PhD, Michael T. Stang, MD, Kelly L. McCoy, MD, Gina M. Howell, MD, Steven P. Hodak, MD, Yuri E. Nikiforov, MD, PhD, and Linwah Yip, MD

University of Pittsburgh Medical Center

21. GRAVES' DISEASE REVISITED: WHEN IS IT SAFE TO OPERATE?

Roy Phitayakorn, MD, MHPE, Jonathan Wanderer, MD, Jesse M. Ehrenfeld, Dieter Morales-Garcia, MD, Gilbert Daniels, MD, Carrie C. Lubitz, MD, Randall D. Gaz, MD, Antonia E. Stephen, MD, Gregory Randolph, MD, Sareh Parangi, MD, Richard A. Hodin, MD

Massachusetts General Hospital

22. PHENOXYBENZAMINE: STILL A GOOD MATCH FOR PHEOCHROMOCYTOMA? Roy Phitayakorn, MD, MHPE (MEd), Jonathan Wanderer, MD, Carrie C. Lubitz, MD, Gilbert H. Daniels, MD, Jesse M. Ehrenfeld, MD, Sareh Parangi, MD, Antonia E. Stephen, MD, and Richard A. Hodin, MD Massachusetts General Hospital

23. SURGICAL TREATMENT OF MEDULLARY THYROID CANCER: DOES SURGEON SPECIALTY INFLUENCE TREATMENT? Amal Alhefdhi, MD, Herbert Chen, MD, Rebecca S. Sippel, MD, University of Wisconsin

24. THE IMPORTANCE OF LEVEL VII LYMPH NODES IN CENTRAL NODE DISSECTION (CND) FOR PAPILLARY THYROID CARCINOMA Laura Y. Wang, MBBS, Mark A. Versnick, MD, Anthony J. Gill, MBBS, Stanley B. Sidhu, MBBS, Mark S. Sywak, MBBS, Leigh W. Delbridge, MBBS University of Sydney

POSTER DISPLAYS CONT.

25. BRAF V600E MUTATION AND ITS ASSOCIATION WITH CLINICO-PATHOLOGIC FEATURES OF PAPILLARY THYROID CANCER: A META-ANALYSIS

Carol Li, BS, Kathleen C. Lee, BSE, Eric Schneider, PhD, Mingzhao Xing MD, PhD, Martha A. Zeiger, MD

Johns Hopkins University School of Medicine

26. THYROGLOSSAL DUCT CYSTS IN CHILDREN VERSUS ADULTS - IS THERE A DIFFERENCE?

Anuradha R. Bhama, MD, Richard J. Smith, MD, Robert A. Robinson MD PhD, Ronald J. Weigel MD, PhD, Sonia L. Sugg, MD, James R. Howe, MD, Geeta Lal, MD, MSc University of Iowa

27. IOPTH IS THE BEST ADJUNCT STUDY TO GUIDE MINIMALLY INVASIVE PARATHYROIDECTOMY IN FAMILIAL HYPERPARATHYROIDISM Jennifer H. Kuo, MD, Raymon Grogan, MD, Lauren Owaga, BS, Jessica E. Gosnell, MD, Orlo H. Clark, MD, Quan-Yang Duh, MD, Wen T. Shen, MD University of California, San Francisco

28. DOES PERCENTAGE MATTER? DIFFERENCES IN PATHOLOGIC FEATURES AND CLINICAL BEHAVIOR BETWEEN TALL CELL VARIANT OF PAPILLARY THYROID CANCER AND PAPILLARY THYROID CANCER WITH TALL CELL FEATURES **Toni M. Beninato, MD,** Daniela Vaca, BS, Theresa Scognamiglio, MD, David A. Kleiman, MD, Anvy Nguyen, MD, Allesia Ucelli, MD, Jenny Cabot, MD, Thomas J. Fahey, III, MD, Rasa Zarnegar, MD New York Presbyterian Hospital - Weill Cornell Medical College

