2016 Asia - Pacific conference
Thyroid diseases: clinical features and management
16-17 April 2016 - Manila, Philippines
Overview
The high prevalence of thyroid diseases (TD) in Asia and Pacific areas, as well as worldwide, represents an increasing medical problem in clinical practice as they have implications in many fields of health including obesity, CVD and cardiac disease and present peculiar and aggressive features in such areas.
In particular Philippine population has a predominance of thyroid diseases. A recent local survey of 2012 reports a prevalence of thyroid diseases of 8.5%, mostly as subclinical disease, and the highest incidence of thyroid carcinoma worldwide. Thyroid carcinoma in Philippines has peculiar features than other races being more aggressive and presenting higher risk of recurrences.
In considerations of these data, managing thyroid diseases represent in Philippines a challenge for health care system in terms of early diagnosis, standards of care and prevention.
The aim of this educational meeting is to share up-to-date international guidelines for the care of TD and to apply them in clinical management in daily practice. Interaction and exchange of experience and ideas will be implemented through clinical case studies and practice sessions.

Learning objectives
By attending this live educational conference, participants will be able to:
- Consider the relevance of thyroid disease and its clinical implication
- Apply international standards for managing conditions such as subclinical hypo, hyperthyroidism and autoimmune thyroid disorders
- Discuss problematic aspects of thyroid diseases with colleagues and international experts through the analysis of selected clinical cases
- Acquire practical clinical skills on managing thyroid nodules through the clinical skill sections on ultrasound, fine needle cytoaspiration and thyroid cytology

Target audience
Endocrinologists, surgeons and other HCPs involved in the diagnosis and management of patients with thyroid disorder mainly from Asia Pacific.
Scientific committee

**Bien J. Matawaran**
Philippine Society of Endocrinology
Diabetes & Metabolism (PSEDM)
Manila, Philippines

**Josè Carlos Miranda**
American Association of Clinical Endocrinologists Philippines (AACE)
Manila, Philippines

**Nemencio A. Nicodemus Jr.**
University of the Philippines
College of Medicine
Department of Biochemistry & Molecular Biology
Manila, Philippines

**Ruben V. Ogbac**
Philippine Thyroid Association (PTA)
Manila, Philippines

This Exemed continuing medical education meeting is held in collaboration with:

- Philippine Society of Endocrinology
  Diabetes & Metabolism (PSEDM)

- American Association of Clinical Endocrinologists Philippines (AACE)

- Philippine Thyroid Association (PTA)
CME Provider
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The CME “2016 Asia-Pacific conference Thyroid diseases: clinical features and management” held on 16-17 April 2016 in Manila, Philippines, is designated for a maximum of 9 (nine) hours of European CME credits (ECMEC). Each medical specialist should claim only those credits that he/she actually spent in the educational activity. EACCME® credits are recognized by the American Medical Association (AMA) towards the Physician’s Recognition Award (PRA). To convert EACCME® credit to AMA PRA category 1 credit, please contact the AMA.

EXCEMED adheres to the principles of the Good CME Practice group (gCMEp).
Biographies
Jose M. Avila is a Professor of Pathology at the University of the Philippines Manila, College of Medicine. He took his residency training in Anatomic and Clinical Pathology from the Philippine General Hospital, and his fellowship in Pediatric Pathology from Northwestern University Children’s Memorial Hospital, in Chicago, IL. He is at present, Editor-in-Chief of the Acta Medica Philippina, the National Health Science Journal of the Philippines. He has special interest in Fine Needle Aspiration Cytology, and has been one of the leading advocates for this procedure in the Philippines for many years. He has published many articles in peer-reviewed journals, in both local and international journals, many of which deal with Pediatric Pathology or Cytology, which are his interests.

Bernadette Biondi is associate professor at the Endocrine Division of the Department of Clinical Medicine, University of Naples Federico II Medical School, Naples, Italy. After receiving her medical degree from the University of Naples Federico II, Prof Biondi completed her internship and residency in the same university where she was a Clinical Research Fellow in the Thyroid Unit and the Endocrine Unit. She is tutorial teacher in Endocrinology and Cardiovascular Endocrinology for the students of University of Naples Medical School. Dr. Biondi’s clinical research has focused on the cardiovascular effects of thyroid hormone, subclinical thyroid disease and clinical outcomes in patients with thyroid cancer. She is the author or co-author of numerous papers that appeared in such journals as Lancet, Journal of Clinical Endocrinology and Metabolism, Annals of Internal Medicine, Circulation, Endocrine Review, Nature Clinical Practice in Endocrinology and Metabolism, New England Journal of Medicine, JAMA, European Journal of Endocrinology etc.
Biographies

Su-Ynn Chia
The Endocrine Clinic
Mount Elizabeth Medical Centre
Mount Elizabeth, Republic of Singapore

Chia Su-Ynn graduated with Bachelor of Medicine and Bachelor of Surgery from the National University of Singapore, and completed her internal medicine residency at the Singapore General Hospital (SGH). She obtained membership of the Royal College of Physicians of the United Kingdom, and completed her Endocrinology Fellowship at the Department of Endocrinology, SGH. She also did a research fellowship at the Cleveland Clinic Foundation, Ohio, USA on blood markers for the diagnosis and management of thyroid cancer. She was the first endocrinologist in Asia to receive the specialist credential Endocrine Certification in Neck Ultrasound (ECNU) from the American Association of Clinical Endocrinologists (AACE). She is currently in private practice at The Endocrine Clinic at Mount Elizabeth Medical Centre and Mount Elizabeth Novena Medical Centre, Singapore.

