Journal of the
ASEAN Federation of
Endocrine Societies

Volume 34 No. 2 Supplement 1 | ISSN 2308-118x (Online)

20th AFES Congress 2019

ASEAN Federation of Endocrine Societies

21-23 November 2019
Philippine International Convention Center, Manila. Philippines

LINKED

Leading Innovation, Networking and Knowledge in Endocrinology and Diabetes

Hosted & Organized by

SAVE *the* DATE

20TH INTERNATIONAL CONGRESS OF ENDOCRINOLOGY
18TH ASIA OCEANIA CONGRESS OF ENDOCRINOLOGY
21ST ASEAN FEDERATION OF ENDOCRINE SOCIETIES CONGRESS

23 - 27 February 2022

www.ice2022singapore.com

Organised by ISE international society of endocrinology | EMSS Endocrine & Metabolic Society of Singapore | AFES The ASEAN Federation of Endocrine Societies 1981 | FESAO Federation of Endocrine Societies of Asia and Oceania

Held in Singapore Passion Made Possible

Supported by Singapore Exhibition & Convention Bureau

Managed by The Meeting Lab — Across Continents. Beyond Conventions.

secretariat@ice2022singapore.com

** This Advertisement is a complimentary service of the JAFES for member societies/organizations.*

Journal of the
ASEAN Federation of
Endocrine Societies

Volume 34 No. 2 Supplement 1 | ISSN 2308-118x (Online)

The publication of the abstracts for the 20th AFES Congress 2019 as a special edition of the Journal of the ASEAN Federation of Endocrine Societies is a service of the journal to its member societies. The statements and opinions expressed in this publication are those of the individual authors and do not necessarily reflect the views of the Journal of the ASEAN Federation of Endocrine Societies (JAFES). The abstracts included have been selected by the Convention's Scientific Committee and have not undergone the editorial deliberation and peer review of the JAFES. JAFES is not responsible or liable in any way for the currency of the information, for any errors, omissions or inaccuracies, or for any consequences arising therefrom. With respect to any drugs mentioned, the reader is advised to refer to the appropriate medical literature and the product information currently provided by the manufacturer to verify appropriate dosage, method and duration of administration, and other relevant information. In all instances, it is the responsibility of the treating physician or other healthcare professional, relying on independent experience and expertise, as well as knowledge of the patient, to determine the best treatment for the patient.

20th AFES Congress 2019
ASEAN Federation of Endocrine Societies
21-23 November 2019
Philippine International Convention Center, Manila. Philippines

Preface

The dynamic and expeditious course of Medicine is more apparent now more than ever. In this era of molecular medicine, we are beginning to understand the complexity of the human body. Every day we unearth more discoveries but meet even more questions during our pursuit.

It is with our outmost pride to welcome all of you to **LINKED: L**inking **I**nnovation, **N**etworking and **K**nowledge in **E**ndocrinology and **D**iabetes, the **20th ASEAN Federation of Endocrine Societies Congress 2019**, Manila, Philippines.

In line with our mission of inculcating a culture of excellence and our pursuit for continuing medical education, the **Journal of ASEAN Federation of Endocrine Societies (JAFES)** provides an avenue for advancements and innovations in the field of Endocrinology. Through the JAFES, we will be able to showcase researches on diabetes, metabolism, obesity, osteoporosis and other hormonal diseases. We hope that this will incite more curious minds within our community and provoke more intellectual discourses.

On behalf of the Organizing Committee, we would like to express our gratitude and appreciation to all the contributors, authors and speakers who shared their knowledge and valuable insights during this year's congress and scientific forum. The success of this convention is secondary to efforts of all the members of the AEFES united in one goal and vision.

Again, welcome to the Philippines. Mabuhay!

Pepito E. de la Peña, MD, FPCP, FPSEDM
Overall Chair & President
ASEAN Federation of Endocrine Societies 2019

20th ASEAN Federation of Endocrine Societies (AFES) Congress

LINKED: Leading Innovation, Networking and Knowledge in Endocrinology and Diabetes

November 21-23, 2019 | Philippine International Convention Center (PICC) Manila, Philippines

Overall Chair Pepito E. De la Peña, MD
Congress Secretary Carolyn Narvacan-Montano, MD
Assistant Congress Secretary Aurora G. Macaballug, MD

ORGANIZING COMMITTEES

SCIENTIFIC COMMITTEE

Chair JeremyJones F. Robles, MD
Advisers Elizabeth Paz-Pacheco, MD
Cecilia A. Jimeno, MD

REGISTRATION

Chair Aurora G. Macaballug, MD
Advisers Bien J. Matawaran, MD

WAYS AND MEANS COMMITTEE

Chair Michael L. Villa, MD
Advisers Cynthia Halili-Manabat, MD
Rosa Allyn G. Sy, MD
Ruby T. Go, MD

AWARDS AND CEREMONIES

Chair Lora May Tan-Tin Hay, MD
Advisers Joselynna Añel-Quimpo, MD
Cynthia Chua-Ho, MD

PHYSICAL ARRANGEMENTS COMMITTEE

Chair Pepito E. De la Peña, MD
Advisers Sjoberg A. Kho, MD

RESEARCH COMMITTEE

Chair Elaine C. Cunanan, MD
Advisers Elizabeth Paz-Pacheco, MD

DOCUMENTATION COMMITTEE

Chair Marjorie A. Ramos, MD
Advisers Laura Trajano-Acampado, MD

PUBLICITY, SOCIAL & RECEPTIONS

Chair Jovie Joy R. Manuel-Aguilar, MD
Advisers Maria Luisa Patricia B. Gatbonton, MD
Foreign Mary Anne Lim-Abrahan, MD
Domestic Nemencio A. Nicodemus Jr., MD

WEBSITE COMMITTEE

Chair Mia C. Fojas, MD
Advisers Roberto C. Mirasol, MD
Gabriel V. Jasul Jr., MD
Leilani B. Mercado-Asis, MD

SECURITY COMMITTEE

Chair Pepito E. De la Peña, MD
Advisers Leilani B. Mercado-Asis, MD

AFES MEMBER COUNTRIES | LIST OF OFFICERS AND MEMBERS

MALAYSIAN ENDOCRINE & METABOLIC SOCIETY

MEMS Council 2018 – 2020

President	Zanariah Hussein, MD
Vice-President	Nurain Mohd Noor, MD
Hon. Secretary	Noor Lita Adam, MD
Asst. Honorary Secretary	Assoc. Prof. Norlaila Mustafa, MD
Honorary Treasurer	Siew-Pheng Chan, MD
Council Member	Prof. Dato' Mafauzy Mohamed, MD
	Azraai Bahari bin Nasruddin, MD
	Chong Kuck Meng, MD
	Foo Siew Hui, MD
	Janet Hong Yeow Hua, MD
	Subashini Rajoo, MD

MYANMAR SOCIETY OF ENDOCRINOLOGY AND METABOLISM

MSEM Officers

President	Prof. Aye Aye Aung
Vice-President	Prof. Ko Ko
Executive Members	Prof. Aung Cho Myint
	Prof. Kyu Kyu Maung
	Prof. Mya Thandar Sein
	Assoc. Prof. Ye Myint
	Assoc. Prof. Htet Htet Khin
Patrons	Prof. Tint Swe Latt
	Prof. Than Than Aye
	Prof. Khin Ye Myint
	Nu Nu Maw

ENDOCRINE & METABOLIC SOCIETY OF SINGAPORE

EMSS Office Bearers and Executive Committee

President	Assoc. Prof. Melvin Khee Shing Leow
Vice-President	Stanley Liew, MD
Honorary Secretary	Vanessa Au, MD
Honorary Treasurer	Zhu Ling, MD
Committee Member	Chan Soo Ling, MD
	Abel Chen, MD
	Andre Tan, MD
	Yew Tong Wei, MD
Immediate Past President	Vivien Lim, MD

THE INDONESIAN SOCIETY OF ENDOCRINOLOGY

National Executive Board of The Indonesian Society of Endocrinology

Chairman	Prof. Ketut Suastika
General Secretary	Em Yunir, MD
Treasurer	Fatima Eliana, MD

AFES MEMBER COUNTRIES | LIST OF OFFICERS AND MEMBERS

PHILIPPINE SOCIETY OF ENDOCRINOLOGY, DIABETES AND METABOLISM

PSEDM Officers & Board of Trustees Year 2019 – 2020

President	JeremyJones F. Robles, MD
Vice-President	Michael L. Villa, MD
Secretary	Carolyn Narvacan-Montano, MD
Treasurer	Marjorie A. Ramos, MD
Trustees	Jovie Joy R. Manuel, MD
	Aurora G. Macaballug, MD
	Elaine C. Cunanan, MD
	Lora May Tan-Tan Hay, MD
	Jerome R. Barrera, MD
Immediate Past President	Mia C. Fojas, MD

THE ENDOCRINE SOCIETY OF THAILAND

Executive Board Year 2016 – 2019

President	Boonsong Ongphiphadhanakul, MD
Vice-President 1	Ampica Mangklabruks, MD
Vice-President 2	Sompongse Suwanwalaikorn, MD
Secretary General	Chardpraorn Ngarmukos, MD
Assistant Secretary General	Hataikarn Nimitphong, MD
Treasurer	Apusanee Boonyavorakul, MD
Assistant Treasurer	Raweewan Lertwattnarak, MD
Scientific Chair	Chaicharn Deeroochanawong, MD
Assistant Scientific Chair	Navaporn Napartivaumnuay, MD
Stewardship Chair	Sarat Sunthornyothin, MD
Assistant Stewardship Chair	Apiradee Sriwijitkamol, MD
Registrar	Pongamorn Bunnag, MD
Public Relations Chair	Swanjit Suraamornkul, MD
Assistant Public Relations Chair	Puntip Tantiwong, MD
Committee Members	Supawadee Likimaskul, MD
	Petch Rawdaree, MD
	Pat Mahachoklertwattana, MD
	Supamai Soonthornpun, MD

VIETNAM ASSOCIATION OF DIABETES AND ENDOCRINOLOGY

Officers of VADE

President	Prof. Tran Huu Dang, MD, PhD
Vice-Presidents	Prof. Nguyen Hai Thuy, MD, PhD
	Assoc. Prof. Do Trung Quan, MD, PhD
	Assoc. Prof. Nguyen Khoa Dieu Van, MD, PhD
	Assoc. Prof. Nguyen Thi Bich Dao, MD, PhD
	Le Van Chi, MD, PhD
	Diep Thi Thanh Binh, MD
General Secretary	Tran Thua Nguyen, MD, PhD

SAVE THE DATE !

THE PHILIPPINE SOCIETY OF ENDOCRINOLOGY, DIABETES AND METABOLISM

invites you to its

2020 Annual Convention

ENDOVISION 2020:

Insights and Foresights

FOCUS on Patient-Centered Care in Endocrinology and Diabetes

Pre-Convention: March 18, 2020
Annual Convention March 19 - 20, 2020
Edsa Shangri-La Manila, Mandaluyong City

PRC, PCP and PAFP - CPD units applied
PMA - CME units applied

For more information, please contact:
The PSEDM Secretariat
U2005-2006 20/F Medical Plaza Ortigas
Ortigas Centre, Pasig City 1600
Tel. No. (632) 8633-6420
Fax No. (632) 8637-3162
E-mail: sec@endo-society.org.ph
URL: www.endo-society.org.ph

REGISTRATION FEE		
Category	Before February 28, 2020	March 1, 2020 onwards
PSEDM Members	P 2,000.00	P 2,500.00
Non Members (MD's)	P 2,500.00	P 3,000.00
Fellows in training / Residents / Allied Health Care Professionals	P 1,500.00	P 2,000.00

ORAL RESEARCH PRESENTATIONS

DAY 1 – November 21, 2019 (Thursday)

DAY 2 – November 22, 2019 (Friday)

ABSTRACTS OF ORIGINAL ARTICLES

Prediabetes / Diabetes Mellitus / Hypoglycemia

Thyroid

General Endocrinology

ABSTRACTS OF CASE REPORTS

Prediabetes / Diabetes Mellitus / Hypoglycemia

Thyroid

General Endocrinology

Organised by

EMSS

Endocrine & Metabolic Society of Singapore

In collaboration with

MAYO CLINIC

8th EMSS-MAYO Course in Advanced Endocrinology

20-23 FEB 2020 SINGAPORE

www.endometab.com

DAY 1 – November 21, 2019 (Thursday)

OP-01

ANXIETY AND DEPRESSION AMONG PATIENTS WITH TYPE 2 DIABETES MELLITUS USING THE VALIDATED FILIPINO VERSION OF THE HOSPITAL ANXIETY AND DEPRESSION SCALE

https://doi.org/10.15605/jafes.034.02.S1

Marjorie A. Nolasco, Adrian Joseph de Guzman, Collene Marizza Faustino, Allanbert Sampana, Ma. Adelita Medina
Dr. Paulino J. Garcia Memorial Research and Medical Center, Cabanatuan City, Philippines

Abstract published in Endocrinology and Metabolism Abstract Book p. 349 at the 7th Seoul International Congress of Endocrinology and Metabolism (SICEM 2019) April 18-21, 2019.

INTRODUCTION
In 2017, over 3.7 million Filipinos have diabetes according to the International Diabetes Federation. Similarly, 3.29 million Filipinos are battling depression and 3.07 million are living with anxiety. Studies have concluded that anxiety and depression are burdensome comorbidities in people with T2DM. Clinicians should be aware that even subclinical symptoms of depression may negatively impact diabetes self-care behaviors. We therefore conducted this study to determine the prevalence of anxiety and depression in patients with diabetes.

METHODOLOGY
This was a cross-sectional single-center study using non-probability sampling conducted on September 2018 at the OPD. All patients diagnosed with T2DM, age 35 years and above, currently receiving glucose-lowering medications were included in the study. A self-administered questionnaire was used to obtain the sociodemographic and clinical characteristics of the participants. HADS-P was used to screen for anxiety and depression. The relationship between the clinical variables and anxiety and depression was assessed by performing chi-square and Fisher's Exact test.

RESULTS
A total of 63 patients were included in the analysis. Anxiety was seen in 26 (41%) patients and 10 (16%) patients were found to have symptoms of depression. Significant association was found between monthly income and anxiety (p=0.040 <0.05). There was significant association between depression, civil status (p=047 0.05), and monthly income (p=0.049 <0.05).

CONCLUSION
Mood disorders could be readily observed among patients with T2DM. Younger patients were more likely to suffer from depression. Other factors such as low income, poor moral and social support especially among married and widowed/er individuals are identified.

KEY WORDS
anxiety, depression, HADS-P

OP-02

NUTRIGENETIC MARKERS OF VITAMIN D DEFICIENCY: FINDING GENETIC MARKERS FROM THE 2013 PHILIPPINE NATIONAL NUTRITION SURVEY USING HIGH-THROUGHPUT NEXT GENERATION SEQUENCING

https://doi.org/10.15605/jafes.034.02.S2

Mark Pretzel P. Zumaraga, Marietta Rodriguez, Leah Perlas, Mae Anne Concepcion, Charmaine Duante, Mario Capanzana
Food and Nutrition Research Institute, Department of Science and Technology, Bicutan, Taguig City, Philippines

INTRODUCTION
In the Philippines, based on the 2013 National Nutrition Survey, vitamin D deficiency was highest in Benguet at 60.3% and lowest in Cagayan, but still very high, at 19.5%. With vitamin D implicated in a wide range of multiple health outcomes, a fuller understanding of the determinants of vitamin D status is needed and must include consideration of inherited characteristics.

OBJECTIVE
The study determined the relationship of serum vitamin D levels and genetic variations in 502 lifestyle related genes among adult respondents, age 21 years old and above, from the 2013 Philippine National Nutrition Survey (NNS).

METHODOLOGY
The study followed a cross-sectional research design. A total of 1,160 adult respondents of the 2013 NNS and living in Metro Manila, Philippines were included in the study. Anthropometric, biochemical, clinical and dietary data were generated through validated questionnaires, physical examination and laboratory analyses. Total serum 25-hydroxyvitamin D (25OHD3) was determined using electro-chemiluminescence binding assay method. Genomic DNA was used for massively parallel sequencing of 502 lifestyle related genes.

RESULTS
Of the study participants, 56% were classified as having low serum 25OHD3 concentration (<75 nmol/mL). The data discovered at least six genetic variations show statistically significant differences in serum vitamin D concentration across genotypes. These genes were previously known to have contributed to the risk of developing Type 2 Diabetes Mellitus, Obesity, Iodine Deficiency and a neurodegenerative disorder.

CONCLUSION AND RECOMMENDATION
Large-scale analysis of genes associated with lifestyle disease and other determinants of overall health have shown great utility in the discovery of genes and polymorphisms that play a role in vitamin D nutrition. Post – hoc test may be performed to confirm where the differences occurred between groups. It is envisioned that understanding how genetic variations interact with environmental factors, especially nutrition may hold the key to better prevention and management of nutrition-related diseases and may be basis for future innovative genome-based functional food product development enriched with vitamin D.

KEY WORDS
nutrigenomics, vitamin D, next generation sequencing

OP-03

FACTORS ASSOCIATED WITH THE SEVERITY OF FINDINGS ON HEPATIC TRANSIENT ELASTOGRAPHY AMONG PERSONS WITH TYPE 2 DIABETES AND FATTY LIVER

https://doi.org/10.15605/jafes.034.02.S3

Joseph Noel S. Fernando, Rebecca Lim-Alba, Willy Alba
Chinese General Hospital and Medical Center, Manila, Philippines

**For publication in the second issue of the Journal of ASEAN Federation of Endocrine Societies (JAFES) this November 2019.*

OBJECTIVE
This study aims to determine the relationship between the different factors associated with the severity of Fibroscan with CAP findings among patients with type 2 diabetes and fatty liver.

METHODOLOGY
This is a cross-sectional study. Seven hundred four Fibroscan with Controlled Attenuation Parameter (CAP) results were electronically retrieved from a diagnostic center. 285 charts of diabetic patients with fatty liver on ultrasound were reviewed. One hundred sixty-four patients with fatty liver on ultrasound and Fibroscan with CAP were included in the study. Several factors were analysed in relation to the severity of Fibroscan with CAP findings in the study group.

RESULTS
55.5% (91/164) had significant fibrosis and cirrhosis. Hepatic steatosis prevalence was 96% (158/164). Diabetes >5 years (OR 1.75), HbA1c ≥7% (OR 2.25) and high SGPT levels (OR 2.39) were associated with liver fibrosis and cirrhosis. BMI >25 kg/m^2 (OR 1.45), triglyceride levels >150 mg/dl (OR 1.31) and HbA1c ≥7% (OR 1.74) were associated with hepatic steatosis.

CONCLUSION
Factors associated with the severity of hepatic fibrosis, cirrhosis and steatosis included above normal BMI, disease duration of >/= 5 years, poor glycemic control and elevated levels of ALT, and serum triglycerides.

KEY WORDS
type 2 Diabetes, NAFLD, transient elastography

OP-04

GLYCEMIC CONTROL AND COGNITIVE FUNCTION AFTER 50 YEARS OF TYPE 1 DIABETES

https://doi.org/10.15605/jafes.034.02.S4

Marc Gregory Y. Yu, Hetal Shah, Emily Wolfson, Vanessa Bahnam, George King
Section of Vascular Cell Biology, Joslin Diabetes Center, Harvard Medical School, Boston, USA

INTRODUCTION
While cognitive dysfunction is well-studied in type 2 diabetes (T2D), research in type 1 diabetes (T1D) remains scant. In the Medalist Study at Joslin Diabetes Center ("Medalists"), individuals with ≥50 years of TID were previously shown to have impaired cognitive function, similar to those with T2D. However, the association of glycemic control with cognitive impairment has not been investigated.

METHODOLOGY
Medalists with no pre-existing CNS conditions or intake of medications affecting cognitive function were recruited for this cross-sectional study. They underwent the following tests: The Rey Auditory Verbal Learning Test assessing both immediate and delayed memory; the Wechsler Memory Scale III assessing working memory; the Delis-Kaplan Executive Function System assessing executive function; and the Grooved Pegboard Test assessing motor skills for both the dominant (DH) and non-dominant (NDH) hand. The association of glycemic control with cognitive function was evaluated using linear regression.

RESULTS
In the overall cohort (n=110), HbA1c was significantly associated with worse executive function even after adjusting for covariates (p=0.01). Medalists in the highest HbA1c tertile (7.5-9.2%) also trended (p=0.08) towards worse executive function as compared to Medalists in the middle (6.8-7.4%) and lowest (5.0-6.7%) tertiles. Furthermore, HbA1c was significantly associated with worse DH motor skills (p=0.047), and trended (p=0.09) towards association with worse immediate memory, among Medalists in the lowest tertile of disease duration (50-51 years).

CONCLUSION
Worse glycemic control was associated with cognitive dysfunction in the Medalists. Given the increasing life expectancy of individuals with T1D, a multidisciplinary approach is recommended to promote strategies that prevent cognitive decline.