29. HEALTH CARE UTILIZATION IN PRIMARY HYPERPARATHYROIDISM: OBSERVATION VERSUS SURGERY Tracy L. Kelly, BS, Lihau Naeole, Yelena Rozenfeld, MPH, Francesca A. Negreanu, Chet Hammill, MD, Earl Schuman, MD, **Shaghayegh Aliabadi-Wahle, MD** The Oregon Clinic

30. DRUG TARGET PROFILING OF REFRACTORY ADRENOCORTICAL CANCERS **Kathyrn E. Coan, MD**, Arlet Alarcon, MD, Richard Bender, MD, Kimberly J. Bussey, PhD, Daniel D. Von Hoff, MD, Michael J. Demeure, MD Translational Genomics Research Institute

31. EXPERIENCE DIFFERENCES IN FIXATION DURATIONS DURING IDENTIFICATION AND DISSECTION OF THE RECURRENT LARYNGEAL NERVE Adrian Harvey, FRCSC, **Ryan Snelgrove, MD**, Matthew Scott, BSc, Sheila Morrison, BSc, Joan N. Vickers, PhD University of Calgary

POSTER DISPLAYS CONT.

32. MK-2206, A NOVEL AKT INHIBITOR, SUPPRESSES MEDULLARY THYROID CANCER PROLIFERATION INDEPENDENT OF RET Jocelyn F. Burke, MD, Logan J. Schlosser, April D. Harrison, BS, Muthusamy Kunnimalaiyaan, PhD, Herbert Chen, MD University of Wisconsin

33. SMALL RECTAL CARCINOID TUMORS IN THE ABSENCE OF METASTATIC DISEASE: IS MINIMAL SURVEILLANCE ADEQUATE FOLLOWING RESECTION? **Sara E. Murray, MD**, Grace Bellinger, Rebecca S. Sippel, MD, Ricardo Lloyd, MD, PhD, Herbert Chen, MD University of Wisconsin

34. ASSOCIATION OF THYROID, BREAST AND RENAL CELL CANCER: A POPULATION-BASED STUDY OF THE PREVALENCE OF SECOND MALIGNANCIES **Victoria L. Van Fossen, MD**, Scott M. Wilhelm, MD, Anil Jain, MD, Jennifer L. Eaton, PhD, and Christopher R. McHenry, MD MetroHealth Medical Center, Case Western Reserve University

35. PRE-OPERATIVE LOCALIZATION STRATEGIES FOR PRIMARY HYPERPARATHYROIDISM: A COST ANALYSIS **Carrie C. Lubitz, MD**, Richard A. Hodin, MD, Antonia E. Stephen, MD, Pari Pandharipande, MD, MPH Massachusetts General Hospital

36. ADRENAL HISTOLOGIC FINDINGS SHOW NO DIFFERENCE IN CLINICAL PRESENTATION AND OUTCOME IN PRIMARY HYPERALDOSTERONISM **Allison B. Weisbrod, MD**, Richard Webb, MD, Aarti Mathur, MD, Richard Chang, MD, Smita Baid, MD, Naris Nilubol, MD, Steven K. Libutti, MD, Constantine A. Stratakis, MD, Electron Kebebew, MD National Institutes of Health, National Cancer Institute

37. LIMITATIONS OF INTRAOPERATIVE BILATERAL INTERNAL JUGULAR VENOUS SAMPLING FOR PARATHYROID HORMONE IN PATIENTS WITH PRIMARY HYPERPARATHYROIDISM

Aparna Vijayasekaran, MD, Betsy C. Wertheim, MS, Marlon A. Guerrero, MD University of Arizona

38. IS FOLLICULAR VARIANT OF PAPILLARY THYROID CARCINOMA A UNIQUE CLINICAL ENTITY?

Xiao-Min Yu, MD, PhD, David F. Schneider, MD, Glen Leverson, PhD, Yin Wan, MS, Herbert Chen, MD, Rebecca S. Sippel, MD University of Wisconsin 39. IMMUNOHISTOCHEMISTRY STAINING PATTERNS OF CARCINOID TUMORS OF THE LOWER GASTROINTESTINAL TRACT