Malfred L. Hernandez
Department of Otorhinolaryngology [ENT]
University of the Philippines
Philippine General Hospital
Manila, Philippines

Malfred L. Hernandez is an ENT / Otolaryngologist in Muntinlupa City, Metro Manila. He is currently performing his practice at the Asian Hospital and Medical Center in Muntinlupa City, Metro Manila and completed his Ph. D in Medicine at the University of the Philippines.
George J. Kahaly
Department of Medicine I
Gutenberg University Medical Center
Mainz, Germany

George Jean Kahaly, M.D., Ph.D. currently holds the rank of Professor of Medicine and Endocrinology / Metabolism and is chief of the endocrine outpatient clinic at the Johannes Gutenberg University (JGU) Medical Center, Mainz, Germany. Dr. Kahaly directs the Molecular Thyroid Research Laboratory and has authored 231 original papers and reviews, covering both clinical and experimental aspects of endocrine autoimmunity, immunogenetics of thyroid and polyglandular autoimmunity, as well as cardiovascular involvement of metabolic disorders. Original papers and reviews have been published in the New England Journal of Medicine, the Journal of Autoimmunity, the Journal of Clinical Endocrinology and Metabolism, the Journal of Nuclear Medicine, Endocrine Reviews, Nature Reviews and Autoimmunity Reviews. Dr. Kahaly organized and co-chaired numerous international scientific meetings in the USA, Europe, and in Asia dealing with molecular and endocrine autoimmunity. Dr. Kahaly is currently Treasurer and principle officer of the Executive Committee of the European Thyroid Association (ETA). He serves currently on the Research Committee of the American Thyroid Association (ATA). In the years 2007-2011, Dr. Kahaly has been active member of the Finance and Audit Committee of the ATA and in the years 2000-2006 member of the Membership and Publication Committees. Dr. Kahaly is currently the Treasurer of the “European Group on Graves’ Orbitopathy” (EUGOGO), official subgroup of the ETA. In 2005, he was elected member of the Executive Committee of the German Thyroid Board. Furthermore, he is an active member of the American Endocrine Society. In the years 2009-2012, Dr. Kahaly served as Associate Editor of the journal THYROID, official journal of the ATA. In the years 2007-2010, he also served on the Editorial Board of the Journal of Clinical Endocrinology & Metabolism (JCEM), official Organ of the American Endocrine Society. Dr. Kahaly is also member of the Editorial Board of the European Thyroid Journal (ETJ), official journal of the ETA.

Sjoberg A. Kho
Department of Endocrinology, Diabetes and Metabolism
University of Santo Tomas Hospital
Manila, Philippines

Sjoberg Kho graduated from the University of Santo Tomas, Faculty of Medicine and Surgery in Manila. He went to the State University of New York at Stonybrook to pursue residency and chief residency in Internal Medicine. He then stayed on in the same institution to complete a fellowship training in Endocrinology, Diabetes and Metabolism. After his postgraduate training, he joined his alma matar as a faculty and currently is an associate professor in the University. He has held positions as section chief, assistant department chairman, module leader and course developer/supervisor both in Internal Medicine and Endocrinology. In the University Hospital, he is currently the head of the St. Thomas Diabetes Center and also the Chief of the Section of Endocrinology, Diabetes and Metabolism. His special field of interests includes thyroid nodules and thyroid cancer, diabetes, diabetic complications and nutrition. He is experienced in thyroid ultrasound and ultrasound-guided fine needle aspiration. He had served as a board of director for the Philippine Society of Endocrinology, Diabetes and Metabolism where he was President in 2012. Also, he is a board member and currently the President of the Philippine Thyroid Association.
Biographies

**Bien J. Matawaran**  
Philippine Society of Endocrinology  
Diabetes & Metabolism [PSEDM]  
Manila, Philippines

Bien J. Matawaran is the President of the Philippine Society of Endocrinology, Diabetes & Metabolism since 2015 and Chairman of the Department of Medicine of Jose R. Reyes Memorial Medical Center since 2016. After receiving his medical degree at the Santo Tomas University [UST] Hospital in Manila, Prof Matawaran completed his internship and residency in the same university where he also carried out his Fellowship in Endocrinology. Today he is an Associate Professor of Molecular Biology & Nutrition in the Department of Biochemistry at UST Hospital and Training Officer for Fellowship Training in the Section of Endocrinology & Metabolism at UST Hospital.

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**Josè Carlos Miranda**  
American Association of Clinical Endocrinologists Philippines [AACE]  
Manila, Philippines