KEY WORDS
cognitive dysfunction, type 1 diabetes, glycated hemoglobin A

OP-05

FREQUENCY AND DIVERSITY OF POTENTIAL GENETIC MAKERS OF NUTRITION-RELATED DISEASES GENERATED FROM THE NEXT GENERATION SEQUENCING (NGS) PANEL

https://doi.org/10.15605/jafes.034.02.S5

Marietta P. Rodriguez, Mark Pretzel Zumaraga, Leah Perlas, Chona Patalen, Charmaine Duante, Jacus Nacis, Mae Anne Concepcion, Mario Capanzana
Food and Nutrition Research Institute, Department of Science and Technology, Bicutan, Taguig City, Philippines

INTRODUCTION
The ubiquity of lifestyle diseases is a challenge in the contemporary health of Filipinos that requires solid and practical answers**.** To lessen the impact of non-communicable diseases (NCDs) on individuals and society, a comprehensive approach is needed, one that requires careful consideration of all the factors and risks associated with NCDs, as well as promote the interventions to prevent and control them. The study identified and profiled Single Nucleotide Polymorphisms (SNPs) associated with NCDs among adult Filipinos living in National Capital Region (NCR). The identification of SNPs will help in the assessment of likelihood of developing aforementioned diseases.

METHODOLOGY
Whole human blood samples from anonymized selected NCR participants were used for genomic deoxyribonucleic (DNA) extraction. Genomic DNA was isolated using the QIAamp DNA Blood Mini Kit. About 50 ng of anonymized DNA samples were sequenced using the Ion Torrent Proton (Life Technologies). Data were analyzed using the Ampliseq™ Variant Caller plug-in within the Ion Torrent Suite software (Invitrogen Life Technologies) and annotated using Ion Reporter software version 5.4.

RESULTS
The targeted sequencing of 502 published genes and SNPs associated with NCDs and other nutrition-related diseases was performed to a total of 1,160 samples. The identification of genes and SNPs underlying common non-communicable diseases and other nutrition-related diseases performed in the Filipino population has tremendously helped determined level of susceptibility of the population towards development of debilitating but preventable diseases such as T2DM, obesity, cardiovascular diseases, osteoporosis and micronutrient deficiency.

CONCLUSION AND RECOMMENDATION
Genotyping of published SNP variants that interact with dietary composition to modulate biomarkers and health outcomes can provide a framework for the development of novel foods that are genotype dependent, in addition to the development of personalized dietary recommendations, aimed towards a more individualized/personalized strategy of health promotion, prevention and management of nutrition related diseases.

KEY WORDS
genotype, single nucleotide polymorphisms, non-communicable diseases

OP-06

THIGH AND WAIST CIRCUMFERENCE AND GLYCEMIC VARIABILITY AND CAROTID ATHEROSCLEROSIS IN KOREAN PATIENTS WITH TYPE 2 DIABETES

https://doi.org/10.15605/jafes.034.02.S6

Myungki Yoon,[1] Kap Bum Huh,[2] Chul Sik Kim[3]
[1]*College of Medicine, Hallym University, Chuncheon, Republic of Korea*
[2]*Huh's Diabetes Center and the 21st Century Diabetes and Vascular Research Institute, Seoul, Korea*
[3]*Division of Endocrinology and Metabolism, Department of Internal Medicine, College of Medicine, Hallym University, Korea*

INTRODUCTION
To investigate whether thigh circumference and waist circumference are associated with glycemic variability and carotid atherosclerosis in patients with type 2 diabetes mellitus(T2DM).

METHODOLOGY
This study performed in 3,075 Korean patients with T2DM. The hemoglobin glycation index (HGI) was defined as the measured HbA1c minus predicted HbA1c, which was calculated from the linear relationship between HbA1c and fasting plasma glucose levels. When the HGI value was 0 or more, it was considered to have high glycemic variability (GV). Carotid atherosclerosis was defined as having a clearly isolated focal plaque or focal wall thickening >50% of the surrounding intima-media thickness (IMT).

RESULTS
The presence of the GV was lower with increasing thigh circumference quartiles in men and was higher with increasing waist circumference quartiles in women after adjusting for confounding variables that could affect GV. There was an augmentative effect of thigh and waist circumference on the frequency of high GV, which was dramatically higher waist-to-thigh circumference ratio quartile (adjusted odds ratio for high GV for the highest quartile of waist-to-thigh circumference compared with the lowest quartile being 1.595 and 1.570 in men and women, respectively). The larger the thigh circumference, the less carotid atherosclerosis was, and in women this significant relationship disappeared after adjusting for potential confounders.

CONCLUSION
The GV appears to be affected by the thigh circumference in men and waist circumference in women. In addition, a low thigh circumference and high waist circumference was strongly associated with higher GV in Korean diabetic patients. In particular, thigh circumference was associated with carotid atherosclerosis in men.

KEY WORDS
thigh circumference waist circumference glycemic variability carotid atherosclerosis

OP-07

CORRELATION OF AGGREGATED BETA AMYLOID LEVEL IN PLASMA WITH MoCA AND MMSE AMONG PATIENTS WITH TYPE 2 DIABETES WITH DEMENTIA

https://doi.org/10.15605/jafes.034.02.S7

Michelle D. Ardales, Rosa Allyn Sy, Marietta Olaivar, Critopher Cipriano, Mary Nel Bacalso, Miguel Esguerra
Ospital ng Makati, Philippines

INTRODUCTION
Type 2 DM as a risk factor for Alzheimer's disease (AD) has been studied in recent years; however, no clear evidence of association has been found. As potential biomarker for AD, plasma beta amyloid is likewise under study by researchers. We examined the correlation between plasma beta amyloid levels and cognitive function among type 2 DM patients with dementia as indicated by their neurocognitive assessment scores. This study hopes to devise a less invasive early detection of AD among patients with diabetes.

METHODOLOGY
In this cross-sectional study, 100 patients with type 2 DM and dementia underwent plain cranial CT scan, plasma beta amyloid, MMSE and MoCA. Patients were categorized as having vascular dementia using the NINDS-AIREN Criteria. Elevated plasma beta amyloid was used as biomarker for AD.

RESULTS
Among type 2 DM patients with dementia, there is an increased prevalence of AD (46.7%) as shown by the elevated beta amyloid level. The prevalence of vascular dementia is 6%. Among patients with non-vascular dementia, 51.3% have elevated beta amyloid. There is no significant correlation between both MMSE score and beta amyloid (r=-0.0192, p=0.8557), and between MoCA score and beta amyloid (r=0.0939, p=0.3731). The results do not show significant correlation between MMSE and MoCA scores with beta amyloid level among patients with AD.

CONCLUSION
Using the beta amyloid as biomarker, the study suggests a link between AD and type 2 DM, however, we recommend further researches to ascertain the use of plasma beta amyloid as a less invasive screening for AD among patients with diabetes.

KEY WORDS
diabetes mellitus, dementia, aggregated beta amyloid, Alzheimer's disease

OP-08

ROLE OF HYPOXIA-INDUCIBLE FACTOR 1A (HIF1A) ON INTERMITTENT HYPOXIA-INDUCED ADIPOSE TISSUE DYSFUNCTION IN TYPE 2 DIABETES MELLITUS

https://doi.org/10.15605/jafes.034.02.S8

Josept Mari Poblete,[1,2,3] Shengying Bao,[2,3] Jose Nevado Jr.,[1,4] Ulysses Magalang[2,3,5]
[1]*College of Medicine, University of the Philippines Manila, Philippines*
[2]*Davis Heart and Lung Research Institute, The Ohio State University Wexner Medical Center, Columbus, Ohio, USA*
[3]*Division of Pulmonary, Allergy, Critical Care and Sleep, Department of Internal Medicine, The Ohio State University Wexner Medical Center, Columbus, Ohio, USA*
[4]*Institute of Human Genetics, National Institutes of Health, University of the Philippines Manila, Philippines*
[5]*Department of Neuroscience, The Ohio State University Wexner Medical Center, Columbus, Ohio, USA*

INTRODUCTION
Obstructive sleep apnea (OSA) commonly coexists in type 2 diabetes mellitus (T2DM) patients, but the mechanism for this overlapping epidemic remains unclear. We hypothesized that the intermittent hypoxia (IH) in OSA leads to upregulation of hypoxia-inducible factor 1a (HIF1A) in adipose tissue (AT), leading to local fibrosis, inflammation, and macrophage infiltration. These contribute to insulin resistance and glucose intolerance in T2DM.

METHODOLOGY
We employed a combination of in vitro and in vivo approaches to investigate the role of HIF1A in OSA and T2DM. Cell and animal models were exposed to IH to simulate the hypoxic stress in OSA. The role of HIF1A was investigated through treatment with PX-478, a known HIF1A inhibitor.

RESULTS
IH exposure resulted in IL6-mediated inflammation in adipocytes and macrophage co-culture that was reversed by pre-treatment with PX-478. Further, TallyHo mice treated with PX-478 had markedly improved insulin sensitivity and glucose tolerance after IH challenge. These metabolic improvements were associated with decreased AT fibrosis, inflammation and macrophage infiltration. Trichrome stain indicated that collagen deposition was significantly reduced in AT of PX-478-treated TallyHo mice exposed to IH. We also found that the inflammatory markers IL6, TNFa and MCP1 were decreased in AT of PX-478-treated mice. Consistent with these, immunohistochemical staining confirmed lower frequency of macrophage infiltration in the PX-478 group.

CONCLUSION
Overall, we underscore the importance of HIF1A for the orchestration of pro-fibrotic and pro-inflammatory changes of the AT in response to IH, serving as a crucial link between OSA and the development of insulin resistance and glucose intolerance in T2DM.

KEY WORDS
obstructive sleep apnea, adipose tissue, diabetes

OP-09

CORRELATION STUDY BETWEEN ERYTHROCYTE ACETYLCHOLINESTERASE ACTIVITY, SERUM MALONDIALDEHYDE AND INSULIN SENSITIVITY IN AGRICULTURAL WORKERS AND NON-AGRICULTURAL WORKERS IN NAT-KAN VILLAGE, MAGWAY TOWNSHIP, MYANMAR

https://doi.org/10.15605/jafes.034.02.S9

Mya Pwint Phyu,[1] Zarchi Theint Hlaing,[1] Thurein Zaw,[1] Soe Minn Htway,[1] Mya Thanda Sein[2]
[1]*Department of Physiology, University of Medicine, Magway, Myanmar*
[2]*Department of Physiology, University of Medicine 2, Yangon, Myanmar*

INTRODUCTION
Many studies have indicated that organophosphate (OP) pesticides exposure was associated with hyperglycemia and development of type 2 diabetes mellitus in case studies and population studies. However, only few studies have examined the association between OP pesticides exposure and serum insulin level as well as insulin sensitivity.

OBJECTIVE
This study investigated the erythrocyte acetylcholinesterase activity, serum malondialdehyde and insulin sensitivity in agricultural workers and non-agricultural workers.

METHODOLOGY
The cross-sectional comparative study was undertaken in 45 agricultural workers and 45 non-agricultural workers from Nat-Kan village, Magway Township. Erythrocyte acetylcholinesterase (AChE) activity and serum Malondialdehyde (MDA) were measured by spectrophotometric method. Insulin sensitivity was calculated by Homeostasis model assessment (HOMA-IR).

RESULTS
Mean erythrocyte AChE activity was significantly lower in agricultural workers compared with non-agricultural workers (3553.99±855.60 U/L vs 4432.68±1287.86 U/L, $p<0.001$). A significant high level of serum MDA was observed in agricultural workers (0.74±0.05μmol/L vs 0.28±0.06 μmol/L, $p<0.001$). Median HOMA-IR value was significantly higher in agricultural workers [2.74 (2.37-3.3)] than that of non-agricultural workers [2.28 (2.03-2.78), ($p<0.05$)]. The risk of insulin resistance was 2.8 times greater in agricultural workers than non-agricultural workers (Odd ratio=2.8; 95% confidence interval=1.18 to 6.72). Erythrocyte AChE activity had weak negative correlations with serum MDA level (r=-0.357, n=90, $p<0.001$) and HOMA-IR (ϱ=-0.305, n=90, $p<0.05$). There was a significant positive correlation between serum MDA level and HOMA-IR (ϱ=0.355, n=90, $p<0.001$).

CONCLUSION
Organophosphate pesticides exposure decreased the erythrocyte AChE activity and increased oxidative stress. This oxidative stress partly attributed to the development of insulin resistance.

KEY WORDS
AChE activity, HOMA-IR, MDA level, organophosphate pesticides exposure, agricultural workers

DAY 2 – November 22, 2019 (Friday)

OP-10

ECONOMIC BURDEN OF TYPE 2 DIABETES IN MYANMAR

https://doi.org/10.15605/jafes.034.02.S10

Wah Khaing Oo,[1] Ko Ko,[2] Arthorn Riewpaiboon,[1] Sitaporn Youngkong[1]

[1]*Division of Social, and Administrative Pharmacy, Department of Pharmacy, Faculty of Pharmacy, Mahidol University, Bangkok, Thailand*

[2]*Department of Diabetes and Endocrinology, University of Medicine 2, Yangon, Myanmar*

INTRODUCTION

The burden of diabetes, especially type 2 diabetes, is a growing public health concern in Myanmar. However, no study explored the economic consequences of the disease. Therefore, this study aimed to estimate the economic burden of type 2 diabetes from a societal perspective.

METHODOLOGY

This study was a retrospective, prevalence-based cost of illness analysis. Data were collected from 94 randomly selected patients with type 2 diabetes who received treatment at the Diabetes and Endocrinology department of North Okkalapa teaching hospital in Yangon, Myanmar during 2017-2018. A micro-costing approach was applied in the cost calculation. One-way sensitivity analysis was performed to check the uncertainty of the results.

RESULTS

The estimated total cost of type 2 diabetes was 104,386 USD (1 USD = 1520 kyat) for the 2019 fiscal year. Of which, 66% was direct medical cost, 18% was direct non-medical cost, and 16% was indirect cost. The cost per patient per year was 1110 USD, 88% of per capita gross domestic product of Myanmar. It indicates that type 2 diabetes has a substantial impact on the country's growing economy, and this will be greater with increasing prevalence in the coming year. Furthermore, the cost of informal care contributed to 48% of the direct non-medical cost. So, the results indicate that the disease affected not only the individual but also the caregivers, including family, relatives, and friends.

CONCLUSION

The results of this study highlighted that an appropriate strategy with cooperative effort is urgently necessary to decrease prevalence of disease and its associated complications.

KEY WORDS

cost of illness, health care cost, burden of illness, diabetes, Myanmar

OP-11

THE ROLE OF PULSE PRESSURE IN NAVIGATING THE PARADIGM OF CHRONIC KIDNEY DISEASE PROGRESSION IN TYPE 2 DIABETES

https://doi.org/10.15605/jafes.034.02.S11

Serena Low,[1,2] Su Chi Lim,[1,3] Keven Ang,[1] Wern Ee Tang,[4] Pek Yee Kwan,[4] Tavintharan Subramaniam,[2] Chee Fang Sum[2]

[1]*Khoo Teck Puat Hospital, Singapore*

[2]*Admiralty Medical Centre, Singapore*

[3]*Saw Swee Hock School of Public Health, National University of Singapore*

[4]*National Healthcare Group Polyclinics, Singapore*

INTRODUCTION

Arterial stiffness is a risk factor for chronic kidney disease (CKD) progression. Alterations in pulse wave velocity (PWV), a measure of arterial stiffness, lead to increased systolic blood pressure (SBP) and decreased diastolic blood pressure (DBP) known as pulse pressure (PP). It is unclear if PP predicts CKD progression in Type 2 Diabetes (T2D).

METHODOLOGY

This was a prospective study of 1,494 patients with estimated glomerular filtration rate ≥15 ml/min/1.73 m^2 from SMART2D cohort. Carotid-femoral PWV was measured by applanation tonometry. PP was calculated as difference between SBP and DBP. CKD progression was defined as deterioration across KDIGO estimated glomerular filtration rate (eGFR) categories with ≥25% drop from baseline.

RESULTS

After follow-up of up to 6 years, CKD progression occurred in 33.5% of subjects. Cox regression showed a dose-dependent relationship between PP and CKD progression with hazards ratio (HR) 1.36 (95%CI 1.01-1.84; p=0.004), 2.41 (1.85-3.15; p<0.001) and 3.14 (2.43-4.06; p<0.001) for quartiles 2, 3 and 4 respectively in unadjusted analysis. Having adjusted for demographics and clinical covariates, the association persisted for quartiles 3 and 4 with HRs 1.66 (1.25-2.20; p<0.001) and 1.76 (1.32-2.36; p<0.001) respectively. There was no significant difference between PP and PWV alone in receiver-operating curve for CKD progression (65.5% vs. 67.5%; p=0.246). Binary mediation analysis revealed that urinary albumin-to-creatinine ratio accounted for 48.3% of the association between PP and CKD progression.

CONCLUSION
Individuals with high PP were susceptible to deterioration of renal function. Albuminuria partially contributed to the pathophysiological mechanism. PP could potentially be incorporated in clinical practice as an inexpensive and convenient marker of renal decline in T2D.

KEY WORDS
pulse pressure, chronic kidney disease, type 2 diabetes

OP-12

VALIDATION OF THE MODIFIED KNEE-HEIGHT AND MID-ARM CIRCUMFERENCE METHOD IN ESTIMATING BODY WEIGHT AMONG ADULT FILIPINOS

https://doi.org/10.15605/jafes.034.02.S12

Niña Rose R. Alibutod,[1] Gabriel Jasul Jr.,[1] Cecilia Jimeno,[1] Elizabeth Paz-Pacheco,[1] Anna Angelica Macalalad-Josue,[1] Elizabeth Limos[2]
[1]*Section of Endocrinology, Diabetes and Metabolism, Department of Medicine, University of the Philippines-Philippine General Hospital*
[2]*Dietary Service Department, University of the Philippines-Philippine General Hospital*

INTRODUCTION
Nutritional assessment, dietary prescription, and optimal dosing of medications are calculated based on body weight (BW), which is difficult to obtain in bed bound patients. Due to the unavailability of bed weighing scales, physician's estimation of BW or self-reported BW is being used which is inaccurate. Hence, this study aimed to validate the modified Knee Height (KH) and mid-arm circumference (MAC) method in estimating BW among adult Filipinos.

METHODOLOGY
This cross-sectional analytical study included 383 admitted patients. Anthropometric measurements were obtained. Accuracy of the modified KH-MAC method was determined using Bland-Altman analysis.

RESULTS
BW measurements were significantly higher using KH-MAC method compared to actual BW, by a mean of 8.94 (95% CI, 8.36–9.52) and 6.76 (95% CI, 6.22–7.31) kg as measured by 2 research associates. The least bias in BW estimates appeared to be with elderly, followed by middle and then young adults. A similar pattern is seen with body mass index (BMI) category, with bias increasing while going from the obese to underweight categories. % bias across malnutrition classifications are similar. A new equation was derived which has better weight estimates and biases were generally small (all within +/- 1.5%) across all categories.

CONCLUSION
The modified KH-MAC method overestimated actual BW. Factors having least bias in BW estimates are elderly and obese. A new equation was derived which has better accuracy and lesser biases were noted across all categories, however, this requires validation studies.

KEY WORDS
adult weight estimation, modified knee-height-mid arm circumference, Filipinos

OP-13

LEAN MASS, AGE AND SCLEROSTIN LEVELS INFLUENCE BONE HEALTH IN POSTMENOPAUSAL WOMEN WITH TYPE 2 DIABETES

https://doi.org/10.15605/jafes.034.02.S13

Mazra Othman,[1] Wan Mohd Izani Wan Mohamed,[2] Mafauzy Mohamed,[2] Vina PS Tan[1]
[1]*School of Health Sciences, Universiti Sains Malaysia, Kelantan, Malaysia*
[2]*School of Medical Sciences, Universiti Sains Malaysia, Kelantan, Malaysia*

INTRODUCTION
Osteoporosis affects 1-in-3 women aged 50 years and above. However, studies reported that people with type 2 diabetes (T2D) have more incidences of fractures than non-T2Ds. Yet, few T2D women were osteoporotic. This study aims to describe the osteoporosis status and investigate sclerostin (a signaling protein exclusively from osteocytes that prevent bone formation), lean mass and other related factors to osteoporosis in postmenopausal Malaysian women with T2D.

METHODOLOGY
We recruited 71 postmenopausal women (age 59.7±4.2 year) and measured their bone mineral density (BMD, kg/cm^2), body fat (kg) and lean mass (LM, kg) using dual energy X-ray absorptiometry (DXA) and derived BMD T-scores. We obtained fasting blood measures of HbA1c (%), glucose (mmol/L) and sclerostin (pmol/L). Participants' calcium intake was also assessed using a validated food frequency questionnaire. We conducted correlation followed by multivariable regression analysis using SPSS version 24.