David A. Kleiman, MD, Toni Beninato, MD, Nicole C. Panarelli, MD, Michael J. Crowley, BS, Daniel Buitrago, MD, Rasa Zarnegar, MD, Thomas J. Fahey, III, MD New York Presbyterian Hospital - Weill Cornell Medical College

40. DISCRIMINATING PHEOCHROMOCYTOMAS FROM OTHER ADRENAL LESIONS: THE DILEMMA OF ELEVATED CATECHOLAMINES

Jennifer C. Carr, MD, Philip M. Spanheimer, MD, Geeta Lal, MD, Ronald J. Weigel, MD, Sonia L. Sugg, MD, Junlin Liao, James R. Howe, MD University of Iowa

41. PROPHYLACTIC CENTRAL NODE DISSECTION IN LOW RISK PAPILLARY THYROID CANCER

Jose Mario Pimiento, MD, George Dittrich, MD, MIchael Johnston, MD, W. Bradford Carter, MD H Lee Moffitt Cancer Center

42. TREATMENT APPROACHES TO MEDULLARY THYROID CANCER: PRACTICE PATTERNS AND TEMPORAL TRENDS IN THE NATIONAL CANCER DATABASE 1998-2009

Richelle T. Williams, MD, Richard A. Prinz, MD, David J. Winchester, MD, Tricia A. Moo-Young, MD

NorthShore University Health System/University of Chicago Pritzker School of Medicine

43. UTILITY OF SELECTIVE PARATHYROID VENOUS SAMPLING AFTER FAILED NON-INVASIVE LOCALIZATION STUDIES IN EVALUATION FOR RE-OPERATIVE PARATHYROIDECTOMY

Hasly Harsono, MD, Joyce Shin, MD, Jamie Mitchell, MD, Eren Berber, MD, Mira Milas, MD, Allan E. Siperstein, MD Cleveland Clinic

44. MINIMALLY INVASIVE PARATHYROIDECTOMY IN PATIENTS WITH DISCORDANT OR NEGATIVE IMAGING: CAN A 5-MINUTE IOPTH PREDICT LONG-TERM NORMOCALCEMIA?

Carrie B. Carsello, MD, Tina W. F. Yen, MD, MS, Douglas B. Evans, MD, Tracy S. Wang, MD, MPH

Medical College of Wisconsin

45. A META-ANALYSIS ON THE EFFECTIVENESS OF RADIOACTIVE IODINE VERSUS THYROIDECTOMY IN THE TREATMENT OF GRAVES' DISEASE

Salem I Noureldine, MD, Bradley M Genovese, MS, Elizabeth Gleeson, MS, Ralph P Tufano, MD, Emad Kandil, MD

Tulane University School of Medicine

POSTER DISPLAYS CONT.

46. SINGLE GLAND DISEASE IS STILL THE MOST COMMON PATHOLOGY IN LITHIUM ASSOCIATED HYPERPARATHYROIDISM **Parth K. Shah, MD**, Kinjal K. Shah, MD, Giorgos C. Karakousis, MD, Rachel. Kelz, MD, Douglas L. Fraker, MD University of Pennsylvania

47. ADHERENCE TO ONCOLOGIC PRINCIPLES OF RESECTION DURING ADRENALECTOMY FOR ACC IS SUBOPTIMAL AND OPERATIVE REPORTS LACK CRITICAL INFORMATION REGARDING CONDUCT OF THE OPERATION **Barbra S. Miller, MD**, Paul G. Gauger, MD, Gerard M. Doherty, MD University of Michigan

48. BENEFIT OF THYROIDECTOMY FOR METASTASIS TO THE THYROID GLAND Haengrang Ryu, MD, **Sukhyung Lee, MD**, Lilah F. Morris, MD, Elizabeth G. Grubbs, MD, Jeffrey E. Lee, MD, Nancy D. Perrier, MD The University of Texas MD Anderson Cancer Center