Josè Carlos Miranda is the President-Elect of the American Association of clinical Endocrinologists in the Philippines. He’s working as a specialist in Endocrinology at the Our lady of the Pillar Medical Center and at the Crisostomo General Hospital. He carried out his studies in Dasmarñas at De La Salle Medical Center a performed his residency and fellowship training at the Makati Medical Center in Makati.
Mafauzy Mohamed is currently the director of campus, professor of medicine and senior consultant endocrinologist at the Universiti Sains Malaysia, Health Campus, Kelantan, Malaysia. He obtained his Bachelor of Medicine, Bachelor of Surgery Degree from the University of Adelaide, Australia, in 1980. He was appointed as a lecturer after receiving his Membership of the Royal College of Physicians [UK] in 1985. He obtained his Master’s Degree in Medical Sciences from the University of Sheffield, UK, in 1987, and he was promoted to associate professor in 1992. Following this, in 1996, he was admitted as a fellow of the Royal College of Physicians [Edinburgh, UK] and was promoted to professor of medicine in 2000. Dr Mafauzy is actively involved in the field of endocrinology and diabetes. He serves as an examiner for the Royal College of Physicians and has been appointed by several universities as external examiner for professional examinations at both undergraduate and postgraduate level; he is also an examiner of theses for Master’s degrees and PhDs. As well as his clinical practice, teaching and administrative duties, Dr Mafauzy is also actively involved in research and has to date obtained over 100 research grants mainly in the fields of diabetes, dyslipidaemia and thyroid disorders, including many clinical trials relating to diabetes and metabolism. Overall, he has supervised more than 25 postgraduate students. Both nationally and internationally, he has published over 100 papers in journals, and presented more than 90 papers and been invited to give over 410 lectures at meetings. He has been chief editor of the Malaysian Journal of Medical Sciences, Journal of the ASEAN Federation of Endocrine Societies and Journal of Endocrinology and Metabolism. He has been a council member of the Malaysian Medical Council (MMC) since 1998 and is actively involved in the accreditation and recognition of medical programmes by the MMC and Malaysian Qualifications Agency. He also serves as the current vice-president of the Malaysian Endocrine and Metabolic Society.
Biographies

Nemencio A. Nicodemus Jr.
University of the Philippines, College of Medicine
Department of Biochemistry & Molecular Biology
Manila, Philippines

Nemencio A. Nicodemus Jr. obtained his degree of Doctor of Medicine at the University of the Philippines-College of Medicine. He subsequently did his residency training in Internal Medicine and fellowship training in Endocrinology, Diabetes and Metabolism at the Philippine General Hospital. Subsequently, he went to the Mayo Clinic in Rochester, Minnesota as part of the Visiting Clinician Program. He is a Professor at the University of the Philippines-College of Medicine, Department of Biochemistry & Molecular Biology, where he was awarded the Most Outstanding Medical Teacher in the Basic Sciences. He is also a Clinical Professor at the Department of Medicine of the Philippine General Hospital where he was recognized by the University of the Philippines Medical Alumni Society in America as Best Teacher. He is currently the Vice President of the Philippine Society of Endocrinology, Diabetes and Metabolism (PSEDM), a director of the Philippine Association For The Study of Overweight and Obesity, Asian Alliance for the Study of Neuroendocrine Tumors and Philippine Thyroid Association. He is the Associate Editor of the Journal of the ASEAN Federation of Endocrine Societies (JAFES).

Ruben V. Ogbac
Philippine Thyroid Association (PTA)
Manila, Philippines

Ruben V. Ogbac is a Nuclear Medicine Specialist and a Thyroid Specialist, who is currently connected with several major hospitals in the Philippines. He is a Diplomate of the Philippine Society of Nuclear Medicine (PSNM) and a Fellow of the Philippine Specialty Board of Nuclear Medicine (PSBNM). He is also a Clinical Densitometrist. Dr. Ogbac is a graduate of the UERMMC College of Medicine in 1987 and trained in Nuclear Medicine at the Philippine Heart Center from 1993-1996. He joined the Radioisotope Laboratory (Nuclear Medicine Section) of the Department of Medicine, University of the Philippines-Philippine General Hospital (UP-PGH) as a Medical Specialist in 1998 and was also appointed as Clinical Associate Professor at the University of the Philippines College of Medicine (UPCM) in the same year. He has been a Consultant of Nuclear Medicine at Manila Doctors Hospital and Medical Center Manila since 1997, St. Luke’s Medical Center since 2000 and QualiMed since 2011. He was a grantee of the Australian Endeavour Executive Scholarship Award in PET/CT Training. His professional interest includes Thyroid Diseases, particularly on the use of Radioactive Iodine. He wrote and co-authored several articles on RAI therapy as well as in General Nuclear Medicine. Dr. Ogbac is the Immediate Past President of the Philippine Thyroid Association and a Past President of the PSNM. He is likewise an examiner for the PSBNM. He was given the Distinguished Filipino Nuclear Medicine Physician Award by the PSNM in 2016, Faculty Achiever Award by the UPCM in 2014, and Leadership Awards by Saint Luke’s Medical Center and UERMMC College of Medicine in 2011 and 2013, respectively.
Enrico Papini is the director of the Department of Endocrine and Metabolic Diseases, Regina Apostolorum Hospital, Albano Laziale, Rome, Italy. He is also professor of endocrinology, Postgraduate Course in Endocrinology and Metabolism, La Sapienza University of Rome. Dr Papini’s main fields of clinical research are: thyroid imaging; ultrasound-guided biopsy and thyroid cytology; image-guided minimally invasive procedures for thyroid lesions; clinical management of nodular goiter and thyroid cancer; and clinical management of neuroendocrine tumours. He holds several posts, including past-president of the Italian Association of Clinical Endocrinologists, fellow of the American College of Endocrinology and Italian representative for the UEMS Board of Endocrinology. In addition, Dr Papini is a member of the European Thyroid Association, Endocrine Society (USA), American Association of Clinical Endocrinologists and the European Society of Endocrinology. He is also a member of Italian and international task forces for consensus statements and guidelines in the field of thyroid diseases and endocrinology. As well as being a referee for the Journal of Clinical Endocrinology & Metabolism, Thyroid and the European Journal of Endocrinology, he has authored over 50 original peer-reviewed papers and textbook chapters in the English language and given more than 200 presentations at Italian and international scientific meetings.