RESULTS

We detected only seven osteoporotic women (10%) with T-scores <-2.5 and average BMD of 1027.6±87.4 g/cm^2. From our correlation analyses, age (r=-0.28), LM (35.2±5.6 kg, r=0.47) and sclerostin levels (49.4±17.0 pmol/L, r=0.25) were significantly correlated to T-score whereas daily calcium intake (256.7±243.2 mg), menopausal age (51.4±4.1 y), years of T2D (12.3±7.6 y) and HbA1c (9.08±2.3 %) were not significantly correlated. The multivariable regression model predicted 29% (F=9.01, p<0.001) of T-score outcomes from age, LM and sclerostin levels (0.081 muscle + 0.014 sclerostin – 0.07 age – 0.693).

CONCLUSION

One-in-ten postmenopausal T2D women were osteoporotic from our study. More in-depth investigations are needed to understand these novel results of sclerostin and lean mass influence on bone status in T2D postmenopausal women.

KEY WORDS

osteoporosis, sclerostin, lean mass

OP-14

ASSOCIATION OF GLYCAEMIC CONTROL WITH PREMATURE EJACULATION AMONG TYPE 2 DIABETES MELLITUS PATIENTS ATTENDING IN A TERTIARY CARE HOSPITAL OF BANGLADESH

https://doi.org/10.15605/jafes.034.02.S14

Md. Ashraf Uddin Ahmed,[1] ASM Morshed,[2] Farzana Yasmin[3]

[1]*Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM) General Hospital, Dhaka, Bangladesh*

[2]*Sirajul Islam Medical College, Dhaka, Bangladesh*

[3]*Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh*

INTRODUCTION

Premature ejaculation is three times higher in diabetic population and its onset is 10 to 15 years earlier than persons without diabetes. The aim of this study was to find out the association of glycaemic control with premature ejaculation among patients with Type 2 DM attending in a tertiary care hospital of Bangladesh.

METHODOLOGY

This descriptive cross-sectional study was conducted in the outpatient department of BIRDEM general hospital from July 2017 to June 2018. A total of 225 adult patients with type 2 DM were recruited and diagnosis was confirmed as per ADA 2016 criteria. A face to face interview was conducted using premature ejaculation diagnostic tool (PEDT).

RESULTS

Mean age of patients having PE was 38.36±8.89 and age group of 60–69 years had higher incidence rate. Most of the respondents were married (73.3%). Among the study population, the prevalence of PE was 55.6%. The analysis also showed that duration of diabetes was associated with the increasing risk of PE. Almost half of PE patients (48%) were suffering from type 2 DM for more than 10 years. PE was significantly higher (p<0.001) among patients with poor glycaemic control (HbA1c >7).

CONCLUSION

The results provide evidence that PE is a highly prevalent sexual dysfunction among type 2 DM patients in Bangladesh. Moreover, PE largely remains underdiagnosed and untreated. The health system needs to develop appropriate strategies including early diagnosis, awareness, and health education programs for appropriate treatment.

KEY WORDS

glycaemic control, premature ejaculation, type 2 diabetes mellitus, tertiary care hospital, Bangladesh

OP-15

LIRAGLUTIDE 3.0 mg AS AN ADJUNCT TO INTENSIVE BEHAVIOR THERAPY IN INDIVIDUALS WITH OBESITY: SCALE IBT 56-WEEK RANDOMIZED, DOUBLE-BLIND, PLACEBO-CONTROLLED TRIAL

https://doi.org/10.15605/jafes.034.02.S15

Thomas Wadden,[1] Jena Shaw Tronieri,[1] Danny Sugimoto,[2] Michael Taulo Lund,[3] Pernille Auerbach,[3] Camilla Jensen,[3] Domenica Rubino,[4] Cyrus Q. Pasamba[5]

[1]*Department of Psychiatry, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA, USA*

[2]*Cedar Crosse Research Center, Chicago, IL, USA*

[3]*Novo Nordisk A/S, Søborg, Denmark*

[4]*Washington Center for Weight Management and Research, Arlington, VA, USA*

[5]*Novo Nordisk Pharmaceuticals (Philippines), Inc.*

INTRODUCTION

This 56-week, randomized, double-blind study investigated the effects of liraglutide 3.0 mg vs placebo, as adjunct to intensive behavior therapy. (IBT) and 23 counseling sessions. This reported the effects of treatment on weight change (co-primary endpoints: mean change in body weight [%] and proportion of individuals losing ≥5%), glycemic variables, cardiometabolic risk factors, safety and tolerability. Individuals aged ≥18 years with a body mass index (BMI) ≥30 kg/m^2 and without diabetes were randomized 1:1 to liraglutide 3.0 mg or placebo along with IBT.

METHODOLOGY
Continuous and categorical variables were calculated using analysis of covariance (ANCOVA) and logistic regression respectively, with treatment, gender and BMI as factors and baseline endpoint as a covariate. Missing values were handled using a jump-to-reference multiple imputation model.

RESULTS
There were 282 individuals in the full analysis set; 142 were randomized to liraglutide 3.0 mg (45 y, 16% male, 109 kg, 39 kg/m^2) and 140 to placebo (49 y, 17% male, 107 kg, 39 kg/m^2); 99% and 93% completed the trial, respectively. The intention to treat analysis demonstrated weight loss at 56 weeks of 7.5% with liraglutide 3.0 mg and 4.0% with placebo (estimated treatment difference (ETD) [95% CI], 3.5% [5.3, 1.6]; *p*=0.0003). Weight loss in individuals on trial product at 56 weeks was 9.1% (n=114) and 4.8% (n=103), respectively. The proportion of individuals achieving ≥5% weight loss was 61.5% with liraglutide 3.0 mg and 38.8% with placebo (estimated odds ratio (OR) 2.5 [1.5, 4.1], *p*=0.0003). The proportion who lost >10% was 30.5% and 19.8% (OR 1.8 [1.01, 3.1], *p*=0.0469), and >15% was 18.1% and 8.9% (OR 2.3 [1.1, 4.7], *p*=0.0311, respectively. Change in waist circumference was -9.4 cm with liraglutide 3.0 mg vs -6.7 cm with placebo (ETD -2.7 cm [-4.7, -0.8], *p*=0.006). Significant improvements at 56 weeks were seen for liraglutide 3.0 mg vs placebo in both HbA_{1c} (ETD -0.10% [-0.16, -0.04], *p*=0.0008) and fasting plasma glucose (ETD -0.23 mmol/L [-0.36, -0.11] *p*=0.0002). Blood pressure (BP) reductions were observed in both treatment arms at 56 weeks, but there were no significant differences between groups in systolic (ETD -2.2 mmHg [-4.9, 0.5], *p*=0.11) or diastolic BP (ETD -0.2 mmHg [-2.2, 1.8], *p*=0.87), or heart rate (ETD 1.3 bpm [-0.8, 3.4], *p*=0.23). Lipids were improved vs baseline but no significant differences between treatment arms were observed at 56 weeks (all *p*>0.05).

CONCLUSION
Liraglutide 3.0 mg was generally well tolerated and no new safety signals were observed in this study. The most frequent adverse events were gastrointestinal (liraglutide 3.0 mg: 71%; placebo: 49%). In conclusion, liraglutide 3.0 mg as an adjunct to IBT resulted in significantly greater weight loss, as compared to IBT and placebo.

KEY WORDS
intensive behavior therapy, liraglutide, Scale-IBT obesity

OP-16

DISCOVER-PHILIPPINES REGISTRY: DIABETES CARE AND COMPLICATIONS AMONG PATIENTS WITH TYPE 2 DIABETES MELLITUS IN THE PHILIPPINES – A PRELIMINARY REPORT

https://doi.org/10.15605/jafes.034.02.S16

Mia C. Fojas,[1] Maria Lourdes Ella Gonzales,[2] Guia Limpoco,[3] Allan Oliver Dampil[4]
[1]*College of Medicine, University of the Philippines Manila*
[2]*Cardinal Santos Medical Center, San Juan City, Philippines*
[3]*University of the Philippines-Philippine General Hospital*
[4]*Providence Hospital, Quezon City, Philippines*

INTRODUCTION
The DISCOVER Global Registry is an ongoing prospective observational database of patients with type 2 diabetes being managed by primary care physicians and specialists. This registry aims to collect real-world data on patient care in selected countries. In the Philippines, a similar survey on glycemic control and complications was last undertaken in 2008.

METHODOLOGY
A total of 518 patients were enrolled into the DISCOVER Registry from October 2018 to June 2019. Data were obtained through review of medical records: demographics (birth date, sex, educational status, health insurance), medical history (duration of diabetes, co-morbidities, therapies), physical measurements (weight, height, blood pressure), lifestyle (smoking, alcohol drinking), and laboratory tests.

RESULTS
The patient population was predominantly male (53.7%), at mean age 58 years, a BMI of 28.3 kg/m^2, retired (36.7%), and had a higher level of education (80.4%). Mean diabetes duration was 6.3 years. Mean HbA1c was 7.4%, with 56.1% achieving the target A1c <7%. History of hypertension and dyslipidemia were both 62.5%. The most common complications were nephropathy (7.1%), but mean eGFR was 84.7 mL/min/1.73 m^2, followed by retinopathy (4.8%), stroke (3.5%) and diabetic foot infections (2.5%). Treatment with Metformin as monotherapy was highest (30.3%), followed by a combination of metformin and dipeptidyl peptidase-4 inhibitor (24.0%).

CONCLUSION
These results suggest that over half of patients in the Philippines are achieving adequate glucose control, with a small proportion having associated complications. Future analyses, with inclusion of more patients from across the Philippines, may provide assessment of the generalisability of these findings.

KEY WORDS
type 2 diabetes, Philippines, Nephropathy, retinopathy, chronic kidney disease, diabetic foot, stroke, diabetes registry

OP-17

MEDICATION COMPLIANCE AND METABOLIC CONTROL IN TYPE 2 DIABETES MELLITUS PATIENTS: THE BOGOR COHORT STUDY OF NON-COMMUNICABLE DISEASES RISK FACTORS

https://doi.org/10.15605/jafes.034.02.S17

Eva Sulistiowati,[1] Nova Sri Hartati,[1] Dicky L. Tahapary[2,3]
[1]*Center for Research and Development of Resources and Health Services, National Institute of Health Research and Development, Ministry of Health of the Republic of Indonesia*
[2]*Division of Metabolism and Endocrinology, Department of Internal Medicine, Dr. Cipto Mangunkusumo National General Hospital, Faculty of Medicine Universitas Indonesia*
[3]*Metabolic, Cardiovascular and Aging Cluster, The Indonesian Medical Education and Research Institute, Faculty of Medicine Universitas Indonesia*

INTRODUCTION
The prevalence of type 2 diabetes mellitus (T2DM) is increasing worldwide, including in Indonesia. Poor metabolic control in T2DM can lead to many devastating chronic complications. This study aims to evaluate the association between medication compliance with metabolic control in T2DM.

METHODOLOGY
This study is a part of the Cohort Study of Non-Communicable Diseases Risk Factors in Bogor, West Java, Indonesia. We recruited 4829 subjects without diabetes in 2011-2012, of whom we then followed-up for six years. Data collected included WHO STEP questionnaire, abdominal circumference, height, weight, blood pressure, fasting blood sugar, 2 hours glucose post 75 g glucose load, HDL-cholesterol, LDL-cholesterol, triglycerides.

RESULTS
Within 6 years of observation there were 577 (11.95%) new DM subjects. Those new cases of diabetes have a yearly increase of body mass index, abdominal circumference, blood pressure, fasting blood sugar and 2 hours glucose post 75 g glucose load and LDL-cholesterol $p<0.001$. Most newly diagnosed DM respondents had poor blood sugar control (84.6%). Even though 98.3% of respondents knew that DM needed to be treated, only 37.5% had been treated at a health center/clinic. Only 34.5% of respondents were taking medications, however, among this group of respondents, the routine drug consumption reached 95.5%.

CONCLUSION
Most newly diagnosed DM respondents had poor metabolic control due to low levels of adherence to treatment. Educational efforts are needed to improve compliance, in part by strengthening local initiatives on NCD prevention (Posbindu PTM).

KEY WORDS
medication compliance, diabetes mellitus, metabolic control, Posbindu PTM

OP-18

EFFICACY AND SAFETY OF LIRAGLUTIDE 3.0 mg IN INDIVIDUALS WITH OVERWEIGHT OR OBESITY AND TYPE 2 DIABETES (T2D) TREATED WITH BASAL INSULIN: THE SCALE INSULIN TRIAL

https://doi.org/10.15605/jafes.034.02.S18

W. Timothy Garvey,[1] Andreas Birkenfeld,[2] Dror Dicker,[3] Geltrude Mingrone,[4] Susie Pedersen,[5] Altynai Satylganova,[6] Dorthe Skovgaard,[6] Danny Sugimoto,[7] Niels Zeuthen,[6] Ofri Mosenzon,[8] Ahsan Shoeb[9]

[1]*Department of Nutrition Sciences, University of Alabama, Birmingham and the Birmingham Va Medical Center, Birmingham, Alabama, USA*

[2]*Universitätsklinikum Carl Gustav Carus an der Technischen Universität Dresden, Dresden, Germany*

[3]*Internal Medicine D Hasharon Hospital, Rabin Medical Center, Petah Tikva, Sackler School of Medicine Tel Aviv University, Israel*

[4]*Department of Internal Medicine, Catholic University, Rome, Italy and Department of Diabetes, King's College London, United Kingdom*

[5]*C-Endo Diabetes and Endocrinology Clinic, Calgary, Alberta, Canada*

[6]*Novo Nordisk A/S, Søeborg, Denmark*

[7]*Cedar Crosse Research Center, Chicago, Illinois, USA*

[8]*Hadassah Hebrew University Hospital, Jerusalem, Israel*

[9]*Novo Nordisk Pharmaceuticals (Philippines), Inc.*

INTRODUCTION

Liraglutide 3.0 mg is approved for weight management in adults with and without T2D. Liraglutide up to 1.8 mg has been used in combination with insulin for treatment of T2D, but combination of a 3.0 mg dose with insulin has previously not been investigated.

METHODOLOGY

The 56-week double-blind SCALE Insulin trial randomised individuals with T2D with overweight or obesity (BMI ≥27 kg/m²) to liraglutide 3.0 mg or placebo, both as adjunct to intensive behaviour therapy (IBT). All study participants were on stable treatment with basal insulin and up to 2 oral antidiabetic drugs. Primary endpoints were mean change in body weight (%), and proportion with weight loss (WL) ≥5% at week 56, using all observed values regardless of week 56 treatment status, and a jump-to-reference multiple imputation approach to missing data, based on values from placebo group.

RESULTS

Mean baseline characteristics at randomisation (n=198) for liraglutide 3.0 mg included: 55.9 years of age, 54.5% females, 101 kg, BMI 35.9 kg/m², diabetes duration 11.4 years and HbA1c 7.9%. Corresponding placebo values (n=198) were: 57.6 years, 50.0% females, 99 kg, BMI 35.3 kg/m², 12.8 years, and HbA1c 8.0%. Of those randomised, 195 were exposed to liraglutide 3.0 mg and 197 to placebo, with 166 (83.8%) and 168 (84.8%) still on drug at 56 weeks. Respective mean weight change at week 56 was –5.85% and –1.53%, respectively, estimated treatment difference (ETD) –4.32 (p<0.0001). WL ≥5% was observed in 51.80% participants on liraglutide and 23.98% on placebo, odds ratio (OR) 3.41 p<0.0001. Respective values for >10% WL were 22.77% and 6.55%, OR 4.21, p<0.0001 (other efficacy outcomes in table). HbA1c reduction was greater with liraglutide than placebo (–1.09 vs –0.55%, p<0.0001), and there were respective changes in insulin dose of +2.8 U and +17.8 U from a baseline mean (both groups) of 38 U (ETD -15 U, p<0.0001). Documented hypoglycaemia (on-drug) occurred at respective rates of 7.42 and 9.38 events/subject-year with liraglutide 3.0 mg and placebo, with 3 and 2 severe events in each group respectively. Adverse event incidence was similar for liraglutide 3.0 mg and placebo, except gastrointestinal events (liraglutide 3.0 mg, 62.1%; placebo, 46.7%).

CONCLUSION

In insulin-treated T2D, liraglutide 3.0 mg was superior to placebo with respect to mean and categorical weight loss, as well as improvements in glycaemic control without increasing the risk of hypoglycaemia. No new safety or tolerability issues were observed.

KEY WORDS

liraglutide, basal insulin, obesity, scale-insulin, type 2 diabetes, overweight

The Philippine Society of Endocrinology, Diabetes and Metabolism, Inc.

and

The Philippine Specialty Board of Endocrinology, Diabetes and Metabolism

wish to announce the dates for the

Written and Oral Examination for Diplomate in Endocrinology, Diabetes and Metabolism

JANUARY 17, 2020 (Friday)
WRITTEN EXAMINATION
CME Auditorium, College of Medicine,
University of Santo Tomas, España, Manila

JANUARY 19, 2020 (Sunday)
ORAL EXAMINATION
Neuroanatomy and Histology Laboratories,
3rd floor Medicine Building, University of Santo Tomas, España, Manila

MARCH 18, 2020 (Wednesday) | 6 PM
20th CONFERMENT CEREMONY AND
16th SOLEMN INVESTITURE
Isla Ballroom 2 and 3, EDSA Shangri-La Hotel, Mandaluyong City

For further details, please contact:

THE PSEDM SECRETARIAT

Units 2005-2006, 20/F, Medical Plaza Ortigas,
San Miguel Avenue, Ortigas Center, Pasig City, Philippines
Tel. No.: 632-8633-6420 Fax No: 632-8637-3162
Email: sec@endo-society.org.ph
Website: www.endo-society.org.ph

Prediabetes / Diabetes Mellitus / Hypoglycemia

OA-D-01

ASSOCIATION OF SERUM MAGNESIUM LEVELS WITH FASTING PLASMA GLUCOSE IN PATIENTS WITH TYPE 2 DIABETES MELLITUS ON METFORMIN OR PIOGLITAZONE

https://doi.org/10.15605/jafes.034.02.S19

Sony Mudjanarko and Huwainan Nasution
Endocrine and Metabolic Division, Department of Internal Medicine, Airlangga University, Muhammadiyah University, North Sumatera, Indonesia

INTRODUCTION
The aim of this study is to analyze the association between serum magnesium level and fasting plasma glucose in patients with type 2 diabetes mellitus (DM) who had taken metformin or pioglitazone.

METHODOLOGY
Serum magnesium level and fasting plasma glucose were examined from a total of 41 patients whose type 2 diabetes was controlled with metformin ≥750 mg/day for at least 3 weeks or pioglitazone ≥15 mg/day for at least 4 weeks with a body mass index (BMI) of <30 kg/m^2. Fasting plasma glucose was analyzed using Roche/Hitachi Cobas C System. Serum magnesium level was analyzed using Roche/Hitachi Cobas C311/501 System.

RESULTS
The mean value of serum magnesium levels was 2.04±0.19 mg/dL. The median of fasting plasma glucose was 131±40, 85 mg/dL. The lower level of the serum magnesium had a significant correlation with fasting plasma glucose.

CONCLUSION
There is a significant negative correlation between the serum magnesium levels and fasting plasma glucose in type 2 DM on metformin or pioglitazone.

KEY WORDS
serum magnesium level, fasting plasma, glucose, type 2 diabetes mellitus

OA-D-02

CLINICAL PROFILE OF ADULT PATIENTS WITH HYPERGLYCEMIC CRISIS IN A PHILIPPINE TERTIARY MEDICAL CENTER, A TEN-YEAR RETROSPECTIVE STUDY

https://doi.org/10.15605/jafes.034.02.S20

Andre Luis Agoncillo, Daveric Pagsisihan, Aimee Andag-Silva
De La Salle University Medical Center, Dasmariñas City, Philippines

INTRODUCTION
The last study about diabetic ketoacidosis and hyperosmolar hyperglycemic state in our country was done 20 years ago. New diagnostic tools and therapeutic regimen may affect diabetes control, the researchers intend to know the changes in the clinical profile of patients with hyperglycemic crisis in the country.

METHODOLOGY
Descriptive study that utilized chart review. Included patients >18 years old, admitted in DLSUMC between 2007 and 2017 with a diagnosis of DKA or HHS based on ICOA-D-10 codes. Pregnancy excluded. Clinical characteristics, biochemical profile and precipitating factors were tallied. Descriptive statistics was used and Quantitative variables were reported as mean with standard deviation, while qualitative variables were reported as frequency and percentage.

RESULTS
71 patients with DKA and HHS were included. Majority had DKA (53). 46 (64.79%) patients were known to have diabetes for 7-13 years. The mean Hba1c level is 9-17 mg/dL that is higher than the developed countries. CBG range upon admission among DKA patients were 327 to 593 mg/dL and 427 to 693 mg/dL for HHS patients. Majority were discharged-improved. The most common presenting symptom was abdominal pain 19 (35.84%). The most common precipitating factor was infection, same in Thailand and US.

CONCLUSION
Hyperglycemic crises is common in Filipinos with T2DM which could suggest breaks in health services delivery and the unaffordability of insulin and new antidiabetic medications for patients with financial constraints as compared with developed countries like US and Japan. HbA1c levels did not significantly differ in other countries and this is consistent with the progressive nature of diabetes mellitus.