49. ACCURACY OF BENIGN CYTOPATHOLOGY FOR THYROID NODULES 3 CENTIMETERS OR LARGER Wesley H. Giles, MD, Reid A. Maclellan, MD, Francis D. Moore, MD, Daniel T. Ruan, MD, Atul A. Gawande, MD, Nancy L. Cho, MD Brigham and Women's Hospital

50. PERCENT RADIOACTIVE IODINE UPTAKE AND OUTCOMES AFTER THYROIDECTOMY FOR THYROID CANCER

Anuradha Bhama, MD, Eanas Yassa, MD, Brittany Wertzberger, BS, Yusuf Menda, MD, Geeta Lal, MD, James R. Howe, MD, Ronald J. Weigel, MD PhD, Sonia L. Sugg, MD University of Iowa

51. THORACIC DUCT LEAK AFTER NECK DISSECTION FOR THYROID CANCER. Jeffrey F. Moley, MD, Susan C. Pitt, MD Washington University

52. NOTCH1 PROMOTES CELLULAR PROLIFERATION AND INVASION OF ANAPLASTIC THYROID CANCER: A NEW CLINICAL TARGET? **Abdelrahman Abohashen-Aly, MD,** Jessica A. Yu, MD, Rebecca E.Schweppe, PhD, Lihua Ao, BS, Xianzhong Meng, MD, PhD, Bryan R. Haugen, MD, Robert C. McIntyre Jr. MD, Christopher D. Raeburn, MD University of Colorado

BYLAWS OF THE AMERICAN ASSOCIATION OF ENDOCRINE SURGEONS

I. CORPORATION

- **1.1 NAME.** The name of the corporation is The American Association of Endocrine Surgeons.
- **1.2 PURPOSES.** The purposes for which the corporation is organized are as follows: The corporation is organized exclusively for the purposes set forth in Sections 501(c)(3) of the Internal Revenue Code of 1986 (or the corresponding provision of any future United States Internal Revenue law) (the "Code"), including, for such purposes, making of distributions to organizations that qualify as exempt organizations under Section 501(c)(3) of the Code. The objects of the corporation shall include: (1) advancement of the science and art of endocrine surgery and (2) maintenance of high standards in the practice and art of endocrine surgery; and doing anything reasonably in furtherance of, or incidental to, the foregoing purposes as the Council may determine to be appropriate and as are not forbidden by Section 501(c)(3) of the Code, with all the power conferred on nonprofit corporations under the laws of the State of Illinois.
- **1.3** NONPROFIT OPERATION. The corporation shall be operated exclusively for scientific, literary and educational purposes within the meaning of Section 501(c) (3) of the Code as a nonprofit corporation. No Councilor or member of the corporation shall have any title to or interest in the corporate property or earnings in his or her individual or private capacity and no part of the net earnings of the corporation shall inure to the benefit of any Councilor, member, officer or any individual. No substantial part of the activities of the corporation shall consist of carrying on propaganda or otherwise attempting to influence legislation, nor shall the corporation participate in or intervene in any political campaign on behalf of (or in opposition to) any candidate for public office.

II. MEMBERSHIP

2.1 MEMBERSHIP.

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

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

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

1a. The candidates for Active membership would have attended at least two annual meetings (hereinafter "assembly") of the American Association of Endocrine Surgeons prior to their application;

1b. The candidates for Active membership should be able to provide evidence of special interest in endocrine surgery;

1c. The candidates for Active membership must be certified by the American Board of Surgery or its equivalent in Canada (FRCSC), Central America, Mexico, and South America. In addition, membership shall be limited to Fellows of the American College of Surgeons or its international equivalent. The candidates who are applying for Active membership, who have completed their Endocrine Surgical Fellowship, should be in practice at least for two years with special emphasis in endocrine operative surgery.