Salman Razvi is a Senior Lecturer in Endocrinology at Newcastle University and a Consultant Endocrinologist at Queen Elizabeth Hospital. His major research interest is the action of thyroid hormones particularly on the cardiovascular system. His research focus has been on investigating the association of thyroid function on the cardiovascular system in various populations. He is the chief investigator of several projects funded by various statutory funding bodies as well as charities.
Biographies

Rakesh Sahay
Osmania Medical College & Osmania General Hospital
Hyderabad & Mediciti Hospital
Hyderabad, India

Rakesh Kumar Sahay is a Diabetologist and Endocrinologist based in Hyderabad. He is currently working at Mediciti Hospital and at the Sahay Endocrine and Diabetes Centre. He is also Professor of Endocrinology in the Department of Endocrinology at Osmania Medical College. Dr. Rakesh Sahay has been involved in clinical research, having been the Principal Investigator for several multicentric multi-national clinical trials of drugs for diabetes, hypertension and hyperlipidemia and osteoporosis (ICH-GCP compliant). He has a keen interest in writing professionally too, with about 50 publications in peer-reviewed journals and several contributed chapters in textbooks. He is associated with several national and international professional bodies as an office-bearer or life member, and has played an active role in organising some of their events.
Programme
## Programme

### Saturday, 16 April 2016

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<th>Time</th>
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<td>Registration</td>
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<td>8.30</td>
<td>Welcome and introduction</td>
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<td>N.A. Nicodemus Jr. (Philippines)</td>
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<tr>
<td>8.45</td>
<td>L1: Impact of thyroid diseases in Asia Pacific</td>
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<td>R. Sahay (India)</td>
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<tr>
<td>9.15</td>
<td>L2: Subclinical hyperthyroidism: clinical features and treatment</td>
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<td>B. Biondi (Italy)</td>
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<td>9.45</td>
<td>L3: Subclinical hypothyroidism: clinical features and treatment</td>
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<td>S. Razvi (UK)</td>
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<tr>
<td>10.15</td>
<td>L4: Thyroid autoimmune disease and associated autoimmune disorders</td>
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<td>S-Y. Chia (Republic of Singapore)</td>
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<td>10.45</td>
<td>Coffee break</td>
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### Session II | Focus on thyroid cancer: Diagnosis, management and treatment

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<tr>
<th>Time</th>
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<th>Focus on thyroid cancer: Diagnosis, management and treatment</th>
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<td></td>
<td>Chairs: G.J. Kahaly (Germany) - B.J. Matarawan (Philippines)</td>
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<td>11.00</td>
<td>L5: Thyroid nodules: risk factors and clinical management</td>
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<td>S-Y. Chia (Republic of Singapore)</td>
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<td>11.30</td>
<td>L6: Thyroid cancer: overview and peculiar aspects in Philippines</td>
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<td>N.A. Nicodemus Jr. (Philippines)</td>
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<td>12.00</td>
<td>L7: Thyroid cancer surgery: clinical aspect</td>
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<td>M.L. Hernandez (Philippines)</td>
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<td>12.30</td>
<td>L8: Radioiodine treatment in thyroid cancer</td>
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<td>R.V. Ogbac (Philippines)</td>
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<tr>
<td>13.00</td>
<td>Lunch</td>
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### Session III | Highlights on thyroid cancer

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<tr>
<th>Time</th>
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<th>Highlights on thyroid cancer</th>
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<tbody>
<tr>
<td></td>
<td>Chairs: J.C. Miranda (Philippines) - S. Razvi (UK)</td>
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<tr>
<td>14.00</td>
<td>L9: Clinical management of Anaplastic thyroid cancer</td>
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<td>M. Mohamed (Malaysia)</td>
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<td>14.30</td>
<td>L10: New ATA guidelines on differentiated thyroid cancer</td>
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<td>R. Mirasol (Philippines)</td>
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<tr>
<td>15.00</td>
<td>Panel discussion</td>
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<td>15.30</td>
<td>Workshops</td>
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<td>Clinical cases</td>
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<td></td>
<td>Participants will be divided in 2 groups</td>
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<td></td>
<td>G.J. Kahaly (Germany) - E. Papini (Italy)</td>
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<tr>
<td>16.30</td>
<td>Presentation of clinical cases’ outcome in plenary</td>
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<td>End of the first day</td>
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<tr>
<td>17.30</td>
<td>Get together cocktail</td>
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### Legend:
- **L**: Lecture;
Sunday, 17 April 2016

8.25  Wrap up first day  
N.A. Nicodemus Jr. (Philippines)

Session IV  Thyroid nodules in clinical practice: From ultrasound features to cytological diagnosis

Chairs:  R.V. Ogbac, N.A. Nicodemus Jr. (Philippines)

8.30  L11: Thyroid ultrasonography:  
Thyroid and neck - normal findings  
R. Mirasol (Philippines)

9.00  L12: Thyroid ultrasonography:  
Thyroid - principal pathological findings  
E. Papini, (Italy)

9.30  L13: Ultrasound fine needle cytoaspiration  
S.A. Kho (Philippines)

10.00  L14: Features and interpretation of thyroid cytology  
J.C. Avila (Philippines)

10.30  Coffee break

Session V  Hands-on session on thyroid and neck: From theory to practice

11.00  Clinical practice session  
Participants will be divided in 4 groups attending skill stations in rotation, each lasting 30 min

• Practice session 1  
US features of thyroid nodules

• Practice session 2  
US features of malignant lymph nodes

• Practice session 3  
Ultrasound guided fine needle cytoaspiration

• Practice session 4  
Thyroid cytology preparation and examination

13.00  End of the conference  
Closing lunch
General information

Language
The official language of this live educational conference is English.