KEY WORDS
diabetes, epidemiology, diabetic ketoacidosis, hyperglycemic hyperosmolar state

OA-D-03

PREVALENCE OF VITAMIN B12 DEFICIENCY AND ITS ASSOCIATED FACTORS AMONG PATIENTS WITH TYPE 2 DIABETES ON METFORMIN IN MALAYSIA

https://doi.org/10.15605/jafes.034.02.S21

Gayathri Devi Krishnan,[1,2,3] Miza Hiryanti Zakria,[1] Mohamed Badrulnizam Bin Long Bidin,[2] Norhayati Yahaya[3]
[1]*Hospital Tengku Ampuan Afzan, Malaysia*
[2]*Hospital Kuala Lumpur, Malaysia*
[3]*Hospital Raja Perempuan Zainab II, Malaysia*

INTRODUCTION
It has been proven that vitamin B12 deficiency is more common among metformin treated subjects with a variable prevalence worldwide, and this can lead to an array clinical sequelae. We evaluated the prevalence of vitamin B12 deficiency among metformin treated patients with type 2 diabetes in Malaysia.

METHODOLOGY
This is a cross-sectional study involving 205 patients from a Malaysian district aged 18 years old and above who have been on metformin for at least 6 consecutive preceding months. Medical history was obtained via a standardized questionnaire and all subjects had blood drawn for serum vitamin B12 levels.

RESULTS
Vitamin B12 deficiency was defined as serum B12 level ≤300 pg/ml (221 pmol/L). The prevalence of vitamin B12 deficiency among metformin treated patients with type 2 diabetes was 28.3% (n=58) and the mean vitamin B12 level was 457±231 pg/ml. A longer duration of diabetes and metformin use for more than 5 years were associated with an increased risk for vitamin B12 deficiency (p<0.05). The non-Malay population were at a higher risk for metformin associated vitamin B12 deficiency (p<0.001).

CONCLUSION
Our study suggests that patients with type 2 diabetes on metformin should be screened for vitamin B12 deficiency. This is especially so among patients with a longer duration of diabetes and those on metformin for more than five years. Also, it should be kept in mind that the non-Malay population with diabetes in Malaysia seem to be at increased risk for vitamin B12 deficiency compared to their Malay counterparts.

KEY WORDS
metformin, vitamin B12, deficiency

OA-D-04

DIABETIC KETOACIDOSIS: PATTERN OF PRECIPITATING FACTORS AMONG CHILDREN IN A TERTIARY CARE HOSPITAL IN BANGLADESH

https://doi.org/10.15605/jafes.034.02.S22

Farzana Yasmin and Mohammad Ashraf Uddin Ahmed
Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM) General Hospital, Dhaka, Bangladesh

INTRODUCTION
Diabetic ketoacidosis is a major complication of childhood type 1 and type 2 diabetes mellitus and is associated with increased risk of morbidity and mortality. Infections, non-compliance and co-morbid states are most important precipitating causes. Proper identification of the precipitating factor is very important in management of DKA. There are very few published large studies from Bangladesh. For this reason, this study evaluated fifty children with DKA and identified their precipitating factors.

METHODOLOGY
This observational study was done among admitted children with DKA in the Department of Paediatrics of BIRDEM General Hospital during study period between September 2016 to February 2017. All children (<18 years) with a diagnosis of DKA, whether previously known to have diabetes or newly diagnosed case were included in the study while patients having other causes of acidosis like chronic kidney failure, diarrhea were excluded from the study.

RESULTS
Fifty children were admitted with DKA. Seventy percent were new cases and the remaining (30%) were known DM patient. Majority were female (62%). Mean age was 9.31 years with 4.40 standard deviation among affected children. Infection was the most common (62%) precipitating factor followed by insulin omission (10%).

CONCLUSION
In this study, infection was the most common precipitating factor for DKA. Knowledge of precipitating factors and clinical features of DKA will help in early diagnosis of DKA among children and thereby reduce morbidity among them.

KEY WORDS
children, diabetic ketoacidosis, precipitating factors

OA-D-05

THE INCIDENCE OF IN-HOSPITAL HYPOGLYCEMIA AND ITS ASSOCIATED RISK FACTORS AMONG ADULT FILIPINO PATIENTS WITH DIABETES MELLITUS IN CHONG HUA HOSPITAL

https://doi.org/10.15605/jafes.034.02.S23

Ma. Vircel Duyongco-Tiu and Imelda Lagula-Bilocura
Section of Endocrinology, Diabetes and Metabolism, Chong Hua Hospital, Cebu City, Philippines

**Full paper published in Philippine Journal of Internal Medicine, Volume 55, Number 4, Oct-Dec. 2017.*

INTRODUCTION
This study will look into the occurrence of hypoglycemia in the Philippines as its increasing prevalence has been noted.

METHODOLOGY
All nonpregnant, adult, Filipino patients, admitted and discharged from January 2015 to June 2015 were identified. The primary outcome was to determine the incidence of hypoglycemia, severity of hypoglycemia, the patients' dietary status, medication, and the common hospital area of the hypoglycemic event. Their clinical profile was also analyzed. The secondary outcome was to determine the occurrence of congestive heart failure (CHF), fatal/nonfatal myocardial infarction (MI), fatal/nonfatal cerebrovascular disease (CVD), and all-cause mortality during the admission of patients with hypoglycemia.

RESULTS
Among the 1676 patients with diabetes, 8.9% had the non-severe type (BG 51-69 mg/dL) hypoglycemia. Age >65 (52.7% vs 36.2%, $p<0.001$), diabetes duration for more than 8.56 years±10.34 years, the presence of cardiovascular disease (62.7% vs 48.6%, $p<0.001$), CHF (8.7% vs 4.4%, $p=0.009$) and stage III, IV, V kidney diseases (32.7% vs 25.1%, p=0.043, 12% vs 5.5%, p=0.002, 12% vs 4.1%, p<0.001, respectively), being on tube feeding (8% vs 2.6%, p<0.01) or on nothing per orem (8% vs 2%, p<0.001), and the use of insulin whether combined with oral therapy (25.3% vs 16.5%, p<0.006) or used alone (34.7% vs 12.1%, p<0.001) were the associated risk factors. Non-ICU ward had more hypoglycemia events (82.7%). Only 1 patient had MI, 1 had CVD, and 1 had CHF. The all-cause mortality rate was 4.7%.

CONCLUSION
The hypoglycemia incidence of 8.9% should be addressed by being cautious among patients with risk factors.

KEY WORDS
hypoglycemia, blood glucose, diabetes

OA-D-06

CORRELATION OF FASTING AND POSTPRANDIAL GLUCOSE TO GLYCOSYLATED HEMOGLOBIN IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

https://doi.org/10.15605/jafes.034.02.S24

Agustia Sukri Ekadamayanti, Krishna Wardhana Sucipto, Hendra Zufry, Sarah Firdausa
Endocrinology, Metabolic and Diabetes Syiah Kuala School of Medicine, Dr.Zainoel Abidin General Teaching Hospital, Banda Aceh, Indonesia

INTRODUCTION
Glycosylated hemoglobin (HbA1C) remains the gold standard for assessment of glycemic control, but in minimal resource setting, HbA1C become unavailable, hence it's necessary to determine whether fasting (FPG) or postprandial (PPG) plasma glucose act as a better predictor for assessing glycemic control. This study was conducted to define relationship between plasma glucose and HbA1C.

METHODOLOGY
This retrospective observational study was conducted in private diabetes clinics in Banda Aceh, Indonesia. All subjects were patients with T2DM, and previous FPG, PPG and HbA1C measurements were collected. We used Pearson's correlation analysis to find the statistical significance.

RESULTS
From 904 FG, PPG and HbA1C measurements, only 50 measurements that were performed at the same time can be included in the analysis. There were 30 (60%) males and 20 (40%) females, age 52,3±10,52 years. Mean FPG, PPG and HbA1C were 165±78 mg/dl, 239±122 mg/dl and 8,5±2,9% respectively. We divided subjects into 3 groups based on HbA1c, <7%, 7-9%, >9%. Mean FPG based on group was 97±15 mg/dl, 145±32,80 mg/dl, and 237±59,80 respectively. Mean PPG was 131±47,08 mg/dl, 210±65,63 mg/dl and 351±79,8 mg/dl respectively. Both FPG and PPG have positive correlation with HbA1C but higher correlation was found between PPG and HbA1C.

CONCLUSION
PPG has a closer association with HbA1c. Hence, PPG value contributed more to HbA1c level than FPG. Therefore, PPG should be a preferred method for glucose monitoring in the absence of HbA1c.

KEY WORDS
fasting plasma glucose, postprandial plasma glucose, HbA1C

OA-D-07

COGNITIVE IMPAIRMENT AND MEDICATION NONADHERENCE IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

https://doi.org/10.15605/jafes.034.02.S25

Alexander Randy Angianto,[1] Em Yunir,[1] Herqutanto,[2] Murdani Abdullah,[1] Rani Sauriasari[3]
[1]*Department of Internal Medicine, Faculty of Medicine, Universitas Indonesia, Cipto Mangunkusumo National Hospital*
[2]*Department of Community Medicine, Faculty of Medicine, Universitas Indonesia,*
[3]*Faculty of Pharmacy, Universitas Indonesia,*

INTRODUCTION
Poor glycemic control in patients with type 2 Diabetes Mellitus results in a variety of complications including cognitive impairment. To implement self-management, intact cognitive function is necessary. In a variety of chronic diseases, cognitive impairment has been associated with medication nonadherence. Nonetheless, no studies have looked into the relationship between the two in patients with type 2 DM in Indonesia**.** This study aimed to determine the relationship of cognitive impairment with medication nonadherence in patients with type 2 DM.

METHODOLOGY
The design of this study was cross-sectional with 96 study subjects with type 2 DM older than 18 years old in the outpatient unit at Tebet District General Hospital. Demographic characteristics, clinical parameters, cognitive function assessment, and medication adherence use were fully documented. Cognitive function was assessed with the Indonesian version of the Montreal Cognitive Assessment (MoCA-Ina). Medication adherence was assessed using pill count.

RESULTS
There were 69.9% of the research subjects with cognitive impairment with education level as an associated factor (OR 5.223; 95% CI 1.99-12.22). Analysis of the occurrence of impairment of the function of memory domain 96.9%; executive 78%, visuospatial 78%; attention 30%; language 26%; and 4.2% orientation. Medication non-adherence was found in 26% of the study subjects. Bivariate analysis did not show an association between cognitive impairment and medication non-adherence. (OR 0.757 95% CI [0.280-2,051] p=0,58).

CONCLUSION
Cognitive impairment was found in 69,9% of patients with type 2 DM, and medication non-adherence was found in 26% of patients. Cognitive impairment was not associated with medication non-adherence in patients with type 2 DM.

KEY WORDS
Cognitive impairment, diabetes mellitus, medication nonadherence

OA-D-08

WEIGHT LOSS ASSOCIATED WITH SODIUM GLUCOSE COTRANSPORTER-2 INHIBITOR DURING RAMADAN: A SINGLE CENTRE EXPERIENCE

https://doi.org/10.15605/jafes.034.02.S26

Goh Kian Guan and Miza Hiryanti Zakaria
Hospital Tengku Ampuan Afzan, Ministry of Health, Malaysia

INTRODUCTION
Muslims observed daytime fasting during Ramadan. During daylight, no food or water is allowed. Sodium glucose cotransporter-2(SGLT-2) inhibitor promotes renal caloric and water loss, and results in weight reduction. This study aimed to look at changes of weight and blood pressure among persons with diabetes newly started on SGLT-2 inhibitor.

METHODOLOGY
This was a prospective study done in April and May 2019 in Hospital Tengku Ampuan Afzan, Pahang, Malaysia. The study recruited Muslim subjects with established diabetes on treatment and are able to fast. They were given Empagliflozin® 25 mg daily 2 weeks run-in period and throughout Ramadan. Blood pressure is measured with Colin Press-Mate and weight measured with Gima body weight scale during recruitment and between 2nd to 4th weeks of Ramadan. Descriptive statistics and paired t-test were used for statistical analysis.

RESULTS
Thirty-four subjects were recruited, 2 refused to participate. Mean HbA1c was 10.08%. Mean weight before starting Ramadan was 78.36 kg and during Ramadan was 75.88 kg (mean delta weight -2.55 kg, 95% CI 1.74 – 3.21, p<0.001). Mean systolic BP reduced from 153.5 mmHg to 150.2 mmHg (p=0.615) and no changes for diastolic BP (82.7 vs 82.6 mmHg), p=0.971.

CONCLUSION
The positive effect of weight loss is observed in most subjects started with SGLT2 inhibitors prior to Ramadan. This effect is seen as early as 4 weeks. Though effect may be confounded by Ramadan fasting itself, average weight loss from EMPA-REG outcome trial was about 3 kg and peaked during first 12 weeks. SGLT2 inhibitors remains a choice of therapy for patients desiring weight reduction.

KEY WORDS
empagliflozin, fasting, weight loss

OA-D-09

SURVEY OF SMARTPHONE APPLICATION USAGE FOR DIABETES MANAGEMENT IN TYPE-2 DIABETES MELLITUS PATIENTS IN RSUPN DR. CIPTO MANGUNKUSUMO JAKARTA

https://doi.org/10.15605/jafes.034.02.S27

Arief Purnama Muharram,[1] Pradana Soewondo,[2,3] Dicky Levenus Tahapary[2,3]

[1]*Faculty of Medicine, Universitas Indonesia*

[2]*Division of Endocrinology and Metabolism, Department of Internal Medicine, Dr. Cipto Mangunkusumo National General Hospital, Faculty of Medicine, Universitas Indonesia*

[3]*Metabolic Cardiovascular and Aging Cluster, The Indonesian Medical Education and Research Institute, Faculty of Medicine, Universitas Indonesia*

INTRODUCTION

The rapid development of smartphone technology nowadays has enabled a new way of diabetes self-empowerment through the smartphone application usage. This study is aimed to obtain an overview of how smartphone and smartphone applications are used for diabetes management among Type-2 Diabetes Mellitus (T2DM) patients in RSUPN Dr. Cipto Mangunkusumo Jakarta (RSCM), a tertiary care and a national referral hospital in Indonesia.

METHODOLOGY

This cross-sectional study was conducted in the Integrated Diabetic Clinic RSCM during the 2nd-to-3rd week of May 2019 by using a short questionnaire, of which assessed the level of smartphone ownership and smartphone application usage for diabetes management.

RESULTS

Thirty-one respondents participated in this study. The average age was 59 years-old and most of them were either retired (13/31, 41.9%) or not working (13/31, 41.9%). Only 11 respondents had a higher degree of education. While most of the respondents (18/31, 58.1%) had a basic monthly income <1 million IDR (60 USD), majority of respondents (27/31, 87.1%) had a smartphone, of which all of them were using Android. Only one respondent used it for diabetes management, while most of them used it only for standard communication purpose. This was due to the lack of information on available diabetes application.

CONCLUSION

The use of smartphone among T2DM patients in our tertiary care hospital was high despite their low socioeconomic status. However, the smartphone application usage for diabetes management was very low, necessitating the need of information dissemination related to the potential benefit of diabetes application to all T2DM patients.

KEY WORDS

smartphone, diabetes application, type 2 diabetes mellitus, self-management

OA-D-10

BACTERIA PATTERN OF URINE CULTURE FROM PATIENTS WITH DIABETES AT DR RAMELAN NAVY HOSPITAL SURABAYA, INDONESIA

https://doi.org/10.15605/jafes.034.02.S28

Libriansyah Libriansyah,[1] Hilda Rifiana,[2] Soebagijo Adi Soelistijo[3]

[1]*Department of Internal Medicine, Dr. Ramelan Navy Hospital, Surabaya, Indonesia*

[2]*Department of Microbiology, Dr. Ramelan Navy Hospital, Subaraya, Indonesia*

[3]*Metabolic and Endocrinology Division, Department of Internal Medicine, Faculty of Medicine, Universitas Airlangga, Surabaya, Indonesia*

INTRODUCTION

The presence of a bacteria pattern that is thought to be the cause of the infection is essential for the basis of empirical and definitive antibiotic treatment. The study aimed to find the bacteria pattern of urine culture from patients with diabetes.

METHODOLOGY

This was a descriptive, cross-sectional study. The sample was pus obtained from the 3rd grade of patients with diabetic foot who had clear signs of infection, and were hospitalized at Dr. Ramelan Navy Hospital in the period of 2016 to 2018 (3 years). Pus was taken before antibiotic administration, and the culture was done in the microbiology laboratory.

RESULTS

The number of pus samples collected was 1571 samples. Isolates that have bacterial growth and can be identified were 1328 samples (84.53%). Bacterial isolates found as the most common cause were *Escherichia coli* 17.17% (228). The second most prevalent bacterial isolates were *Staphylococcus aureus* (157 isolates). While the third rank in 2016, 2017 and 2018 were *Burkholderie pseudomallei* (35 isolates), *Klebsiella pneumonia* (39 isolates) and *P. aureginosa* (50 isolates) respectively. Meropenem and Piperacillin were found as the sensitive antibiotics in these patients in 2016. While no antibiotic was sensitive for *E. coli*, but meropenem, piperacillin and vancomycin were found sensitive for *S. aureus* and others in 2017. In 2018, *E. coli* was found sensitive to Amikacin and Meropenem, whereas other types of bacteria were resistant to antibiotics examined.

CONCLUSION
It was found that the most prevalent bacteria that cause diabetic foot infections in patients with diabetes mellitus were *Escherichia coli*.

KEY WORDS
diabetic foot, isolate, diabetes mellitus

OA-D-11

CORRELATION BETWEEN NEUTROPHIL-LYMPHOCYTE RATIO WITH GLUCOSE CONTROL IN T2DM PATIENTS

https://doi.org/10.15605/jafes.034.02.S29

Deasy Ardiany, Soebagijo Adi Soelistijo, Hermina Novida, Agung Pranoto
Department of Internal Medicine, Dr. Soetomo General Academic Hospital, Faculty of Medicine, Universita Airlangga, Surabaya, Indonesia

INTRODUCTION
Elevated levels of systemic inflammatory markers are associated with cardiovascular disease (CVD). Neutrophil-Lymphocyte Ratio (NLR) is a widely available, easily derived, inexpensive and reproducible marker of inflammation. The NLR can also be affected by atherosclerotic risk factors, such as diabetes. There is no sufficient data about correlation between NLR and glycosylated haemoglobin (HbA1c). The aim of the present study was to investigate the correlation between NLR with HbA1c in T2DM patients.

METHODOLOGY
This study was cross-sectional observational design performed at Surabaya tertiary hospital between March until April 2019. Patients who fulfilled the criteria of inclusion and exclusion got their blood pressure, complete blood count, neutrophil, lymphocyte counts, plasma glucose, serum glycosylated hemoglobin, serum creatinine, and plasma albumin measured. Data were statistically analyzed using Pearson Correlation test.

RESULTS
We enrolled 30 hospitalized T2DM patients consisting of 17 (56.7%) men and 13 (43.3%) women with average age was 54.7 years old (31-74 years old). The mean of systolic blood pressure was 126±17.5 mmHg and diastolic blood pressure was 79,3±9.4 mmHg. The overall mean Hb, WBC and PLT were 9.87±1.7 g/dL, 19,236±6,866.4/ mm^3 and 399,133±155,125.9/ mm^3 respectively, while NLR was 15.01±5.9, random blood glucose 353.73±157.2 mg/dL, HbA1c 9.88±1.9%, and eGFR 62.37±32.4 mL/min/1.73 m^2. Statistical analysis showed that there was significance correlation between NLR with HbA1c in T2DM patients in this study (p=0.07; r=0.48).

CONCLUSION
We concluded that there was significance correlation between NLR and HbA1c in T2DM patients in this study.

KEY WORDS
Neutrophyl-lymphocyte Ratio, Glycosylated Haemoglobin, NLR, HbA1c, T2DM

OA-D-12

DIABETIC FOOT INFECTION PROFILE, COMMON PATHOGEN AND ANTIBIOTIC SENSITIVITY

https://doi.org/10.15605/jafes.034.02.S30

Soebagijo Adi Soelistijo and Deasy Ardiany
Department of Internal Medicine, Dr. Soetomo General Academic Hospital, Faculty of Medicine, Universita Airlangga, Surabaya, Indonesia

INTRODUCTION
Foot infections are the major complications of diabetes mellitus and lead to the development of amputation. The aim of this study was to establish the biochemical and bacteriological profile of Diabetic foot ulcer (DFU).

METHODOLOGY
This was a cross-sectional observational study performed at Surabaya tertiary hospital. The DFU patients got measured their ABI, hematological, biochemical examination. The grading of DFU was carried out as per Wagner's system.