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

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

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

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

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

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

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

C. Election of New Members

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

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

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

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

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

D. Dues

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

E. Resignations / Expulsions

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

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

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

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

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

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

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

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

- 2.4 SPECIAL ASSEMBLIES. Special assemblies of the members of the corporation may be called by the Council or the President and shall be called by the President or the Secretary-Treasurer at the written request of any 30 members of the corporation. No business may be transacted at a special assembly except the business specified in the notice of the assembly.
- 2.5 NOTICE OF ASSEMBLIES OF MEMBERS. Except as otherwise provided by statute, written notice of the place, day, and hour of the assembly and in the case of a special assembly, the purpose or purposes for which the assembly of the members of the corporation is called, shall be given not less than five (5) nor more than sixty (60) days before the date of the assembly to each member, either personally or by mailing such notice to each member at the address designated by the member for such purpose or, if none is designated, at the member's last known address.
- **2.6 WAIVER OF NOTICE.** Whenever any notice whatever is required to be given under the provisions of the Illinois Not for Profit Corporation Act of 1986 ("the Act") or under the provisions of the articles of incorporation or bylaws of this corporation, a waiver thereof in writing signed by the person or persons entitled to such notice, whether before or after the time stated therein, shall be deemed equivalent to the giving of such notice. Attendance at any meeting shall constitute waiver of notice thereof unless the person at the meeting objects to the holding of the meeting because proper notice was not given.
- 2.7 QUORUM OF MEMBERS ENTITLED TO VOTE. A minimum of thirty (30) members eligible to vote shall constitute a quorum at the annual assembly to effect changes in the bylaws of the Association, to make assessments, to authorize appropriations or expenditures of money other than those required in the routine business of the Association, to elect officers, Council members

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

III. COUNCIL

- **3.1 COUNCIL.** The business and affairs of the corporation shall be managed by or under the direction of a Council which is the governing body of the corporation. The Council shall meet as often as necessary to conduct the business of the corporation.
- **3.2 NUMBER AND SELECTION OF COUNCIL.** The Council shall consist of the officers of the Association, the three immediate past Presidents, and six other Council members, as the membership shall from time to time determine. The Council shall be elected by majority vote of the Active, Allied, and Senior membership during the AAES Business Meeting at its annual assembly and vacancies shall be filled in the manner specified in Section 3.4 below. Councilors (other than those elected to fill vacancies) shall serve for three (3) year terms, with two (2) Councilors being elected annually so as to provide overlapping terms.
- **3.3 REMOVAL.** Any Councilor may be removed from office with cause at any annual or special assembly of the members. No Councilor may be removed except as follows: (1) A Councilor may be removed by the affirmative vote of two-thirds of the votes present and voted, either in person or by proxy (2) No Councilor shall be removed at a meeting of members entitled to vote unless the written notice of such meeting is delivered to all members entitled to vote on removal of Councilors. Such notice shall state that a purpose or the meeting is to vote upon the removal of one or more Councilors named in the notice. Only the named Councilor or Councilors may be removed at such meeting. If the vote of the proposed removal shall be delivered to all Councilors no less than twenty (20) days prior to such assembly. Written notice for removal must include the purpose of the assembly (i.e., removal) and the particular Councilor to be removed.
- **3.4 VACANCIES.** Vacancies occurring in the Council by reason of death, resignation, removal or other inability to serve shall be filled by the affirmative vote of a majority of the remaining Councilors although less than a quorum of the Council. A Councilor elected by the Council to fill a vacancy shall serve until the next annual assembly of the membership. At such annual assembly, the members shall elect a person to the Council who shall serve for the remaining portion of the term.