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The following faculty provided information regarding significant commercial relationships and/or discussions of investigational or non-EMEA/FDA approved (off-label) uses of drugs:

**Jose C. Avila**
Declared no potential conflict of interest.

**Su-Ynn Chia**
Declared no potential conflict of interest.

**George J. Kahaly**
Declared no potential conflict of interest.

**Bien J. Matabaran**

**Roberto Mirasol**
Receipt of honoraria or consultation fees: Merck, Astra Zeneca, Genzyme, Novo, Eli Lilly. Member of a company advisory board, board of directors or other similar group: Merck. Participation in a company sponsored speaker’s bureau: Merck, Eli Lilly, AZ, Sanofi-

**Mafauzy Mohamed**
Declared no potential conflict of interest.

**Salman Razvi**
Declared no potential conflict of interest.

The following faculty have provided no information regarding significant relationship with commercial supporters and/or discussion of investigational or non-EMEA/FDA approved (off-label) uses of drugs as of 5 April 2016.

**Bernadette Biondi**

**Malfred L. Hernandez**

**Sjoberg A. Kho**

**José Carlos Miranda**

**Nemencio A. Nicodemus Jr.**

**Ruben Villones Ogbac**

**Enrico Papini**

**Rakesh Sahay**
L1. Impact of thyroid diseases in Asia Pacific

Rakesh Sahay
Osmania Medical College & Osmania General Hospital, Hyderabad & Mediciti Hospital, Hyderabad, India

Abstract not in hand at the time of printing.
Subclinical hyperthyroidism (SHyper) is defined biochemically by a subnormal serum thyroid-stimulating hormone (TSH) level, with normal levels of free thyroxine (FT4), triiodothyronine (TT3) and/or free triiodothyronine (FT3). According to its severity, SHyper can be divided into two categories: grade 1 SHyper, which has low but detectable serum TSH levels (e.g. TSH 0.1–0.39 mIU/l), and grade 2 SHyper, which has suppressed serum TSH levels (<0.1 mIU/l).

Endogenous SHyper is most commonly due to Graves’ disease (GD), toxic adenoma (TA) and toxic multinodular goitre (MNG). While GD is the most common cause of SHyper in younger patients (<65 years) in iodine-replete areas, TA and toxic MNG are relatively more frequent in iodine-deficient areas and in older persons (≥ 65 years).

Subclinical hyperthyroidism is a relatively frequent disorder. Its prevalence varies between 0.6-16% depending on diagnostic criteria and the age and sex of the population studied, the TSH assay used, and iodine intake.

The approach to this disorder requires correct diagnosis, clinical assessment and treatment. Subclinical hyperthyroidism may progress to overt hyperthyroidism and induce negative cardiovascular events, increasing the risk of cardiovascular mortality. Moreover, SHyper may negatively affect the skeleton by increasing the risk of bone fracture, especially in the elderly. Differences in the causes, age and degree of TSH suppression may influence the potential risks associated with persistent SHyper.

The degree of TSH suppression and the cause of hyperthyroidism represent the best parameters to predict progression from subclinical to overt hyperthyroidism. Patients with undetectable serum TSH progress to overt disease more frequently than those with detectable serum TSH; this progression occurs at a rate of 5% to 8% per year. On the contrary, the progression of SHyper to overt hyperthyroidism is uncommon in subjects with serum TSH levels between 0.1–0.4 mIU/L. Low but detectable serum TSH may normalize in more than 50% of these patients during the follow-up.

Prolonged exposure to mild thyroid hormone excess may induce cardiomyocyte hypertrophy. Untreated SHyper may increase left ventricular mass, arterial stiffness, and left atrial size, and may impair left ventricular performance in young patients with undetectable serum TSH levels. These cardiovascular alterations may improve or even reverse when euthyroidism is restored, because thyroid hormone excess does not induce cardiac fibrosis. Recent meta-analyses, including those based on large prospective cohort studies, indicate that SHyper is associated with increased risk of coronary heart disease mortality, incident atrial fibrillation, heart failure, fractures and excess mortality in patients with serum TSH levels <0.1 mIU/L (grade 2 SHyper).

Therefore, despite the absence of randomized prospective trials, there is evidence that treatment is indicated in patients older than 65 years with grade 2 SHyper to potentially avoid these serious cardiovascular events, fractures and the risk of progression to overt hyperthyroidism.

Treatment could be considered in patients older than 65 years with TSH levels 0.1–0.39 mIU/L (grade 1 SHyper) because of their increased risk of atrial fibrillation, and might also be reasonable in younger (<65 years) symptomatic patients with grade 2 SHyper because of the risk of progression, especially in the presence of symptoms and/or underlying risk factors or co-morbidity.