RESULTS
A total of 30 patients with DFU were included. 56.7% were males and 43.3% were females with average age of 54.7 years old. The mean WBC was 19,236±6,866.4/ mm^3, mean HbA1c was 9.88±1.9% and mean eGFR was 62.37±32.4 mL/min/1.73 m^2. The 3rd grade ulcers and Proteus Mirabilis were the most predominant ulcers and pathogens respectively (36.7% and 30%). The culture results were 100% sensitive to amikacin, piperacillin-tazobactam, cefoperazone-sulbactam, and imipenem.

CONCLUSION
In this study, Wagner's grade 3 and Proteus Mirabilis were the most predominant ulcers and pathogens, respectively. Amikacin, piperacillin-tazobactam, cefoperazone-sulbactam, and imipenem were the most sensitive antibiotics.

KEY WORDS
diabetic foot infection, proteus mirabilis, antibiotics

OA-D-13

HYPOGLYCEMIA ASSESSMENT AMONG TYPE 2 PATIENTS WITH DIABETES RECEIVING INSULIN BASALOG AND INSULIN LANTUS: A CROSSOVER RANDOMIZED CONTROLLED TRIAL USING CONTINUOUS GLUCOSE MONITORING SYSTEM (CGMS)

https://doi.org/10.15605/jafes.034.02.S31

Ida Ilyani Adam, Norlaila Mustafa, Norasyikin Abdul Wahab, Nor Akhmar Ibrahim, Pravina Deligannu

Hospital Kuala Lumpur, Malaysia

INTRODUCTION
Hypoglycemia is a major limiting factor among insulin-treated patients in achieving optimal glycemic control. Analose and biosimilar insulins have been shown to produce reductions in the hypoglycemia rates, however the actual assessment of hypoglycemia comparing insulin Lantus and the biosimilar insulin Basalog has not been described before.

OBJECTIVE
To evaluate hypoglycemia rates amongst T2DM patients receiving Basalog vs Lantus using continuous glucose monitoring (CGM).

METHODOLOGY
A single centre, randomized, open-label, crossover study was conducted over a 12-week period among T2DM patients (n=55), randomised into two-arm parallel group; Basalog and Lantus. Hypoglycemia was described by evaluating Low Blood Glucose Index (LBGI), M-value and Standard Deviation (SD) from CGM. Independent and paired sample t-test and one-way ANCOVA was performed using SPSS.

RESULTS
The respondents in Basalog (n=27) and Lantus (n=28) arm were similar in socio-demographics, duration of DM, complications of DM, comorbidities, use of oral hypoglycaemic agents, antihypertensive medications and lipid lowering drugs (p>0.05). No difference in anthropometrics, vital signs, lipid profile, renal profile, full blood count, liver function and urine microalbumin was found between the groups (p>0.05). Mean HbA1c was 8.8% and 8.7% with Glargine and Basalog, at baseline respectively. Both insulins had no significant differences in SD (2.7±0.99 vs 2.5±0.93, p>0.05) and M value (15.9±18.11 vs 14.9±25.01, p>0.05). There was lesser low CGM excursions (LBGI) for Basalog compared to Lantus (2.3±3.37 vs 3.4±4.90, p=0.107).

CONCLUSION
With lesser low glycemic excursions, Basalog may be a feasible alternative basal insulin as compared to Lantus in Type 2 patients with diabetes.

KEY WORDS
diabetes mellitus, type 2, hypoglycemia, Lantus, Basalog, CGM

OA-D-14

IMPLEMENTATION OF DIABETES ONE-STOP CENTRE (DOSC) IN A TERTIARY HOSPITAL IN CENTRAL PAHANG, MALAYSIA: SUCCESS, FAILURES AND LIMITATIONS

https://doi.org/10.15605/jafes.034.02.S32

Chee Keong See, Hui Wenn Chin, Dorothy Maria Anthony Bernard, Azharni Aysha Semah Abu Bakar, Yuhin Asadulhaq Yusoff, Hema Lata Veerasamy, Suzatul Fadzillah Dawi, Noorhidayah Arifin, Xin-Yi Ooi
Hospital Sultan Haji Ahmad Shah, Temerloh, Pahang, Malaysia

INTRODUCTION
A comprehensive diabetes management currently focuses on ensuring patient self-management. To achieve this goal, a cohesive management team that includes physicians, diabetes educators, pharmacist, dietician, physiotherapist and podiatrist is required. Implementation of a DOSC provides an ideal avenue for patients to receive a holistic assessment. DOSC was implemented in Hospital Sultan Haji Ahmad Shah, a Malaysian tertiary hospital in central Pahang since 2015. DOSC was an ideal concept for patient assessment since this hospital had wide area of patient coverage. This study aimed to assess the impact of DOSC implementation on diabetes outcomes such as HbA1c control, diabetes complications, mortality and clinic defaulter.

METHODOLOGY
This is a cross-sectional study assessing patients who were recruited into DOSC between 2015 and 2017. Baseline data and follow-up were collected through patient information system. Information included: demographics, HbA1c, diabetes complications, mortality and 2018 latest follow-up data.

RESULTS
Five hundred patients were recorded with mean age of 58.7±SD1.49 years and 64% male. The mean HbA1c at recruitment was 9.86±SD1.2%. More than 70% of patients were on insulin therapy. 22.4% had retinopathy, 23.2% had nephropathy and 10.4% had neuropathy. At latest follow-up, there was significant HbA1c reduction compared to initial recruitment (1.23±SD2.7%, p<0.01). There was a 5% mortality and 10% defaulter rates in the 3 years of follow-up. DOSC concept may seem ideal but many barriers were identified impeding its implementation.

CONCLUSION
Despite better HbA1c control, there are limitations in implementation of DOSC. Sustaining the provision of care requires optimal resources and manpower and maintenance of patient interest in diabetes care.

KEY WORDS
diabetes one-stop centre, diabetes, mortality

OA-D-15

PREVALENCE OF METHICILLIN RESISTANT STAPHYLOCOCCUS AUREUS (MRSA) COLONIZATION, RISK FACTORS AND ANTIBIOTIC SUSCEPTIBILITY PROFILE AMONG PATIENTS WITH ASYMPTOMATIC DIABETES MELLITUS TYPE 2

https://doi.org/10.15605/jafes.034.02.S33

Katrina Rodriguez-Asuncion, Maria Princess Kanapi, Gia Wassmer, Janice Caoili
Makati Medical Center, Philippines

INTRODUCTION
Infection is one of the major causes of increased morbidity and mortality in individuals with diabetes mellitus. One of the bacterial pathogens associated with these infections is the methicillin-resistant *Staphylococcus aureus* (MRSA). This is probably because diabetes mellitus is one of the significant risk factors for MRSA colonization. Colonization of the said organism may act as an endogenous reservoir which places carriers at a greater risk for future infection. This study aims to identify the prevalence and risk factors for MRSA nasal colonization among individuals with diabetes mellitus in our locality and to determine the antimicrobial susceptibility of this organism. This will guide clinicians in the prevention and proper treatment of MRSA-related infections.

METHODOLOGY
This is a prospective cross-sectional study which included adult Filipino patients with diabetes mellitus type 2. Nasal swab samples were obtained and analyzed for the presence of MRSA.

RESULTS
Among 103 diabetic patients screened for MRSA nasal colonization, the prevalence rate is 6.8%. History of antibiotic use showed a positive correlation with the presence of MRSA nasal colonization. The isolates exhibited resistance to benzylpenicillin/oxacillin (100%), clindamycin (42.9%), quinupristin/dalfopristin, vancomycin, and cotrimoxazole (14.3%).

CONCLUSION
The prevalence of MRSA in this population is higher compared with other Asian countries. Contrary to other studies, there were no diabetes related risk factors identified. In this population, history of antibiotic use plays a significant role in MRSA nasal colonization. Therefore, clinicians should have a high level of suspicion of possible MRSA caused infection in diabetic patients with history of antibiotic use. The presence of antimicrobial resistance to B-lactams, clindamycin, cotrimoxazole, and vancomycin should prompt clinicians to be cautious in prescribing such antibiotics especially in high risk patients wherein inappropriate or delayed treatment is detrimental.

KEY WORDS
diabetes mellitus type 2, methicillin resistant staphylococcus aureus, nasal mucosa, carrier state

OA-D-16

EFFECT OF EXTRA VIRGIN OLIVE OIL ON POSTPRANDIAL BLOOD GLUCOSE IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

https://doi.org/10.15605/jafes.034.02.S34

Daphne Gayle Galang, Maria Jocelyn Isidro, Ma Cecilia Gonzales, Andrea Macabuag-Oliva
Section of Endocrinology, Diabetes and Metabolism, Department of Internal Medicine, Makati Medical Center, Philippines

INTRODUCTION
The burden of diabetes continues to rise despite the emergence of new medications. Hence, all possible treatment modalities including the use of our readily available herbs and oils are explored. Extra virgin olive oil (EVOO) is known for its cardiovascular effects and its effect on glucose lowering. However, there has been no study on the efficacy of extra virgin olive oil on glucose lowering among Filipino patients with Type 2 Diabetes Mellitus. The primary objective of this study is to determine whether a significant difference exists in the 2-hour postprandial blood glucose of meals containing EVOO and meals without EVOO in patients with Type 2 Diabetes Mellitus.

METHODOLOGY
Thirteen patients were included in this randomized controlled cross-over trial. They received a test meal with EVOO or no EVOO followed by a one week wash out period, in which the subjects were given the other intervention. The primary outcome is the trans-meal blood glucose, which is calculated as the percent change in 2-hour postprandial blood glucose.

RESULTS
In group A, there was a noted 88.55% increase in 2-hour post prandial blood glucose in taking meals with EVOO, compared to 72.11% change in meals without EVOO. The same was observed in Group B, where there was a 71.08% and 49.22% increase in 2-hour postprandial blood glucose in meals with EVOO and without EVOO, respectively. The difference was significant with a p-value of 0.044. Free fatty acids inhibit glucose transport and insulin secretion, this effect may be more predominant in Asian type 2 Diabetes Mellitus patients.

CONCLUSION
This study found that adding extra virgin olive oil on top of meals provided no additional benefit in terms of post-prandial glucose excursion.

KEY WORDS
diabetes mellitus, diet therapy, olive oil therapeutic use

OA-D-17

THE BENEFIT OF STRUCTURED ACTIVITY IN WOMEN WITH PREDIABETES

https://doi.org/10.15605/jafes.034.02.S35

Fatima Eliana
YARSI University, Jakarta Timur, Indonesia

INTRODUCTION
To determine the effect of structured physical activity on decreasing body fat, increasing muscle mass, decreasing HbA1c and LDL cholesterol levels and increasing HDL cholesterol.

METHODOLOGY
The research method is pre-experimental one group pretest posttest design. Subjects were told to conduct structured activities in gymnastics room of at least 60 minutes, 3 times a week, for 6 months. Research subjects were women aged 18-60 years who were members of Persadia gymnastics at the Islamic Hospital Pondok Kopi Jakarta. Examination of body fat and muscle mass percentage was done using the Bioelectrical Impedance Analysis (BIA) tool. Examination of serum HbA1c, LDL and HDL was done using the ELISA method.

RESULTS
This study initially included 80 subjects but there were 8 people who dropped out, statistical calculations were only carried out on 72 subjects. The results of this study showed a decrease in the average percentage of body fat by 0.526% (P=0.15), an increase in the average percentage of muscle mass by 24.6% (P=0.02), decrease in HbA1c of 0.2% (p=0.22) and LDL levels of 13 mg / dL (p=0.61) and an increase in HDL of 12 mg/dL (p=0.05).

CONCLUSION
Structured physical activity for at least 60 minutes, 3 times a week, for 6 months in women with prediabetes can increase muscle mass and HDL cholesterol levels. Structured physical activity was also beneficial in reducing body fat, HbA1c and LDL cholesterol in several research subjects, but it was not statistically significant.

KEY WORDS
structured physical activity, body fat, muscle mass, HbA1c, LDL cholesterol, HDL cholesterol

OA-D-18

EFFECT OF SPATHOLOBUS FERRUGINEUS EXTRACT ON BLOOD GLUCOSE LEVELS AND HISTOPATHOLOGY OF PANCREAS IN DIABETIC MALE RATS

https://doi.org/10.15605/jafes.034.02.S36

Fatima Eliana
YARSI University, Jakarta Timur, Indonesia

INTRODUCTION
To determine the ability of Spatholobus ferrugineus (SF) extract as an antidiabetic drug.

METHODOLOGY
The experimental study used 6 groups of male Sprague Dawley rats which were given SF extracts. The first group was the control group without induction of alloxan, the second group was composed of diabetic rats, the third group was composed of diabetic rats that received glibenclamide, the fourth group was composed of diabetic rats that received SF dose of 62.5 mg/kg bw, the fifth group received SF dose of 125 mg/kg bw, the sixth group received SF dose of 250 mg/kg bw. On day 15, blood samples were taken with cardiac puncture. Histology of pancreas was done by staining with HE.

RESULTS
In the first group, the mean BG level was 172 mg/dL, the second group was 771.83 mg/dL, the third group was 281.17 mg/dL, the fourth group was 518.50 mg/dL, the fifth group was 191.67 mg/dL, and in the sixth group was 223.83 mg/dL. The results of histological examination of the pancreas in the first group showed no necrosis and no edema, the second group had severe pancreatic damage with ample empty space, the third group had necrosis of the pancreas but the percentage of area was relatively reduced and narrower, the fourth group also had necrosis, the fifth group has begun to see tissue repair, and in the sixth group islet space is almost invisible.

CONCLUSION
SF extract has a significant effect on the decrease in BG levels seen at a dose of 125 mg /kg bw.

KEY WORDS
spatholobus ferrugineus, antidiabetic drug, pancreas histology

OA-D-19

THE RELATIONSHIP BETWEEN INSULIN USAGE ADHERENCE AND FEMALE SEXUAL DYSFUNCTION IN TYPE 2 DIABETES MELLITUS PATIENTS IN RSUD CUT MEUTIA NORTH ACEH

https://doi.org/10.15605/jafes.034.02.S37

Maulina Debbyousha,[1,2] Hendra Zufry,[1] Krishna Sucipto,[1] Harvina Sawitri,[3] Suhaemi Siregar,[2] M. Jailani Alfajri,[3] Erwin Siregar[3]
[1]Endocrinology, Metabolism and Diabetes- Internal Medicine Department, School of Medicine Universitas Syiah Kuala/ Dr. Zainoel Abidin General Teaching Hospital, Banda Aceh, Indonesia
[2]Internal Medicine Department, School of Medicine Malikussaleh University/RSU Cut Meutia North Aceh, Indonesia
[3]School of Medicine Malikussaleh University, Indonesia

INTRODUCTION
A normal sexual health is an important part of life and relationship, it affects overall quality of life, physical and emotional health. Sexual dysfunction is one of the complications in patients with Type 2 Diabetes Mellitus (T2DM). Female sexual dysfunction is more difficult to diagnose and treat because of the intricacy of female sexual response. Insulin usage adherence is an important issue of T2DM treatment, ineffective insulin therapy contributes to poor glycemic control and places patients at risk of complications. This research was carried out in North Aceh, one of the districts in Aceh that applied Islamic sharia. Female sexual function is an issue that is rarely discussed in North Aceh.

METHODOLOGY
This study was an observational study with cross-sectional approach. Data were analysed with chi square statistical test, using statistic software and obtained with interview. Female sexual dysfunction was measured by using Female Sexual Function Index (FSFI) -9 items. Insulin usage adherence was measured by using Morinsky Insulin Adherence Scale.

RESULTS
There were 39.3% respondents who had high adherence, 30.3% respondents had medium adherence, and 30.3% respondents had low adherence. There were 54.5% respondents who had sexual dysfunction and 45.4% didn't have sexual dysfunction. Statistical paired chi square with α 0.05 indicated that there was association between insulin usage adherence and female sexual dysfunction in T2DM patients (*p value* = 0.008).

CONCLUSION
There was a significant relationship between insulin usage adherence and female sexual dysfunction in T2DM patients.

KEY WORDS
diabetes mellitus, insulin, female sexual dysfunction

OA-D-20

CORRELATION OF HBA1C LEVELS AND HEALING RATE OF LOWER EXTREMITY INFECTION IN PATIENTS WITH DIABETES: A RETROSPECTIVE STUDY

https://doi.org/10.15605/jafes.034.02.S38

Justiene Mia Klarisse Danga and Perie Adorable-Wagan
Section of Endocrinology, Diabetes and Metabolism, Department of Internal Medicine, The Medical City, Pasig City, Philippines

INTRODUCTION
Despite better knowledge of complications of lower extremity infection and efforts to improve prevention of foot ulcers; there has been no established level of HbA1c identified in treatment of lower extremity infection in diabetes.

METHODOLOGY
Retrospective cohort study of 74 patients admitted from 2013 to 2016 for which electronic data were retrieved from the Records section and Wound Care Center of The Medical City. Parameters such as HBA1C, wound size, University of Texas Classification, length of hospital stay and follow up were documented to establish outcome of the study.

RESULTS
49% of patients have HbA1c of 8.0% and above, with hospital stay of less than 8 days (64%), had antibiotics for less than 15 days (53%), had wound debridement (67%), and experienced wound healing for 14 days or less. Fisher's Exact Test at 5% level of significance showed that HbA1c is significantly correlated with the mean duration of healing, duration of antibiotics and wound debridement. HbA1c of 8.0% and higher presents a higher risk of longer antibiotic use (odds ratio 3.99), higher risk of wound debridement (hazard ratio 5.60) and longer healing time (hazard ratio 2.0).

CONCLUSION
Patients with HBA1c of more than 8.0% had prolonged healing time, higher risk to undergo wound debridement and longer duration of antibiotics. We highly recommend a strict level of glycemic control specifically to populations who are at risk to develop lower extremity infections such as those with peripheral artery disease and with previous history of lower extremity infection.

KEY WORDS
healing rate, lower extremity infection, hba1c, diabetes

OA-D-21

TYPES OF INFECTIONS THAT PREDISPOSE PATIENTS WITH DIABETES TO DIABETIC KETOACIDOSIS IN A REGIONAL HOSPITAL IN HONG KONG

https://doi.org/10.15605/jafes.034.02.S39

Ka Shing Yan
Endocrine Team, Department of Medicine, Pamela Youde Nethersole Eastern Hospital, Hong Kong

INTRODUCTION
Diabetic ketoacidosis (DKA) is one of the most severe acute complications of diabetes mellitus (DM), and infection is one of the most common triggers. There are not many studies in Hong Kong to find the types of infections that predispose patients with diabetes to DKA.

METHODOLOGY
This retrospective case control study was conducted in a regional hospital in Hong Kong on 100 hospitalized patients with diabetes. Patients with diabetes were classified as with or without DKA, and each group consisted of 50 patients. Infection was either clinically or microbiologically documented. Infection with potential to trigger DKA was identified. Clinical and biochemical characteristics of patients with or without DKA were also analyzed. Statistical analysis was performed using Statistical Package for the Social Sciences (SPSS) software.

RESULTS
Younger age (p=0.001), newly diagnosed DM (p=0.029), higher white cell count (p<0.001), presence of pancreatitis (p=0.042) and isolation of Streptococcus from cultures (p=0.022) were significantly more frequent in patients with DKA than those without DKA by univariate analysis. Multivariate analysis showed that younger age (odds ratio, 0.95: 95% confidence interval, 0.92-0.98) and higher white cell count (odds ratio, 1.188, 95% confidence interval, 1.071-1.318) were independently associated with DKA.

CONCLUSION
Pancreatitis (p=0.042) and Streptococcus infection (p=0.022) were significantly more frequent in patients with DKA than those without DKA by univariate analysis, though could not reach statistical significance after multivariate analysis. Higher white cell count was independently associated with development of DKA. Aggressive management is needed to improve the survival of patients with DKA. Younger age is also independently associated with DKA. One of the reasons can be due to the association of DKA with newly diagnosed DM in which the usual onset time is relatively younger. Education of DM symptoms to the public with an effective screening program for DM is needed.

KEY WORDS
diabetic ketoacidosis, infection, association

OA-D-22

QUALITY OF CARE STUDY ON THE MANAGEMENT OF PATIENTS WITH DIABETIC FOOT ULCERS IN A TERTIARY HOSPITAL FROM 2013 TO 2017

https://doi.org/10.15605/jafes.034.02.S40

Ronald Chua and Ian Alfred Condat
East Avenue Medical Center, Philippines

INTRODUCTION
Diabetic foot ulcers are among the leading causes of morbidity and mortality in patients with diabetes. This study aims to assess the management of diabetic foot ulcers in the last five years and compare it with the standard guideline of care.

METHODOLOGY
This is a retrospective cohort study. A total of 267 charts of patients with diabetic foot ulcers were reviewed from 2013 to 2017.

RESULTS
The mean age of the patients was 57.31 years, while their mean HbA1c was 10.39%. The average duration of diabetes among the patients was 7.54 years. 41.95% of all patients received surgical intervention. The average number of days of hospital stay is 18.96 days. 14.61% of the total admission had adverse clinical outcomes during their hospital stay. The most common of which were hospital acquired pneumonia and acute coronary syndrome. The mortality rate in this study is 13.11%. The most common causes of death were acute coronary syndrome, septic shock secondary to infected wound and septic shock secondary to hospital acquired pneumonia.