- **3.5 ANNUAL ASSEMBLY.** The annual assembly of the Council shall be held at such place, date and hour as the Council may determine from time to time. At the annual assembly, the Council shall consider such business as may properly be brought before the assembly. If less than a quorum of the Councilors appear for such an annual assembly of the Council, the holding of such annual assembly shall not be required and matters which might have been taken up at the annual assembly may be taken up at any later regular, special or annual assembly or by consent resolution.
- **3.6 REGULAR AND SPECIAL ASSEMBLIES.** Regular assemblies of the Council may be held at such times and places as the Councilors may from time to time determine at a prior assembly or as shall be directed or approved by the vote or written consent of all the Councilors. Special assemblies of the Council may be called by the President or the Secretary-Treasurer, and shall be called by the President or the Secretary-Treasurer upon the written request of any two (2) Councilors.
- **3.7 NOTICE OF ASSEMBLIES OF THE COUNCIL.** Written notice of the time and place of all assemblies of the Council shall be given to each Councilor at least 10 days before the day of the assembly, either personally or by mailing such notice to each Councilor at the address designated by the Councilor for such purposes, or if none is designated, at the Councilor's last known address. Notices of special assemblies shall state the purpose or purposes of the assembly, and no business may be conducted at a special assembly except the business specified in the notice of the assembly. Notice of any assembly of the Council may be waived in writing before or after the assembly.
- 3.8 ACTION WITHOUT AN ASSEMBLY. Any action required or permitted at any assembly of the Council or a committee thereof may be taken without an assembly, without prior notice and without a vote, if a consent in writing, setting forth the action so taken, shall be signed by all of the Councilors and all of any non-Councilor committee members entitled to vote with respect to the subject matter thereof, or by all the members of such committee, as the The consent shall be evidenced by one or more written case may be. approvals, each of which sets forth the action taken and bears the signature of one or more Councilors or committee members. All the approvals evidencing the consent shall be delivered to the Secretary-Treasurer to be filed in the corporate records. The action taken shall be effective when all the Councilors or the committee members, as the case may be, have approved the consent unless the consent specifies a different effective date. Any such consent signed by all Councilors or all the committee members, as the case may be, shall have the same effect as a unanimous vote and may be stated as such in any document filed with the Secretary of State under the Illinois General Not for Profit Corporation Act.

- **3.9 QUORUM AND VOTING REQUIREMENTS.** A majority of the Councilors then in office and a majority of any committee appointed by the Council constitutes a quorum for the transaction of business. The vote of a majority of the Councilors or committee members present at any assembly at which there is a quorum shall be the acts of the Council or the committee, except as a larger vote may be required by the laws of the State of Illinois, these bylaws or the Articles of Incorporation. A member of the Council or of a committee may participate in an assembly by conference telephone or similar communications equipment by means of which all persons participating in the assembly can hear one another and communicate with each other. Participation in an assembly in this manner constitutes presence in person at the assembly. No Councilor may act by proxy on any matter.
- 3.10 **POWERS OF THE COUNCILORS.** The Councilors shall have charge, control and management of the business, property, personnel, affairs and funds of the corporation and shall have the power and authority to do and perform all acts and functions permitted for an organization described in Section 501(c)(3) of the Code not inconsistent with these bylaws, the Articles of Incorporation or the laws of the State of Illinois. In addition to and not in limitation of all powers, express or implied, now or hereafter conferred upon Boards of Directors of nonprofit corporations, and in addition to the powers mentioned in and implied from Section 1.3, the Councilors shall have the power to borrow or raise money for corporate purposes, to issue bonds, notes or debentures, to secure such obligations by mortgage or other lien upon any and all of the property of the corporation, whether at the time owned or thereafter acquired, and to guarantee the debt of any affiliated or subsidiary corporation or other entity, whenever the same shall be in the best interests of the corporation and in furtherance of its purposes.
- **3.11 COMPENSATION.** Councilors shall receive no compensation for their services on the Council. The preceding shall not, however, prevent the corporation from purchasing insurance as provided in Section 5.1 nor shall it prevent the Council from providing reasonable compensation to a Councilor for services which are beyond the scope of his or her duties as Councilor or from reimbursing any Councilor for expenses actually and necessarily incurred in the performance of his or her duties as a Councilor.