There are no data to support treating SHyper in younger asymptomatic patients with grade 1 SHyper. These patients should be followed without treatment due to the low risk of progression to overt hyperthyroidism and the weaker evidence for adverse health outcomes.
Thyroid hormone deficiency is common especially in women and older individuals. Mild hypothyroidism (also termed subclinical hypothyroidism or SCH) is seen in up to 15% of the adult population and is associated with adverse clinical outcomes, particularly cardiovascular disease. To date, no clinical trial has been performed that has assessed whether treating SCH reduces CV events and improves health. However, a number of smaller RCTs suggest that there may be a small but significant reduction in atherogenic lipid profiles, other CV risk factors and symptoms. On the other hand SCH may not have any deleterious effects in the older population. This could be due to serum TSH levels rising normally with age or a lower metabolism being beneficial in the elderly. Hence recent guidelines suggest that age and presence of symptoms of hypothyroidism should be taken into account when managing patients with SCH.
Autoimmune thyroid disease (Hashimoto’s thyroiditis and/or Graves’ disease) is an autoimmune disorder caused by either an inflammatory destruction of the thyroid tissue resulting in hypothyroidism or persistent stimulation of the thyroid follicle cells leading to autoimmune induced hyperthyroidism. Several studies revealed characteristics of the pathologic process and found susceptibility genes for autoimmune thyroid diseases and/or autoimmune endocrine in general, and thyroid in special, diseases, respectively. Over the past years, the annual incidence of autoimmune chronic Hashimoto’s thyroiditis has constantly increased in most parts of the world and especially in industrializing nations it is still rapidly increasing nowadays. Autoimmune thyroid disease is frequently accompanied by additional autoimmune endocrine (i.e. type 1 diabetes, Addison’s disease) disorders and non-endocrine (i.e. autoimmune gastritis, pernicious anemia, celiac disease, and vitiligo) diseases. A familial clustering can be found, which suggests a genetic predisposition. Currently, there are several various hypotheses pertaining to the cause of thyroid autoimmunity, but a complete explanation of the origin of autoimmune endocrine diseases in general has not been found yet. Patients with autoimmune thyroid disease are at a higher risk for developing additional endocrine autoimmune diseases. Such a polyglandular autoimmune syndrome shows several characteristic features that are different from monoglandular autoimmune diseases suggesting a sub-classification of these patients. Recently, genetic research focusing on autoimmune endocrinopathies revealed a multitude of potential autoantigens that can be found in patients with a polyglandular autoimmune syndrome. Therefore the origin and pathogenesis of autoimmune thyroid disease within the scope of the polyglandular autoimmune syndrome should be considered to be one of various phenotypes of an endocrine autoimmunity predisposing to different endocrinopathies or autoimmune diseases, respectively.
Thyroid nodules are very common but only a small percentage are cancerous. The evaluation of a thyroid nodule begins with taking a history, in particular looking out for high risk factors including a family history of thyroid cancer and possible features of certain syndromes like Gardner’s or Cowden’s. A baseline TSH should be done as higher TSH levels have been found to be associated with a higher incidence of thyroid cancer. A high resolution ultrasound of the thyroid is crucial to evaluate features of the nodule. High risk features for malignancy including being hypoechoic, having microcalcifications, increased internal vascularity, irregular margins and being taller than wide. The American Thyroid Association (ATA), in its most recent guidelines, has recently published a useful pictorial representation of the risk of cancer in a nodule based on ultrasound features. This also helps the clinician decide on whether a fine needle aspiration (FNA) is required. Further management is then dependent on the results of the FNA. Benign nodules can be managed with observation using serial ultrasounds at 12-24 month intervals, alcohol ablation in selective cases and radioactive iodine in the case of toxic adenomas. Clearly malignant nodules should be excised. Indeterminate nodules remain a management challenge with potential molecular markers in various stages of development.
Thyroid cancer is the most common endocrine neoplasm. In the USA, estimates show a 2.5-fold increase in prevalence since the early 1970s. The reasons for the increased incidence are unclear, with potential explanations including increased screening, more widespread diagnostic testing of asymptomatic thyroid nodules, changing demographics, and changing environmental risk factors.

Thyroid cancers can be classified on the basis of histology into differentiated thyroid cancers (DTCs), including papillary (PTCs), follicular (FTCs), or Hürthle cell thyroid cancers (HTCs), medullary thyroid cancers (MTCs), and anaplastic thyroid cancers (ATCs). Molecular studies have led to increased appreciation of the heterogeneity of thyroid neoplasms, with hereditary predisposition, somatic mutation, and epigenetic modulation all contributing to tumor behavior. However, despite the heterogeneity, there are several recurring mechanisms of tumorigenesis that have been identified in the various types of thyroid cancer.

The standard therapy for thyroid cancer has always included surgical removal of the gland with or without remnant ablation using radioiodine. This is often enough for “uncomplicated” differentiated thyroid carcinoma. Prognosis is good to excellent in most cases. Because differentiated thyroid cancers are very responsive to radioiodine therapy, chemotherapy has been relegated to the management of anaplastic or poorly differentiated thyroid carcinoma. Even then, chemotherapeutic agents present a challenge because of their toxicities.

Among patients with differentiated thyroid carcinomas, there are those who continue to have persistent disease or even disease recurrence. For these advanced cases, repeated surgery, radioiodine therapy or even external beam radiation may not be sufficient. Significant progress has been made in the last few years with respect to the development of new and targeted therapies for thyroid cancer on the basis of these underlying molecular pathophysiology.

Risk assessment of thyroid cancer has also evolved significantly over the past years from the static risk assessment to a dynamic risk assessment.
Abstract not in hand at the time of printing.
Radioiodine (RAI) remains to be a mainstay in the treatment of well-differentiated thyroid carcinoma (WDTC) since 1946, when it was first used for this indication. Its use for the treatment of metastatic WDTC has been established. However, its role for remnant ablation in low risk WDTC is still controversial.