CONCLUSION
The results of this study revealed the gravity of foot ulcers among patients with diabetes. Improvement in the management of diabetic foot ulcers should be continued.

KEY WORDS
diabetes, foot, ulcer

OA-D-23

EFFECT OF 32 GRAM RESISTANT STARCH SNACK ON GLUCAGON LEVEL OF OBESE PATIENTS WITH DM TYPE 2

https://doi.org/10.15605/jafes.034.02.S41

Nur Anna Chalimah Sadyah,[1] Hemi Sinorita,[2] M. Robikhul Ikhsan[2]
[1]*Rumah Sakit Islam Sultan Agung Medical Faculty, Sultan Agung Islamic University, Semarang, Indonesia*
[2]*RSUP Dr. Sardjito Medical Faculty, Gadjah Mada University, Yogyakarta, Indonesia*

INTRODUCTION
Glucagon plays a role in the pathophysiology of hyperglycemia in patients with type 2 Diabetes (DM). The characteristic of nutritional therapy for patients with type 2DM is using the resistant starch. This study was aimed to determine the influence of administration of 32 g snack made from resistant starch on glucagon level.

METHODOLOGY
This was a angle-arm before and after clinical trial design conducted among 21 obese patients with type 2DM attending endocrine clinic at RSUD Sarjito. The fasting glucagon levels were evaluated before and one hour after the administration of resistant starch.

RESULTS
Mean fasting glucose before and after snack with resistant starch were 203.18±132 and 201.64 pg/mL±33.84 pg/mL respectively. There was no significant difference in the fasting glucagon (p=0.170). Thirty-eight patients had a decrease in fasting glucose (11.92 pg/mL and 9.5 pg/mL respectively). The administration of resistant starch was very weakly correlated with the decrease in fasting glucagon (r=0.174)

CONCLUSION
There was no change in plasma glucagon level with administration of 32 gram snack made from resistant starch

KEY WORDS
type 2 diabetes, glucagon, resistant starch

OA-D-24

A COMPARATIVE STUDY ON THE EFFICACY AND SAFETY OF TENELIGLIPTIN VERSUS GLIMEPIRIDE AS AN ADD-ON THERAPY TO METFORMIN MONO-THERAPY IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

https://doi.org/10.15605/jafes.034.02.S42

Shivam,[1] Pratibha Nadig,[2] Vijaya Sarathi H A,[2] Manohar KN[3]

[1]*Boehringer Ingelheim Pvt Ltd., Mumbai India*
[2]*Vyedhi Institute of Medical Sciences and Research Center, Bangalore, India*
[3]*Manipal Hospital, Bangalore, India*

INTRODUCTION

Type 2 Diabetes Mellitus (T2DM) represents a heterogeneous condition characterized by hyperglycemia as a consequence of defects in insulin secretion, insulin resistance/action or combination of both of these factors. Sulfonylureas are very efficacious and are recommended as second line drugs for treatment in T2DM. Dipeptidyl peptidase-4 inhibitors (DPP-4i) have demonstrated efficacy and safety in patients with inadequate glycaemic control with metformin mono-therapy.

METHODOLOGY

This study was conducted at Endocrinology department at Vydehi Institute of Medical Sciences and Research Center, Bangalore, Karnataka, India after institutional ethics committee approval from January 2017 to December 2017. A total of 40 patients were randomized into two groups after obtaining written informed consent. Group A received Tab. Metformin 1 gm twice a day along with a Tab. Teneligliptin 20 mg once a day and Group B received Tab. Metformin 1 gm twice a day along with Tab. Glimepiride 1 mg once a day for a period of 12 weeks.

RESULTS

There was significant difference in mean HbA1c between two groups at 12 weeks. At Week 12 weeks Mean HbA1c was significantly lower in Glimepiride Group than in Teneligliptin Group. Fasting Plasma Glucose and Post Prandial Plasma Glucose were significantly lower in Glimepiride Group than in Teneligliptin Group. The incidence of adverse effects was more in Teneligliptin group (constipation).

CONCLUSION

The present study showed that addition of glimepiride apart from improving the baseline glycosylated hemoglobin (HbA1c) also led to significant reduction in fasting, post prandial plasma glucose levels, lipid profiles and is well tolerated as compared to Teneligliptin.

KEY WORDS

type 2 diabetes mellitus, glimepiride, teneligliptin, glycosylated hemoglobin

OA-D-25

THE EFFECT OF LOBEGLITAZONE COMBINATION THERAPY IN TYPE 2 DIABETES

https://doi.org/10.15605/jafes.034.02.S43

Yonghyun Kim

Endocrinology, Bundang Jesaeng Hospital, Daejin Medical Center, Seongnam, South Korea

INTRODUCTION

Considering pathophysiology of Type 2 diabetes and glucose lowering effect, metformin and DPP-4 inhibitor combination was the usual first combination therapy option before release of SGLT-2 inhibitor. Adding TZD could be the next best step for delaying progression of diabetes, but TZD is not commonly used because of adverse effect especially in this country. But, we commonly prescribe TZD from the past in our center and after releasing of new TZD drug class in this country, we tried to know the effect of lobeglitazone when it was added in many cases as possible.

METHODOLOGY

We recruited 244 patients who failed to reach HbA1c target below 7% with metformin and DPP-4 inhibitor from 2016 to 2018. We compared A1c change before and after add-on therapy.

RESULTS

The mean age and duration of DM was 61.4 and 9.7 years. BMI was 25.7. The mean metformin dose and duration of DPP-4 inhibitor use was 1520 mg per day and 49.1 months each. The HbA1c level before add on therapy was 7.70%. The HbA1c improvement after 6 months was 0.79% and it was greater than after 3 months of 0.69%. The HOMA-IR was 4.12 and it was improved to 3.18 after 6 months. The mean body weight gain after 3 months was 1.02 kg and it was increased to 1.51 kg after 6 months.

CONCLUSION

Lobeglitazone add on therapy was effective when failed to reach HbA1c target below 7.0% with metformin and DPP-4 inhibitor. The degree was increased after 6 months than 3 months.

KEY WORDS

lobeglitazone combination, type 2 diabetes

OA-D-26

TOTAL EVENTS OF HEART FAILURE WITH PRESERVED EJECTION FRACTION IN PATIENTS WITH TYPE 2 DIABETES TREATED IN INTERNAL MEDICINE CLINICS AROUND BOGOR, INDONESIA: BUITENZORG DIABETES STUDY

https://doi.org/10.15605/jafes.034.02.S44

Roy Panusunan Sibarani and Mahisa Taradika
Siloam Hospital Bogor, Indonesia

INTRODUCTION
Type 2 diabetes (T2D) increases the risk of developing heart failure (HF) symptoms and HF hospitalisation. In Indonesia, ADHERE Study of HF found 31.2% had T2D and this led the patients to readmission and mortality. The high prevalence of diabetes in HFpEF identifies a systemic pro-inflammatory state induced by comorbidities as the cause of myocardial structural and functional alterations. We have no data of the occurrence of HFpEF in people with T2D in Indonesia and this study intended to provide data of T2D patients with HFpEF as an insight for a comprehensive management of diabetes and heart disease

METHODOLOGY
This study is a multi-center cross-sectional, observational study of 153 patients with T2D. We used medical records to collect data on duration of diabetes, age, BMI, glycated hemoglobin, renal function, albuminuria and echocardiography. We observed the symptoms of heart failure, anti-hypertensive medications and oral glucose lowering drugs used.

RESULTS
Out of 153 subjects with echo, 65% showed HFpEF. The patients with no symptoms but have a diastolic dysfunction and normal EF were evidently in the older group, mostly overweight or obese. 79% had glycated hemoglobin below 9%. In patients with duration of diabetes > 8 years, 36% were found to have HFpEF, among patients with duration of diabetes < 8 years with proteinuria, 43% have HfpEF.

CONCLUSION
HFpEF is often found among patients with type 2 diabetes in Bogor Indonesia mostly with diabetes duration of more than 8 years and with proteinuria.

KEY WORDS
diabetes complications, diabetes, HFpEF

OA-D-27

PREVALENCE AND RISK FACTORS OF MICROVASCULAR COMPLICATIONS AMONG PATIENTS WITH PREDIABETES AT A TERTIARY GOVERNMENT HOSPITAL

https://doi.org/10.15605/jafes.034.02.S45

Roi Joseph Mendoza and Rosa Allyn Sy
Department of Internal Medicine, Ospital ng Makati, Philippines

INTRODUCTION
Prevalence of microvascular complications among newly diagnosed type 2 diabetes mellitus is high, which indicates that these complications namely retinopathy, nephropathy and neuropathy may be present even at mild glycemic dysregulation. Prediabetes has an increasing incidence but local studies that investigate presence of microvascular complications amongst these patients are lacking. They are an important cause of morbidity and progression may lead to blindness, development of end stage renal disease and lower extremity amputation. This study determined the prevalence of microvascular complications among patients with prediabetes seen at the outpatient department of a tertiary government hospital and looked at the association of HbA1C, BMI, LDL, HDL and smoking in the development of these complications.

METHODOLOGY
This was a descriptive cross-sectional study in which 102 patients aged 18 years old and above diagnosed to have prediabetes based on the ADA guidelines were included. 86 patients were assessed for retinopathy using fundus photo, 94 patients were screened for nephropathy with urine micral test and neuropathy was confirmed in all 102 patients using the 10g monofilament test. Descriptive statistics was used to summarize the clinical characteristics of patients. Frequency and proportion were used for nominal variables, median and range for ordinal variables. Odds ratio was calculated to determine association of HbA1C, BMI, LDL, HDL and smoking with microvascular complications.

RESULTS
A total of 102 patients with prediabetes were enrolled in the study, 46% (n=47) of which were males. The mean age was 63 years old and 77% of them were hypertensive. Mean BMI was 25 kg/m^2, mean FBS was 108 mg/dL and mean HbA1C was 5.97%. Prevalence of retinopathy was 4.65%, neuropathy 12.7% and nephropathy 16.6%. High HbA1C was associated with all three microvascular complications, elevated BMI (23–≥25) was associated with development of nephropathy with *p-value* 0.0060, low level of HDL was associated with retinopathy. Smoking was associated with development of nephropathy and neuropathy with *p values* of 0.0401 and 0.0263 respectively.

CONCLUSION
The study emphasizes that microvascular complications are already present even at mild glycemic dysregulation. This is the first study, done locally, that investigated presence of microvascular complications among patients with prediabetes. We recommend screening of patients with prediabetes especially those who are obese and have a history of smoking to avoid progression to blindness, irreversible kidney damage and amputation. Furthermore, education of patients especially those who are high risk is of utmost importance to decrease the burden of these microvascular complications.

KEY WORDS
prediabetes, microvascular complications

OA-D-28

PREVALENCE OF MICROVASCULAR COMPLICATIONS AMONG NEWLY-DIAGNOSED TYPE 2 DIABETES MELLITUS PATIENTS IN OSPITAL NG MAKATI OUTPATIENT DEPARTMENT

https://doi.org/10.15605/jafes.034.02.S46

Jonathan Crisostomo and Rosa Allyn Sy
Department of Internal Medicine, Ospital ng Makati, Philippines

INTRODUCTION
Type 2 diabetes mellitus is an insidious illness characterized by a preclinical asymptomatic period for many years during which the body is exposed to the injurious effects of hyperglycemia resulting to microvascular and macrovascular complications. These complications have grown as a worldwide burden particularly in developing countries and majority of which result to end stage renal disease, blindness, lower extremity amputations, premature cardiovascular disease, stroke and premature mortality. This study aims to determine the prevalence of microvascular complications namely retinopathy, nephropathy and neuropathy among newly diagnosed type 2 diabetes mellitus patients in Ospital ng Makati OPD and to determine the association between baseline HbA1c levels and occurrence of microvascular complications.

METHODOLOGY
This was a cross-sectional study. Sixty patients with newly diagnosed type 2 diabetes mellitus aged 18 years and above diagnosed within the past 3 months using the ADA criteria were included. Subjects were screened for nephropathy using urine microalbumin. Neuropathy was confirmed using 10-g monofilament and pinprick testing. Funduscopy was done to screen for retinopathy. Descriptive statistics were used to summarize the clinical characteristics of the patients. Frequency and proportion were used for nominal variables, median and range for ordinal variables, and mean and SD for interval/ratio variables. Odds ratio was calculated to determine the association between baseline HbA1c levels and microvascular complications.

RESULTS
Out of the 60 patients, 27 were males and 33 were females. The mean age was 53 years. Nephropathy was present in 40%, neuropathy in 23% and retinopathy in 13% of patients. Macrovascular complications were also present in the study population. Two (3%) had coronary artery disease based on the history of prior myocardial infarction and seven (11.67%) have had cerebrovascular disease. All patients with macrovascular complications had at least one microvascular complication. Subjects were classified on the basis of HbA1c levels. Although there was insufficient evidence to demonstrate an association between HbA1c levels and microvascular complications, it was noted that these complications are frequently seen in patients whose HbA1c levels were >7%.

CONCLUSION
Macrovascular complications are a major cause of mortality and morbidity among patients with diabetes. Our study has emphasized that microvascular and even macrovascular complications are already present at the time of diagnosis of type 2 diabetes mellitus. A high prevalence of microvascular complications at the time of diagnosis necessitates that evaluation from these must be done on all patients for screening and management for possible reversibility and to delay its progression.

KEY WORDS
diabetes mellitus, microvascular complications, nephropathy, retinopathy, neuropathy

OA-D-29

EVALUATION OF CANDIDATE GENETIC VARIATIONS AS PHARMACOGENETIC MARKERS FOR METFORMIN AMONG FILIPINOS

https://doi.org/10.15605/jafes.034.02.S47

Elizabeth Paz-Pacheco,[1] Eva Maria Cutiongco-de la Paz,[2,3] Jose Nevado Jr.,[2] Gabriel Jasul Jr.,[1] May Uyking-Naranjo,[4] Ma. Luz Vicenta Guanzon,[5] Karell Jo Angelique Calpito,[2,3] Elizabeth Laurize Alejandro,[2,3] Vincent Sean Ribaya,[2,3] Julius Patrick Ferrer [2,3]

[1]*Section of Endocrinology, Diabetes and Metabolism, Department of Medicine, University of the Philippines – Philippine General Hospital Manila*

[2] *Institute of Human Genetics, National Institutes of Health, University of the Philippines, Manila*

[3]*Philippine Genome Center, University of the Philippines, Diliman, Quezon City*

[4]*Southern Philippines Medical Center*

[5]*Corazon Locsin Montelibano Memorial Regional Hospital, Bacolod, Negros Occidental, Philippines*

INTRODUCTION

This study aims to determine the genetic polymorphisms associated with drug response to metformin in type 2 diabetes mellitus (T2DM).

METHODOLOGY

Unmatched cases and controls were used to test the association of genetic polymorphisms in candidate genes to test drug response to metformin. Two hundred fifteen patients with type 2 diabetes who were diagnosed within the past 3 years, without recent T2DM treatment were enrolled simultaneously from three (3) hospitals from Luzon, Visayas and Mindanao and various communities around its area. The participants were started on metformin as monotherapy for 3 months. Glycosylated hemoglobin (HbA1c) was measured at baseline and after 3 months of treatment. Genotyping was done using customized Illumina Infinium microarray chips. Candidate variants were then correlated with response using logistic regression analysis.

PRELIMINARY RESULTS AND DISCUSSION

There are three (3) candidate genetic variants significantly associated to metformin response in this study. The two most significant single nucleotide polymorphisms (SNPs) are variants of the gene FK506-binding protein 5 gene (*FKBP5*) (AA > AC > CC: OR 3.44, 95% CI 1.67, 7.76; *p-value* 0.0004 and CC > CT > TT: OR 3.45, 95% CI 1.64, 8.06; *p-value* 0.0006, respectively).

CONCLUSION

The study revealed SNPs that were not previously associated with metformin response. Genetic variation exists among Filipinos and these influence treatment responses to oral hypoglycemic agents. This study on the genetics of Filipinos with diabetes will potentially benefit the population with use of appropriate medications.

KEY WORDS

pharmacogenetics, diabetes mellitus, type 2, metformin

OA-D-30

EVALUATION OF CANDIDATE GENETIC VARIATIONS AS PHARMACOGENETIC MARKERS FOR GLICLAZIDE AMONG FILIPINOS

https://doi.org/10.15605/jafes.034.02.S48

Elizabeth Paz-Pacheco,[1] Eva Maria Cutiongco-de la Paz, [2,3] Jose Nevado Jr. [2], Gabriel Jasul Jr.,[1] May Uyking-Naranjo,[4] Ma. Luz Vicenta Guanzon, Elizabeth Laurize Alejandro,[2,3] Karell Jo Angelique Calpito,[2,3] Julius Patrick Ferrer,[2,3] Vincent Sean Ribaya[2,3]

[1]*Section of Endocrinology, Diabetes and Metabolism, Department of Medicine, University of the Philippines – Philippine General Hospital, Manila*

[2]*Institute of Human Genetics, National Institutes of Health, University of the Philippines, Manila*

[3]*Philippine Genome Center, University of the Philippines, Diliman, Quezon City, Philippines*

[4]*Southern Philippines Medical Center*

[5]*Corazon Locsin Montelibano Memorial Regional Hospital, Bacolod, Negros Occidental, Philippines*

INTRODUCTION

To determine the genetic polymorphisms associated with drug response to gliclazide in type 2 diabetes mellitus (T2DM).

METHODOLOGY

This was an unmatched case-control study comparing response to gliclazide. Participants were enrolled from three (3) institutions (Philippine General Hospital, Corazon Locsin Montelibano Memorial Regional Hospital and Southern Philippines Medical Center) and its surrounding communities. One hundred thirty-nine adult Filipinos with newly diagnosed T2DM were enrolled to determine the association of genetic variants in response to gliclazide. Glycosylated hemoglobin (HbA1c) collected 3 months apart was used to determine response. DNA from blood samples were genotyped using Infinium iSelect beadchips. Candidate variants were then correlated with response to gliclazide using t-test, chi-square and univariate logistic regression analysis.

PRELIMINARY RESULTS AND DISCUSSION
Four (4) candidate genetic variants associated with response to gliclazide were revealed. The two most significant single nucleotide polymorphisms (SNP) are variants of the gene 5-hydroxytryptamine receptor 2C (*HTR2C)* (CC > > GC > GG: OR 28.20, 95% CI 2.59, 1,464.13; *p-value* 0.0015 and AA vs. GG + AG: OR 0.04, 95% CI 0.00069, 0.389; *p-value* 0.0015 respectively). The third SNP is a variant of the gene high mobility group 20A (*HMG20A*) (AA > AG > GG: OR 3.70, 95% CI 1.50, 10.03; p-value 0.0018).

CONCLUSION
The study revealed SNPs that were not previously associated with response to gliclazide. These may be further investigated and validated to identify markers for response to this medication. This will be the basis for matching of patients with the appropriate medications and hence provide improved outcomes.

KEY WORDS
pharmacogenetics, diabetes mellitus, type 2, gliclazide

OA-D-31

CORRELATION OF CANDIDATE GENETIC VARIATIONS FOR SUSCEPTIBILITY AND RISK ASSESSMENT OF TYPE 2 DIABETES MELLITUS AMONG FILIPINOS

https://doi.org/10.15605/jafes.034.02.S49

Eva Maria Cutiongco-de la Paz,[1,2] Jose Nevado Jr.,[1] Elizabeth Paz-Pacheco,[3] Gabriel Jasul Jr.,[3] Vincent Sean Ribaya, [1,2] Elizabeth Laurize Alejandro,[1,2] Karell Jo Angelique Calpito,[1,2] Julius Patrick Ferrer[1,2]
[1]*Institute of Human Genetics, National Institutes of Health, University of the Philippines, Manila*
[2]*Philippine Genome Center, University of the Philippines, Diliman, Quezon City, Philippines*
[3]*Section of Endocrinology, Diabetes and Metabolism, Department of Medicine, University of the Philippines – Philippine General Hospital, Manila*

OBJECTIVES
The study aims to determine genetic variants associated with type 2 diabetes mellitus (T2DM) that can help in the development of personalized care for Filipinos.

METHODOLOGY
A total of 201 unrelated adult Filipinos were enrolled in this matched case-control study (67 cases with T2DM to 134 controls). DNA from blood was genotyped via customized Illumina (GoldenGate Genotyping and Infinium iSelect) microarray beadchips, investigating 357 candidate genetic variants associated with T2DM. Correlation with T2DM was done via permuted Pearson chi-square tests of allelic/genotypic association, Bonferroni correction for multiplicity, and Efron conditional logistic regression analysis.