IV. OFFICERS

- **4.1 OFFICERS.** The officers shall be a President, a President-Elect, a Vice President, a Secretary-Treasurer, and a Recorder.
- **4.2 ELECTION AND TERM OF OFFICE.** The President, President-Elect, and Vice President of the Association shall be elected for terms of one year each. The Secretary-Treasurer and Recorder shall be elected for three year terms. Officers of the Association shall be elected by majority vote of the Active, Allied Specialist, and Senior members during the AAES Business Meeting.
- **4.3 REMOVAL.** Any officer or agent may be removed with or without cause by the Council or other persons authorized to elect or appoint such officer or agent but such removal shall be without prejudice to the contract rights, if any, of the person so removed. Election or appointment of an officer or agent shall not of itself create any contract rights.
- **4.4 PRESIDENT.** The President shall preside at Council assemblies and the annual members' assembly. The President shall appoint members to all standing and ad hoc committees and shall serve as an ex-officio member of each. Successors to vacated offices of the Association shall be appointed by the President until the position is filled at the next annual assembly. The President shall prepare an address to the annual assembly of the Association.
- **4.5 PRESIDENT-ELECT.** The President-Elect, in the absence or incapacity of the President, shall perform the duties of the President's office.
- **4.6 VICE PRESIDENT.** In the absence or incapacity of both the President and the President-Elect, the Chair shall be assumed by the Vice President
- **4.7 SECRETARY-TREASURER.** The Secretary-Treasurer shall keep minutes of the Association and the Council, receive and care for all records belonging to the Association, and conduct the correspondence of the Association. This office will issue to all members a written report of the preceding year's transactions to be read to the Council and membership at the annual assembly. The Secretary-Treasurer will prepare an annual report for audit. The Secretary-Treasurer shall have the authority to certify the bylaws, resolutions of the members and Council and committees thereof, and other documents of the corporation as true and correct copies thereof.
- **4.8 RECORDER.** The Recorder shall receive the manuscripts and edition of the discussions. The Recorder shall be custodian for the transactions of the Association.

V. INDEMNIFICATION

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

VI. COMMITTEES

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

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

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

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

- 6.2 **COMMITTEES OF COUNCILORS.** Unless the appointment by the Council requires a greater number, a majority of any committee shall constitute a quorum, and a majority of committee members present and voting at a meeting at which a quorum is present is necessary for committee action. A committee may act by unanimous consent in writing without a meeting and, subject to the provisions of the bylaws for action by the Council, the committee by majority vote of its members shall determine the time and place of meetings and the notice required thereof. To the extent specified by the Council or in the articles of incorporation or bylaws, each committee may exercise the authority of the Council under Section 108.05 of the Act; provided, however, a committee may not:
 - **A.** Adopt a plan for the distribution of the assets of the corporation, or for dissolution;
 - **B.** Approve or recommend to members any act the Act requires to be approved by members, except that committees appointed by the Council or otherwise authorized by the bylaws relating to the election, nomination, qualification, or credentials of Councilors or other committees involved in the process of electing Councilors may make recommendations to the members relating to electing Councilors;
 - C. Fill vacancies on the Council or on any of its committees;
 - **D.** Elect, appoint, or remove any officer or Councilor or member of any committee, or fix the compensation of any member of a committee;
 - E. Adopt, amend, or repeal the bylaws or the articles of incorporation;
 - F. Adopt a plan of merger or adopt a plan of consolidation with another corporation, or authorize the sale, lease, exchange or mortgage of all or substantially all of the property or assets of the corporation; or
 - G. Amend, alter, repeal, or take action inconsistent with any resolution or action of the Council when the resolution or action of the Council provides by its terms that it shall not be amended, altered, or repealed by action of a committee.

VII. AMENDMENTS

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

VIII. BOOKS AND RECORDS

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

IX. PARLIAMENTARY AUTHORITY

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

X. SEVERABILITY

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



MEMBERSHIP DIRECTORY

2011 - 2012

KEY

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