RAI treatment is done after thyroidectomy for WDTC. There are several protocols for administering RAI when it comes to the choice of administered activity, use of pre-treatment whole body scanning, preparation and the timing. By and large, RAI should be given at a time when there is thyroid remnant stimulation (TSH > 30 mIU/L). This can be achieved by thyroid hormone withdrawal or by the use of recombinant TSH. In most cases, a diet low in iodine is prescribed 1-2 weeks prior to treatment to enhance uptake and effectiveness of RAI.

The administered activity depends on the extent of the disease. Traditionally, activities of 30-100 mCi (1110-3700 MBq) are given for remnant ablation, 150 mCi (5550 MBq) for lymph node metastasis and 200 mCi (7400 MBq) for more advanced stages of the disease. Current data, however, have challenged such practice. Adjustments from the recommended activities are used depending on the clinical scenario and local experience.

RAI is relatively safe but is not without complications. These may be from a minor neck discomfort to a life threatening swelling of metastatic tissues in critical areas. Knowledge of these complications, along with its disputed worth in the advanced stage of thyroid cancer have led to its more prudent use.
Thyroid cancers are staged using the American Joint Committee On Cancer (AJCC) classification and are of 4 major histopathologic types – papillary, follicular, medullary and anaplastic carcinomas. Based on primary tumour size (T), regional lymph nodes (N) and distant metastasis (M), the cancers are staged in 6 different stages – I, II, III, IVA, IVB and IVC. All anaplastic thyroid carcinoma (ATC) are considered as Stage IV (IVA, IVB or IVC) as it is aggressive with a median survival of about 5 months and 20% 1-year survival rate. ATC frequently occurs in patients with previous or concurrent benign or malignant thyroid disorders. More than 80% of the patients present with extensively invasive primary tumours. Once ATC is diagnosed, staging procedures include ultrasound and MRI/CT scan to determine presence of regional disease and exclude distant metastasis. PET-CT scan is particularly valuable in evaluating metastatic sites. Patients with resectable disease (Stage IVA or IVB) and no distant metastases should be considered for surgery and loco-regional radiation therapy with or without chemotherapy. Patients who present with loco-regionally confined (Stage IVB) but unresectable disease should consider radiotherapy with or without chemotherapy. Some patients may subsequently be deemed to have resectable tumour. Following surgery, radiation can be started as soon as patient has sufficiently recovered. Chemotherapy can begin as soon as patient has sufficiently recovered from surgery and is recommended in combination with radiation therapy in good performance status patients with non-metastatic disease who desire aggressive therapy. For patients with Stage IVC disease, goal of either aggressive treatment or supportive care needs to be established by the patient as aggressive approaches in metastatic ATC has not been shown to improve survival.

In summary, rapid histopathologic confirmation of diagnosis of ATC is required. Once ATC is diagnosed, patient’s overall clinical status and TNM stage of the tumour should be determined. Treatment goals (aggressive versus supportive care) should be established having patient making an informed decision. Patients with Stage IVA/IVB resectable disease require multimodal approach in treatment (surgery, RT for loco-regional control and systemic therapy). Patients with unresectable Stage IVB disease may also respond to aggressive multimodal therapy. Patients with distant metastases (Stage IVC) only rarely have responded to traditional therapies. Hospice or palliative care is also an important component of managing patients with stage IVC disease.
Most thyroid cancers generally present with good and excellent prognosis. The incidence and prevalence of well-differentiated thyroid cancers have increased over the years. Despite this increase, mortality from thyroid cancer remained stable throughout the years. Previous treatment guidelines are rather straightforward and include complete surgical resection of the thyroid, radioactive iodine ablation of the remaining thyroid tissues and thyroid hormone suppression. Recent outcomes data and risk stratification have challenged changes in the traditional paradigm in the treatment of well-differentiated thyroid cancer.

Thus, new, evidence-based recommendations from the American Thyroid Association (ATA) have been released to help guide clinicians in managing patients with thyroid nodules. Significant changes from the previous guidelines released in 2009 have been made and are included in the 2015 revised guidelines. This will cover initial evaluation, biopsy criteria and interpretation of biopsy results, use of molecular markers, and management of well-differentiated thyroid cancer. We will focus in this lecture on the significant changes in terms of screening, staging and risk assessment; surgical approaches; radioiodine therapy; and thyroid stimulating hormone (TSH) suppression using levothyroxine.

The new guidelines integrate an impressive amount of data and significant advances which will impact the management of patients presenting with thyroid nodules and thyroid cancer. Importantly, the recommendations can assist the practitioners in applying this wealth of information to the daily care of their patients.
In more recent years, thyroid ultrasound is the stethoscope of the thyroidologist. It is an important diagnostic tool for assessment of thyroid lesions and it is also frequently used to guide biopsies. Some of the indications for thyroid or neck ultrasound are thyroid nodules, goiter, thyroid cancer and other neck masses.

High quality thyroid ultrasound reports include measurement of the thyroid gland size, architecture, blood flow on Doppler evaluation, presence of nodules, nodule size and characteristics and other periglandular pathology like lymph nodes and parathyroid glands.

Most important however is the characterization of nodules as benign or malignant by ultrasound. Diagnostic criteria are constantly evolving and it is becoming an important resource for decisions with regards to management and risk stratification. However there is no sonographic feature that is 100% sensitive or specific. The findings by ultrasound help in deciding whether a nodule needs a biopsy and subsequently an operation or whether we need to just observe the lesion.