RESULTS AND DISCUSSION
Three (3) candidate variants exhibited significant association with T2DM among Filipinos. A *CDKAL1* (cyclin-dependent kinase 5 regulatory subunit-associated protein 1 like 1 gene) variant showed the greatest risk in association (AA > AC > CC: OR 10.08, 95% CI 5.21, 19.53; *p* 0.0145). Other variants showed significance, namely a *SERPINF1* (serpin family member 1 gene) variant (CC > CT > TT: OR 5.43, 95% CI 2.84, 10.38; *p* 0.0164) and a *GPR45* (G protein-coupled receptor 45 gene) variant (CC > CT > TT: OR 2.56, 95% CI 1.43, 4.59; *p* 0.0206).

CONCLUSION
Preliminary results present variations in *CDKAL1*, *SERPINF1*, and *GPR45* significantly associated with T2DM which may be further investigated through clinical validation to develop diagnostic/prognostic markers for T2DM in Filipinos. Though Philippine genetic studies for T2DM are limited, the emergence of genetic research and genotyping technology presents the opportunity to better optimize T2DM management and treatment in the Filipino individual.

KEY WORDS
diabetes mellitus, type 2, genetic susceptibility, genotyping

OA-D-32

DIFFERENTIAL GENE EXPRESSION OF PERIPHERAL ARTERIAL DISEASE IN TYPE 2 DIABETES MELLITUS AMONG THE FILIPINO POPULATION

https://doi.org/10.15605/jafes.034.02.S50

Jose Nevado Jr.,[1] Eva Maria Cutiongco-de la Paz,[1,2] Elizabeth Paz-Pacheco,[3] Gabriel Jasul, Jr.,[3] **Julius Patrick Ferrer**,[1,2] Elizabeth Laurize Alejandro,[1,2] Karell Jo Angelique Calpito,[1,2] Vincent Sean Ribaya[1,2]

[1]*Institute of Human Genetics, National Institutes of Health, University of the Philippines Manila*

[2]*Philippine Genome Center, University of the Philippines, Diliman, Quezon City, Philippines*

[3]*Section of Endocrinology, Diabetes and Metabolism, Department of Medicine, University of the Philippines – Philippine General Hospital Manila*

OBJECTIVE

The study aims to identify differentially expressed genes in Filipinos with peripheral arterial disease (PAD) and type 2 diabetes mellitus (T2DM) as possible biomarkers.

METHODOLOGY

A total of 100 Filipinos participated in this 1:2 unmatched case-control comparing participants of T2DM with PAD, and persons without diabetes. Gene expression profiling of participant's peripheral blood mononuclear cells was done via multiple microarray platforms [Illumina's Whole-Genome Gene Expression Direct Hybridization and Affymetrix Human Clariom S (human) Assays] covering over 18,000 possible genes. Differentially expressed genes were determined using the limma package to perform for Bayes t-statistics, and fold change to compute for varying gene expression between groups.

RESULTS AND DISCUSSION

There are 427 significant genes (*p-value* of <0.001) differentially expressed in PAD in T2DM compared with persons without diabetes. Majority of these genes identified are related to metabolic processes, cellular organization/differentiation, endothelial cell proliferation, and immune responses. These processes are implicated in PAD and may be contributory to its vascular pathology. Genes involved in endothelial cell proliferation are amongst the top in significance: *FGFBP1* (fibroblast growth factor-binding protein 1) (*p-value* 3.90×10^{-6}), *FGF2* (fibroblast growth factor) (*p-value* 4.92×10^{-6}), *AKT3* (AKT serine/threonine kinase 3) (*p-value* 6.78×10^{-5}), *GHSR* (growth hormone secretagogue receptor) (*p-value* 2.72×10^{-4}), *THBS4* (thrombospondin 4) (p-value 4.74×10^{-4}), *PDCL3* (phosducin like 3) (*p-value* 5.77×10^{-4}), and *MDK* (midkine) (*p-value* 9.39×10^{-4}).

CONCLUSION

The study's results identified multiple genes that may contribute to the development of PAD in T2DM which can aid in future molecular-based approaches after validation studies.

KEY WORDS

diabetes mellitus type 2, gene expression, peripheral arterial disease

OA-D-33

GLYCAEMIC CONTROL OF TYPE 2 DIABETIC PATIENTS WITH SELF-MONITORING OF BLOOD GLUCOSE DURING RAMADAN FASTING IN JAKARTA INDONESIA

https://doi.org/10.15605/jafes.034.02.S51

Brama Ihsan Sazli,[1] Dicky Levenus Tahapary,[1,2] Dante Saksono Harbuwono,[1,2] Pradana Soewondo[1]

[1]*Division of Metabolism and Endocrinology, Department of Internal Medicine, Dr. Cipto Mangunkusumo National General Hospital, Faculty of Medicine, Universitas Indonesia*

[2]*Metabolic, Cardiovascular and Aging Cluster, The Indonesian Medical Education and Research Institute, Faculty of Medicine, Universitas Indonesia*

INTRODUCTION

Ramadan is a month in the Islamic calendar when Moslems fast every day. According to demographic study in 2010, Islam believers in Indonesia equal to 87,18% of its total population. The purpose of this study was to evaluate glucose reading provided by self-monitoring of blood glucose (SMBG) in type 2 Diabetes (T2D) patients during Ramadan fasting.

METHODOLOGY

This is an observational study that recruited T2D patients who practiced fasting during the month of Ramadan. Patients were advised to monitor their blood sugar on the last day of each week of Ramadan including before and after *suhoor*, in the morning, at noon, in the afternoon, also before and after *iftar*. Patients were educated before Ramadan about diet, medication and SMBG by glucose reading meters. We evaluated glycaemic control of patients and the rates of hypoglycaemia and hyperglycaemia

RESULTS AND CONCLUSION
Twenty-five patients fulfilled SMBG record with a total of 458 readings by glucose meters. Mean of blood glucose levels during fasting is 164.34±72.661 mg/dL, with minimum 72 mg/dL and maximum 443 mg/dL. After *iftar* evidently has the highest mean blood glucose level (214,1 mg/dL) between other times. There are only two patients who reported symptomatic hypoglycaemia, but no one categorized as biochemical hypoglycaemia that should be recommended to break the fast at the day. The rate of hyperglycaemia is 7.6% of SMBG readings among all the results.

KEY WORDS
glycemic control, type 2 diabetes, ramadan fasting, self-monitoring of blood glucose

OA-D-34

POLYMORPHISM IN MTNR1B VARIANT GENE IS PROTECTIVE AGAINST GESTATIONAL DIABETES MELLITUS AMONG FILIPINO PREGNANT WOMEN

https://doi.org/10.15605/jafes.034.02.S52

Maria Ruth Pineda-Cortel,[1,2,3] Romar Dabban,[1] Regine Due,[1] Madelle Lopez,[1] Gary Mamaid,[1] Renielle Mangahas,[1] Joseph Rafael Mauleon,[2] Nariwah Gaus,[3] Shamar Lo Lasta[2,4]
[1]*Department of Medical Technology, University of Santo Tomas, Manila, Philippines*
[2]*The Graduate School, University of Santo Tomas, Manila, Philippines*
[3]*Research Center for the Natural and Applied Sciences, University of Santo Tomas, Manila, Philippines*
[4]*Institute of Clinical Laboratory Sciences, Silliman University, Dumaguete City, Philippines*

INTRODUCTION
This study aimed to determine the association of rs10830963 polymorphism on the MTNR1B gene with insulin resistance (IR), insulin sensitivity (IS), and the risk of developing gestational diabetes mellitus (GDM) among Filipino pregnant women.

METHODOLOGY
A cross-sectional study was conducted involving 232 Filipino pregnant women, 72 GDM cases and 160 non-GDM women. DNA samples were extracted using a commercially available kit with slight modifications. Rs10830963 was genotyped using *taqman* allelic discrimination assay. Mann-Whitney U-test was used to determine the significant difference of various phenotypic characteristics between pregnant women with and without GDM. Person's chi-square was used to determine the association of the said polymorphism with GDM. Lastly, odds ratio computation was used to determine the likelihood of developing GDM depending on the pregnant women's genotypic and allelic characteristics.

CONCLUSION
The occurrence of rs10830963 polymorphism in MTNR1B gene is protective against the development of GDM among Filipino pregnant women but is not associated with insulin resistance nor insulin sensitivity

KEY WORDS
gestational diabetes mellitus, gene polymorphism, MTNR1B gene

OA-D-35

ASSOCIATION OF CDKAL1 rs7756992 A/G HETEROGENOUS GENOTYPE WITH DEVELOPMENT OF GESTATIONAL DIABETES MELLITUS AMONG FILIPINO PREGNANT WOMEN

https://doi.org/10.15605/jafes.034.02.S53

Maria Ruth Pineda-Cortel,[1,2,3] Karlo Baybayan,[1] Peter Louie Bello,[1] Latiffa Lois Camenforte,[1] Stefany Jane Ching,[1] Kathleen Conti,[1] Jeremiah Jose Ignacio,[1] Raphael Enrique Tiongco,[2] Jefferyl Kae Pandac,[2,4] Adrian Villavieja[2,3]

[1]*Department of Medical Technology, Faculty of Pharmacy, University of Santo Tomas, Manila, Philippines*

[2]*The Graduate School, University of Santo Tomas, Manila, Philippines*

[3]*Research Center for the Natural and Applies Sciences, University of Santo Tomas, Manila Philippines*

[4]*Institute of Clinical Laboratory Sciences, Silliman University, Dumaguete City, Philippines*

INTRODUCTION

The presence of single nucleotide polymorphisms (SNPs) has been associated with different diseases. Although effects of CDKAL1 on glucose is not yet fully understood, it has been shown to enhance translation of beta cell transcripts, including proinsulin. In this study, We aimed to investigate the possible association between rs7754840 and rs7756992 of the CDKAL1 gene and GDM among Filipino pregnant women.

METHODOLOGY

A total of 193 patients were recruited, of which 102 women had GDM and 91 served as non-GDM controls. Oral glucose tolerance test (OGIT), lipid profile, and glycosylated hemoglobin (HbA1c) were performed. Rs7754840 and rs7756992 polymorphisms were genotyped using TaqMan allelic assays. The genotypic and allelic distributions of each SNP between GDM cases and controls, and the combined effects of alleles for the risk of developing GDM were analyzed.

CONCLUSION

The findings suggest the potential of CDKAL1 gene and rs7756992 polymorphisms as markers for GDM. Association between the CDKAL1 protein and development of GDM should be explored further.

OA-D-36

Pro12Ala POLYMORPHISM IN THE PPARG GENE IS ASSOCIATED WITH GESTATIONAL DIABETES AMONG FILIPINOS: A CROSS-SECTIONAL STUDY

https://doi.org/10.15605/jafes.034.02.S54

Maria Ruth Pineda-Cortel,[1,2] Sheena Abad,[1] Yvette Bailon,[1] Vanessa Mae Bugarin,[1] Ryna Zatchel Domingo,[1] John Lawrence Fernandez,[1] Trisha Claire Mendoza,[1] Raphael Enrique Tiongco[3]

[1]*Department of Medical Technology, Faculty of Pharmacy, University of Santo Tomas Manila, Philippines*

[2]*Research Center for the Natural and Applied Sciences, University of Santo Tomas, Manila, Philippines*

[3]*Department of Medical Technology, College of Allied Medical Professions, Angeles University Foundation, Angeles City, Philippines*

INTRODUCTION

In this study, we determined the association between Pro12Ala polymorphism in the PPARG gene with gestational diabetes mellitus (GDM) among Filipinos. The association of the alleles and genotypes of the polymorphism with glycemia and insulin resistance was also determined.

METHODOLOGY

With ethical clearance, approximately 258 pregnant women (86 with GDM and 172 without GDM) were recruited. Whole blood was collected from each and was used for genomic DNA extraction. Laboratory tests such as oral glucose tolerance test, glycated hemoglobin (HbA1c), and insulin levels were performed. The extracted genomic DNA sample was subjected to allelic discrimination analysis using the TaqMan assay.

CONCLUSION

Overall, the Pro12Ala polymorphism of the PPARG gene may exhibit a protective role against GDM among selected Filipino women; however, further studies are needed to verify our claims

KEY WORDS

gestational diabetes mellitus, rs1801282, pparg, Filipino

Thyroid

OA-T-01

ASSOCIATION BETWEEN OSPITAL NG MAKATI-BASED THYROID ULTRASONOGRAPHY DESCRIPTIVE FINDINGS AND FINE-NEEDLE ASPIRATION BIOPSY FINDINGS WITH HISTOPATHOLOGIC FINDINGS IN THE DIAGNOSIS OF THYROID MALIGNANCIES

https://doi.org/10.15605/jafes.034.02.S55

Jose Antonio Bautista, Rosa Allyn Sy, Critopher Cipriano, Buena Sapang
Department of Internal Medicine, Ospital ng Makati, Philippines

*Abstract published in Endocrine Abstracts. 2018;56:1152.

INTRODUCTION
Thyroid nodules are a common clinical problem. Ultrasonography and fine needle biopsy (FNAB) have been used for diagnosis. Worldwide, the use of international standards of reporting such as the American Thyroid Association (ATA) Sonographic Pattern Risk Assessment and the Bethesda System for Reporting Thyroid Cytopathology are used to detect thyroid malignancies. However, ultrasonography and FNAB reports are different at Ospital ng Makati (OSMAK), wherein these deviate from international standards. The study aimed to validate the association of OSMAK-based reports with histopathology results, and to determine their accuracy in detecting malignancy as confirmed by histopathology.

METHODOLOGY
A retrospective cohort study was utilized among patients 20 years old and above with thyroid malignancies who had thyroid ultrasonography and FNAB done at OSMAK between January 2012 and January 2017. Descriptive statistics were utilized to present the variables. Review of thyroid ultrasonography and FNAB were done based on report descriptions. Fisher's Exact Test was used to test for association. The accuracy of these OSMAK-based descriptions and reports were then analyzed.

RESULTS
There was not enough evidence to conclude that OSMAK-based thyroid ultrasonography was associated with histopathologic findings (p=0.135); it had an accuracy of detecting malignancy at 40.5%. There was not enough evidence to conclude that OSMAK-based FNAB was associated with histopathologic findings (p=0.083); the test had an accuracy of 56.8%.

CONCLUSION
The use of OSMAK-based ultrasonography and FNAB reporting are not accurate in detecting thyroid malignancies. Hence, the use of validated, internationally-accepted guidelines should be implemented to help physicians provide the most appropriate care for these patients.

KEY WORDS
ultrasonography, biopsy, fine-needle, thyroid neoplasms

OA-T-02

CLINICAL PROFILE OF THYROID DISORDERS IN DR. SOETOMO GENERAL HOSPITAL SURABAYA

https://doi.org/10.15605/jafes.034.02.S56

Hendra Gunawan,[1] Sony Wibisono Mudjanarko,[2] Soebagijo Adi Soelistijo,[2] Agung Pranoto[2]
[1]*Internal Medicine Department – Dr. Soetomo General Hospital – Airlangga University, Indonesia*
[2]*Endocrinology – Metabolic – Diabetes Division of Internal Medicine Department - Dr. Soetomo General Hospital – Airlangga University, Indonesia*

INTRODUCTION
Thyroid disorders remain a global health problem with devastating consequences which can affect all populations. Among thyroid disorders, hyperthyroid is more prevalent than hypothyroid with prevalence rate 6.9%. However, data regarding its clinical profile remain scarce because only 0.4% of the Indonesian population are diagnosed with hyperthyroidism and there is no data regarding hypothyroidism.

METHODOLOGY
Cross-sectional study with consecutive sampling from June 2018 to May 2019 was conducted in endocrinology, metabolic, and diabetes outpatient department. Inclusion criteria were ages more than 18 years old during examination. Anthropometric and clinical profiles were examined during outpatient visitation. Data were processed with SPSS v21.0.

RESULTS
There were 47 patients (median: 40 [21-78] years old) included in this study with female more prevalent compared to male (78.7% vs 21.3%). Hyperthyroidism accounted for 70.2% of thyroid disorders referred to endocrinology outpatient department. Graves' Disease accounted for 66.7% of cases of hyperthyroidism. Median disease duration was 3 years (0.25-30 years). The median FT4 and TSH level for hyperthyroid disorders were 1.16 μg/dL and 0.05 mIU/L whereas for hypothyroid were 0.95 μg/dL and 4.47 mIU/L respectively.

CONCLUSION
Among thyroid disorders, hyperthyroidism remains the leading thyroid disorder in Surabaya. Therefore, we recommend hyperthyroidism screening for people with thyrotoxicosis.

KEY WORDS
hyperthyroid, hypothyroid, thyroid disorders, clinical profile

OA-T-03

AUTOIMMUNE DISEASE, FAMILIAL CLUSTERING AND THYROID CARCINOMA COEXISTENT WITH AUTOIMMUNE THYROIDITIS IN CHILDREN AND ADOLESCENCE: A CROSS-SECTIONAL STUDY FROM THE CZECH REPUBLIC

https://doi.org/10.15605/jafes.034.02.S57

Renata Pomahačová,[1] Jana Zamboryová,[1] Zdeňka Černá,[1] Josef Sýkora, Jiřina Zapletalová[2]
[1]*Charles University in Prague, Faculty of Medicine in Pilsen, Department of Paediatrics, the Czech Republic*
[2]*Palacky University in Plomouc, Faculty of Medicine and Dentistry, Department of Paediatrics, the Czech Republic*

**Full paper has been published in Biomedical Papers. 2018;162(4):289-93.*

INTRODUCTION
The prevalence of autoimmune thyroiditis (AIT), as the most common autoimmune disease (AD) and papillary thyroid cancer (PTC) is steadily rising in children. The aim of this study was to determine the coexistence of other AD and thyroid carcinoma (TC) in AIT.

METHODOLOGY
The cross-sectional study conducted at a tertiary center comprised AIT children (<19 years). Data on age/sex, thyroid function, ultrasound, autoantibodies, associated AD, familial occurrence of AD and the occurrence of TC for each child were collected.

RESULTS
In total, 231 patients (77% females) were included. The most common onset (66%) was during adolescence. At onset, hypothyroidism was detected in 59.3%; hashitoxicosis in 1.3%. The positivity of both autoantibodies was present in 60.6%, the negativity in 3,5%. We confirmed a high frequency (44.6%) of AD with AIT predominance in parents and/or grandparents of patients and in siblings (7.4%). 15.2% had at least 1 comorbid AD, of which type 1 diabetes mellitus was the most common (8.5%). Over a period of 7 years, TC was diagnosed in 16 patients (mean age 13.5 years) with predominance of PTC in 15 (94%) patients. AIT had concurrently 69% patients. 56% of patients had metastases (89% in AIT subjects). An invasive PTC was present in 44% (86% in AIT subjects).

CONCLUSION
The prevalence rate of AD in AIT and the first–degree relatives is high, and several new associations have been reported. Providers should be aware of comorbidities and TC in AIT as this would help early diagnoses and timely interventions.

KEY WORDS
autoimmune thyroiditis, associated autoimmune diseases, familial occurrence of autoimmune diseases, prevalence, papillary thyroid carcinoma

OA-T-04

EVALUATION OF UNDERLYING THYROID DISORDERS IN PATIENTS PRESENTING WITH THYROID DYSFUNCTION

https://doi.org/10.15605/jafes.034.02.S58

Htar Ni Aye,[1] Than Than Aye,[2], Mie Mie Pyone,[3] Ei Sandar Oo[4]
[1]Grand Hantha International Hospital, Yangon, Myanmar
[2]*University of Public Health, Yangon, Myanmar*

INTRODUCTION
Thyroid disorders are common problems following diabetes mellitus in endocrine clinic in Myanmar and the prevalence of thyroid disorders was unknown in the previous decades. This study was to evaluate the spectrum of thyroid disorders in endocrine clinic.

METHODOLOGY
A six-month, hospital-based, cross-sectional descriptive study was carried out and 251 subjects who had attended endocrine clinic with thyroid problems in a tertiary private hospital in Myanmar were selected. Thyroid function test and thyroid autoimmunity were analyzed. Different types of thyroid disorders were classified according to hyperthyroidism and hypothyroidism.

RESULTS
Average age was 51 years with 87.6% female. Those who have hyperthyroidism and hypothyroidism were nearly of similar percentages (43.0% and 44.2% respectively). Among hyperthyroid patients, majority (69 cases or 27.5%) were Graves' disease, followed by subacute De Quervain's thyroiditis (10.4%), toxic MNG (2%), 3 cases toxic adenoma. Among hypothyroid cases, 25% were associated with raised anti-TPO which could be Hashimotos' thyroiditis or iodine-induced thyroid dysfunction. Others were thyroidectomy for goiter (7.2%) and carcinoma (1.2%) and Graves' disease (0.8%), previous radioactive iodine ablation (2.4%) and secondary hypothyroidism due to pituitary dysfunction (0.8%). Subclinical hyperthyroidism (2%) and subclinical hypothyroidism (4.4%) were detected. Thyroid enlargement with normal TFT was 12.7%. Among them, two cases of papillary thyroid carcinoma and 1 case of follicular thyroid cancer were detected.

CONCLUSION
This study suggests that Graves' disease and hypothyroidism with increased anti-TPO are common causes of thyroid dysfunction but thyroid nodules such as thyroid cancer are rarely referred to endocrine clinic. Hence, this will be a baseline data for Myanmar population in future.