Thyroid ultrasound thus is becoming an extension of the physical examination. It is easily done and widely available and especially important in the care of patients with thyroid lesions.
Thyroid ultrasonography: Thyroid - principal pathological findings

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Thyroid Nodules

B-mode Ultrasound Examination. Thyroid ultrasonography (US) and US-guided FNA are increasingly used because they provide the opportunity of a safe non-surgical management for the vast majority of patients with thyroid nodules who do not have a thyroid malignancy while timely treating the minority of them with thyroid cancer. There is a significant overlap of the US findings between benign and malignant thyroid nodules but some features may effectively predict the risk of malignancy in the lesions under evaluation. US findings suspicious for malignant thyroid nodule: Taller-than-wide shape, margin abnormalities, marked hypo-ecogenicity, intranodular micro-calcifications, aggressive growth; suspicious lymph-adenopathy US findings suggestive of a benign thyroid nodule: Thyroid Cyst, spongiform nodule, iso-echoic nodule with well-defined, smooth and regular margins Borderline US findings: Mild hypo-echogenicity, macro-calcifications, strong central vascularization, hyper-echoic spots of undetermined significance. Detailed consideration for clinical practice and interpretation of these US findings will be given in the lecture.

Ultrasound Elastography maps the stiffness, or displacement, of a tissue in response to an applied force and the relative stiffness of the lesion is scored by a quantitative measure ("strain index") or a qualitative color representation superimposed on the US image.

Contrast-enhanced Ultrasound. First- and second-generation contrast agents provide only ancillary data for the diagnosis of malignant nodules offering a modest improvement for the prediction of malignancy when compared to color-Doppler or power-Doppler examination. Third-generation contrast media, on the other hand, provide an early and reliable evidence of the extent of thyroid tissue destruction induced by mini-invasive ablation procedures.

Diffuse Thyroid Diseases

Chronic lymphocytic thyroiditis (CLT). The US hallmark of CLT is the diffuse hypo-echogenicity of the thyroid gland. The gland is usually inhomogeneous because the scattered areas of lymphocytic infiltration are markedly hypo-echoic and result in a pseudo micro or macro-nodular appearance. Later, in the CLT progression, increasing fibrotic changes induce the appearance of hyper-echoic bands that separate areas of hypoechoogenicity or of multiple hyper-echoic spots that do not generate acoustic shadowing.

Graves disease. The US pattern is similar to that of CLT but is associated with the distinctive finding of strong and diffuse vascular signals ("thyroid inferno") at color-Doppler examination.

Subacute Thyroiditis. Typical US features are uni- or bilateral ill-defined areas of marked hypo-echogenicity that are devoid of internal vascular signals. These areas may migrate over time and correspond to the zones of spontaneous pain or tenderness.

Riedel Thyroiditis The thyroid gland is diffusely enlarged, inhomogeneously hypo-echoic, with large fibrous bands and devoid of vascular signals. The surrounding anatomical structures are not clearly separated by the thyroid gland and may be encased by inflammatory tissue.
Fine needle aspiration cytology (FNAC) remains to be the most accurate preoperative determinant of malignancy of thyroid nodules. The sensitivity of FNAC ranges from 65% to 98%, and specificity ranges from 72% to 100% with an overall accuracy for cytologic diagnosis approaching 95%. Ultrasound-guided FNA (USFNA) generally yields superior results by allowing more accurate placement of the needle tip during FNAC.

USFNA is particularly useful for smaller or nonpalpable nodules, predominantly cystic complex nodules, prior failed or nondiagnostic palpation FNAC and in multiple nodular goiters when we are selecting to biopsy high-risk nodules based on ultrasound features (i.e. hypoechoic, microcalcifications, central vascularity, irregular margins, incomplete halo and tall/wide). On the other hand, patterns associated with benign disease include spongiform configuration, pure cysts, and diffuse hyperechogenicity.

Percutaneous ethanol injection (PEI) during US guidance may have some indications for the treatment of patients with toxic hot nodules, nontoxic hot nodules, toxic multinodular goiters, and thyroid cysts. USFNA is also used in the evaluation of suspected recurrence of thyroid cancer in the thyroid bed and cervical lymph nodes. There are some interests in ultrasound guided core biopsy as an alternative to surgery for patients with nondiagnostic FNAC, however the advent of genetic markers are gaining grounds that might make core biopsies unnecessary.

A successful USFNA requires a high-frequency ultrasound machine and an experienced physician with good eye and hand coordination. The FNAC can be done with the sonographer holding the probe and the physician doing the FNA. My personal preference is for the physician to hold the probe with one hand and do FNAC with the other. Doppler ultrasound is useful during the procedure to avoid vascular structures and to identify the vascular pattern of nodules and lymph nodes.

Major adverse side effects are quite uncommon and include bleeding with occasional hematoma (especially with the use of anticoagulants or antiplatelet agents), hoarseness, and infection. In addition, transient pain and dysphonia have been observed in some cases with PEI.
The American Thyroid Association (ATA, 2015) strongly recommends that the procedure of choice in the evaluation of thyroid nodules, when clinically indicated, is fine needle aspiration cytology (FNAB), which can be performed with or without ultrasound guidance. The Bethesda system has been used in many countries to delineate diagnostic categories in the interpretation of thyroid FNAs, and its relationship to clinical algorithms (e.g. risk of malignancy, management options) are well known. The cytologic features as well as these algorithms are summarized in this presentation. The author’s experience as a pathologist conducting FNAs of the thyroid for more than 20 years is presented, as well as nuances in the local culture and practice in the Philippines. Recommendations in a resource-poor setting, such as the Philippines, are also offered.
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