KEY WORDS
thyroid disorders, hyperthyroidism, hypothyroidism

OA-T-05

EVALUATION OF PATIENTS WITH REMISSION FOLLOWING RADIOACTIVE IODINE TREATMENT: A RETROSPECTIVE ANALYSIS

https://doi.org/10.15605/jafes.034.02.S59

Cheow Peng Ooi[1] and Nor Azmi Kamaruddin[2]
[1]Endocrine Unit, Department of Medicine, Faculty of Medicine and Health Sciences, Universiti Putra, Malaysia
[2]*Endocrinology Unit, Department of Medicine, Faculty of Medicine, Universiti Kebangsaan Malaysia Medical Centre*

INTRODUCTION
Prompt and appropriate management of thyrotoxicosis is important to prevent premature cardiovascular morbidity and mortality. In this respect, our experience with radioactive iodine therapy (RAI) has been very favourable with 85% achieving remission after six months. Nevertheless, the use of antithyroid drugs post-RAI has been suggested to be associated with hypothyroidism at one year. However, we do not use antithyroid drugs post-RAI in our centre. We evaluated the characteristics of our patients who have remission after RAI.

METHODOLOGY
Participants were identified from the list of patients who underwent RAI therapy for thyrotoxicosis in our institution from January 2013 to April 2018. All the patients were referred for RAI following the failure of conventional antithyroid therapy to induce lifelong remission. Patients' characteristics, clinical outcomes and laboratory results were analyzed from the medical and laboratory records. Descriptive statistics were used to describe the data. Relationships were explored with appropriate statistics with significant findings established at $p<0.05$.

RESULTS
A total of 168 patients were identified. Out of 142 (85%) patients who had remission, 58 (34.5%) were euthyroid while 84 (50%) have hypothyroidism within one-year post-RAI. There is no association between RAI dose, age, gender, aetiology or day of administration of RAI.

CONCLUSION
Despite not using antithyroid post-RAI, remission rate remained high. Since remission is associated with significant hypothyroidism, determining the optimal time for initiating thyroxine replacement treatment is an important area for research.

KEY WORDS
hypothyroidism, thyrotoxicosis, radioactive iodine treatment

OA-T-06

INCIDENCE AND PREDICTORS OF POST-THRYOIDECTOMY HYPOCALCEMIA

https://doi.org/10.15605/jafes.034.02.S60

Nam Quang Tran[1] and Quynh Lam[2]
[1]*Department of Endocrinology, University Medical Center, Ho Chi Minh City, Viet Nam*
[2]*Department of Endocrinology, Cho Ray Hospital, Viet Nam*

INTRODUCTION
Post-thyroidectomy hypocalcemia is common but variably reported. We studied the incidence and predictors of post-thyroidectomy hypocalcemia in our population.

METHODOLOGY
Two hundred seventy-seven patients, who underwent thyroidectomy for either a benign or a malignant thyroid condition at the University Medical Center, Ho Chi Minh city, Viet Nam, were prospectively studied from November 2017 to April 2018. Blood samples for serum calcium and albumin were collected before, and on the first postoperative day (POD1). Patients with preoperative hypocalcemia were excluded. Clinical examination, extent of thyroidectomy, and histopathological diagnosis were recorded. Postoperative hypocalcemia was defined as corrected plasma calcium value <2.1 mmol/L.

RESULTS
The median age of the 277 patients was 41 years (range: 17-74 years). 186/277 (81.9%) were female. Hypocalcemia on POD1 was recorded in 117 patients (51.5%), among whom 85 (72.6%) were symptomatic. Hypocalcemic symptoms developed on POD1 itself in 66 out of the 85 patients (77.6%) who were symptomatic. Interestingly, 32 out of the 117 patients (27.4%) who had hypocalcemia were asymptomatic. In multivariate analysis, age < 50 years (OR 2.2, 95% CI 1.1 – 4.1, p=0.012), preoperative plasma calcium value (OR 0.023, 95% CI 0.001 – 0.456, p=0.013) and total thyroidectomy (OR 2.1, 95% CI 1.0–4.5, p=0.047) were statistically significant predictors of post-thyroidectomy hypocalcemia.

CONCLUSION
Hypocalcemia is common after thyroidectomy (51.5% of patients on POD1). Age less than 50 years, low preoperative plasma calcium value, and total thyroidectomy were the significant predictors of post-thyroidectomy hypocalcemia.

KEY WORDS
hypocalcemia, hypoparathyroidism, thyroidectomy

OA-T-07

USE OF CHOLESTYRAMINE AS ADJUNCT FOR HYPERTHYROIDISM – A META-ANALYSIS

https://doi.org/10.15605/jafes.034.02.S61

Margarette Rose Pajanel, Maria Angela Matabang, Rosa Allyn Sy
Department of Internal Medicine, Ospital ng Makati, Philippines

INTRODUCTION
Hyperthyroidism is defined as a state produced by excessive thyroid function. Such can lead to thyrotoxicosis which is defined as a state of excessive thyroid hormone. There are several etiologies of thyrotoxicosis, all of which are due to hyperthyroidism. In a state of thyrotoxicosis, there is an increased production and metabolism of thyroid hormones leading to an increase in its enterohepatic circulation. Cholestyramine is generally used for the treatment of hypercholesterolemia; however, it can also be used as an adjunctive therapy for hyperthyroidism by decreasing gut reabsorption and increasing excretion of thyroid hormones.

OBJECTIVE
To assess evidence from randomized controlled trials (RCTs) regarding the efficacy of using Cholestyramine as an adjunct to anti-thyroid medications in its effect to decrease Total T3 and FT4 levels in hyperthyroid patients.

METHODOLOGY
A review of articles using PubMed and Cochrane (CENTRAL) was done. Search terms used were *cholestyramine, bile acid binding resin, hyperthyroidism, Graves' disease*. Randomized controlled trials were evaluated regarding the effect of cholestyramine as an adjunct to standard treatment. Studies included are limited to randomized controlled trials, with patients of interest are those diagnosed with hyperthyroidism. Studies were assessed for risk of bias and data extraction was done by primary author and reviewed with co-author. Data analysis was done, summary statistics using mean difference, and forest plots were generated using Review Manager 5.3. Publication bias was no longer assessed due to the limited number of studies in this meta-analysis.

RESULTS
Data was collected from 4 randomized controlled trials. There was a decrease in Total T3 (MD=45.55; 95% CI: 33.65, 57.46) which was 45.55 units lower in the cholestyramine as an adjunct compared to standard treatment alone. After addressing heterogeneity, mean difference further increased to 74.89. There was also a decrease in FT4 levels (MD=0.65; 95% CI: -1.39, 0.08) which is 0.65 units lower for those treated with cholestyramine as an adjunct compared to standard treatment alone.

CONCLUSION
Results showed that treatment with cholestyramine as an adjunct to standard therapy can lead to greater decrease in Total T3 and FT4 hormones in hyperthyroid patients.

KEY WORDS
cholestyramine, hyperthyroidism, Graves' disease

OA-T-08

LOW NORMAL FREE THYROXINE LEVELS ARE ASSOCIATED WITH PREDIABETES IN EUTHYROID SUBJECTS

https://doi.org/10.15605/jafes.034.02.S62

Sung Woo Kim, Ji-Hyun Lee, Eonju Jeon, Ho-Sang Shon
Department of Internal Medicine, Daegu Catholic University Medical Center, Daegu, South Korea

**Full paper published in the Diabetes Metab J. 2019;43(5):718-26.*

INTRODUCTION
Although the association between low-normal thyroid function and metabolic syndrome was well documented, little is known about the effect of thyroid hormone within the physiological range of carbohydrate metabolism. This study aimed to determine whether free thyroxine (FT4) influences serum glucose concentration and the prevalence of prediabetes in euthyroid subjects.

METHODOLOGY
This was a cross-sectional survey derived from the Korea National Health and Nutrition Examination Survey, conducted between 2013 and 2015. We studied 4,767 participants of >20 years of age who were euthyroid and without diabetes.

RESULTS
Participants with prediabetes had lower FT4 concentrations than those without prediabetes, but thyrotropin concentrations were similar. We stratified the population into tertiles according to FT4 concentration. After adjusting for multiple confounding factors, HbA1c levels significantly decreased with FT4 tertile (P<0.01), whereas FBG was not associated with FT4 both in men and in women. The prevalence of prediabetes was significantly higher in T1 than in T3 (OR=1.426, 95% CI 1.126-1.806 in men; OR=1.294, 95% CI 1.004-1.668 in women).

CONCLUSION
Subjects with low-normal serum FT4 had high HbA1c and were more likely to have prediabetes. These results suggest that low FT4 concentration is a risk factor for prediabetes, even though thyroid function is within the normal range. Thus, screening for prediabetes in subjects with low-normal FT4 should involve the measurement of HbA1c.

KEY WORDS
euthyroid, prediabetes, free thyroxine

General Endocrinology

OA-GE-01

CLINICAL, SURGICAL, AND HISTOPATHOLOGIC OUTCOMES OF FILIPINO PATIENTS WHO UNDERWENT ADRENALECTOMY IN A TERTIARY HOSPITAL IN CEBU, PHILIPPINES

https://doi.org/10.15605/jafes.034.02.S63

Sarael Brobo Jr., Imelda Bilocura, Ceryl Cindy Tan
Section of Endocrinology, Diabetes and Metabolism, Chong Hua Hospital, Cebu, Philippines

Full paper published in Philippine Journal of Internal Medicine, Vol. 56 No. 3, 127-135

INTRODUCTION
Hormone-producing adrenal tumors, adrenal carcinomas and other adrenal diseases can be potentially cured with adrenalectomy. In the local setting, studies are often limited by a small sample size and inadequate patient data. This study aimed to determine the clinical and histopathologic characteristics and perioperative outcomes of patients who underwent adrenalectomy.

METHODOLOGY
This is a retrospective chart review study from January 2007 to June 2017 in a tertiary hospital in Cebu City, Philippines. Clinical profiles, types of surgery, and operative outcomes were determined. Comparative analysis of clinical profile, histopathologic features, and surgical outcome was done. Descriptive as well as appropriate inferential statistical methods were used to analyze the data.

RESULTS
A total of 31 patients who underwent adrenalectomy were included with the mean age of 45.7 [SD=17.1] years old and a 1:3 male to female distribution. The distribution of tumors was as follows: hormone-producing adrenal tumor (74.2%), malignant adrenal tumors (12.9%), and other benign lesions (12.9%). Among patients with hormone producing tumors, 39.1% had catecholamine excess, 34.8% had aldosterone excess, and 26.1% had cortisol excess. Hormone-producing adrenal tumors were common at age 20 to 40 years old while malignant tumors were more common among those above 40 years old (*p-value*=0.023). Stage 3 hypertension (*p-value*=0.010) and improvement of hypertension postoperatively (*p-value*=0.046) were more common among hormone-producing tumors. On the other hand, large tumor size (>4 cm) (*p-value*=0.011), blood loss needing blood transfusion (*p-value*=0.001), prolonged operation (*p-value*=0.046), and longer hospital stay (*p-value*=0.002) were common among those with malignant tumors. Open adrenalectomy was associated with significant blood loss needing transfusion (*p-value*=0.001) and prolonged hospital stay (*p-value*=0.024).

CONCLUSION
Hormone-producing adrenal tumors with secondary hypertension are the most common pathology among patients who underwent adrenalectomy. They are usually seen among patients less than 40 years old, with smaller tumor size, and frequently present with higher blood pressures that improve following adrenalectomy. In contrast, adrenal carcinomas are more common among patients above 40 years old and have larger tumor size. More often they have prolonged operation time, greater blood loss, and longer hospital stay. Patients who underwent open adrenalectomy had more blood loss and had a longer hospital stay than those who underwent laparoscopic surgery.

KEY WORDS
hormone-producing adrenal tumors, functioning adrenal tumors, adrenal carcinoma, adrenalectomy, adrenal-dependent secondary hypertension

OA-GE-02

CARDIOMETABOLIC PROFILE OF THE ELDERLY IN THE 2013 PHILIPPINE NATIONAL NUTRITION AND HEALTH SURVEY

https://doi.org/10.15605/jafes.034.02.S64

Patricia Marie Lusica[1] and Cecilia A. Jimeno, MD [2],
[1]*Ateneo School of Medicine and Public Health*
[2]*University of the Philippines Manila-Philippine General Hospital*

INTRODUCTION
The objective is to determine the prevalence of cardiovascular and metabolic diseases and risk factors among elderly seen in the 2013 NNHeS.

METHODOLOGY
This study utilized a cross-sectional analytic design. Data were taken from the results of the 8th Philippine NNS in 2013 through FNRI's Public Use Files. Elderly participants from different regions who consented to participate in the interview, anthropometrics, and clinical data collection were included.

RESULTS
There were 1,835 elderly participants included. 44.4% of the elderly had hypertension (BP>140/90 mm Hg). The most common dyslipidemia among the elderly is LDL>100 mg/dL (84%), HDL<40 mg/dL (63%), total cholesterol>200 mg/dL (56%), triglyceride>200 mg/dL (39%). 52.6% of the elderly have Metabolic Syndrome. Among its components, HDL<40 mg/dL in men and <50 in women is most common (90.8%), followed by BP >130/85 mmHg (59.2%), triglycerides >150 mg/dL (39%), waist circumference >90 cm in men and >80 cm in women (33.5%), and fasting blood sugar (FBS) >100 mg/dL (30.1%). Among elderly, 20% have impaired fasting glucose (FBS>100 mg/dL), and 10% have diabetes (FBS>126 mg/dL), with decreasing prevalence as age increases. 22.9% are overweight or obese based on the WHO BMI classification, 33.5% have elevated waist circumference, but 21% are undernourished, showing double burden of over- and undernourishment. Regarding risk factors: 31% are current alcohol drinkers; 21.7% current smokers; 53.7% have physical inactivity; 82% have unhealthy diet.

CONCLUSION
Filipino elderly have high prevalence of cardiometabolic diseases and risk factors. Given this, future research regarding the implication of these to quality of life, longevity, general health, management of these conditions is recommended.

KEY WORDS
metabolic syndrome, diabetes, hypertension, obesity, dyslipidemia

OA-GE-03

PLASMA ADIPONECTIN LEVEL AND CORRECTED QT INTERVAL IN SMOKER AND NON-SMOKER ADULT MALE SUBJECTS

https://doi.org/10.15605/jafes.034.02.S65

Yin-Thu Theint, Ei-Ei Khin, Mya-Thanda Sein
Department of Physiology, University of Medicine 2, Yangon, Myanmar

INTRODUCTION
Animal studies reported that adiponectin plays a role in expression of potassium channel and duration of action potential in ventricular muscles. Only few studies are available focusing on role of adiponectin in QTc interval in human study. This study aimed to investigate the plasma adiponectin level and corrected QT interval (QTc) in smokers and non-smokers.

METHODOLOGY
This cross-sectional analytical study was undertaken in 30 smokers (age: 26.5±4.1 years, body mass index (BMI): 21.67±1.66 kg/m^2) and 30 non-smokers (age: 25.4±3.52 years, BMI: 20.95±2.1 kg/m^2). Plasma adiponectin level was determined by enzyme-linked immunosorbent assay (ELISA). The QT interval was measured by routine 12-lead ECG with Lead II rhythm and QTc was calculated.

RESULTS
Plasma adiponectin level was significantly lower in smokers (27.89±15 μg/ml) than that of non-smokers (52.13±21.57 μg/ml) (p<0.001). A significant increase in QTc interval was seen in smokers (415.37±29.90 vs 395.63±26.13 ms, p<0.01). A significant negative correlation between plasma adiponectin level and QTc interval was observed in the whole study group (n=60, r= -0.407, p=0.001). The risk of low adiponectin levels in smokers was 8.1 times higher than non-smokers (odds ratio (OR) =8.1, 95% confidence interval (CI) =1.61-40.77) whereas the risk of QTc prolongation in smokers was 6 times higher than non-smokers (OR=6, 95% CI=1.17-30.73). Risk of QTc interval prolongation was 4.3 times increased in low adiponectin group than normal adiponectin group (OR=4.27, 95% CI=1.05-17.46).

CONCLUSION
Smokers have greater risk for low plasma adiponectin level and prolonged QTc interval. Decreased adiponectin level might partly contribute to prolonged QTc interval in smokers.

KEY WORDS
smoker, adiponectin, QTc interval

OA-GE-04

SERUM LEPTIN, SERUM ESTRADIOL AND BONE MINERAL DENSITY IN OBESE AND NON-OBESE POSTMENOPAUSAL WOMEN

https://doi.org/10.15605/jafes.034.02.S66

Nang-Ei Phyo, Chaw-Su Hlaing, Mya-Thanda Sein

INTRODUCTION
Osteoporosis is one of the major health issues in postmenopausal women. However, it has been reported that obesity is protective against osteoporosis. There are many evidences reporting that leptin and estrogen play a role in regulation of bone metabolism. Thus, leptin and extra-gonadal estrogen have a considerable role in osteoprotective effect in obese postmenopausal women. The present study aimed to investigate the serum leptin, serum estradiol and bone mineral density in obese and non-obese postmenopausal women.

METHODOLOGY
Non-obese (age=56±2.91 year; body mass index: BMI=22.39±2.12 kg/m^2; n=30) and obese postmenopausal women (age=55.03±4.03 year; BMI=31.69±2.87 kg/m^2; n=30) were recruited from Hlaing-Thar-Yar Township to participate in this cross-sectional analytical study. Serum leptin and estradiol levels were determined by enzyme-linked immunosorbent assay (ELISA) and bone mineral density (BMD) was determined by quantitative ultrasound (QUS).

RESULTS
Serum leptin, serum estradiol and BMD were significantly higher in obese than non-obese postmenopausal women (leptin: 13.81±5.11 vs 4.93±2.47 ng/ml, p<0.001; estradiol: 109.69±35.17 vs 87.65±37.86 pg/ml, p<0.05; BMD:0.10±1.20 vs-2.62±1.04, p<0.001). BMD had significant positive correlation with BMI in postmenopausal women (r=0.683, p<0.001, n=60). Serum leptin level had stronger correlation with BMD (r=0.6, p<0.001) than serum estradiol level (r=0.28, p<0.05). There is no correlation between serum leptin and serum estradiol levels.

CONCLUSION
Increased BMD in obese postmenopausal women might be due to increased serum leptin and serum estradiol levels considered as osteoprotective effects on bone metabolism. BMD had stronger association with serum leptin than serum estradiol levels and it indicated that serum leptin might have more important contribution in bone metabolism in postmenopausal women.

KEY WORDS
obese postmenopausal women, osteoporosis, leptin, estradiol, BM

OA-GE-05

THE PERFORMANCE OF PREDICTIVE INDEX FOR OSTEOPOROSIS (PIO) AND OSTEOPOROSIS SELF-ASSESSMENT TOOL FOR ASIANS (OSTA) AS A CLINICAL TOOL FOR IDENTIFYING THE RISK OF OSTEOPOROSIS IN ADULTS

https://doi.org/10.15605/jafes.034.02.S67

Lyza Camille Gadong, Monica Therese Cabral, Maria Leonora Capellan, Nerissa Ang-Golangco
Section of Endocrinology, Diabetes and Metabolism, Department of Internal Medicine, Makati Medical Center

INTRODUCTION
A new clinical tool, the Predictive Index for Osteoporosis in Men (PIO) which includes current smoking status has been recently developed to identify the risk of osteoporosis in men under 70 years old[7].

OBJECTIVES
To compare the performance of Predictive Index for Osteoporosis (PIO) with Osteoporosis Self-Assessment Tool for Asians (OSTA) as a clinical tool for identifying the risk of osteoporosis in Filipino men 50–69 years of age and Filipino women 50–65 years of age.

METHODOLOGY
This was an analytic study that employed a cross sectional approach that included Filipino men and women seen at the Outpatient Charity Department or at the private clinics and who underwent DXA. All the subjects completed a structured questionnaire and their weight and height were obtained, from which their PIO and OSTA scores were computed.

RESULTS
A total of 81 patients were included in the study. Patients diagnosed with osteoporosis on DXA was found to have a lower BMI at less than 21. OSTA has an area under the curve of 0.712 which turns out to be significant (p=.0004), with a calculated likelihood ratio of 1.64. The ROC of PIO showed that the optimal cut off is >0.962 and the calculated likelihood ratio that this patient may have osteoporosis is 1.38. Comparing the sensitivity and specificity, the resulting p value of 0.2728 denotes that the AUC curve of the two tools is not significantly different.

CONCLUSIONS
PIO has similar sensitivity and specificity to OSTA in predicting the risk for osteoporosis in Filipino men and women.

KEY WORDS
osteoporosis, OSTA

OA-GE-06

PREVALENCE AND IMPACT OF METABOLIC SYNDROME ON HOSPITAL OUTCOMES AMONG PATIENTS WITH ACUTE MYOCARDIAL INFARCTION IN OSPITAL NG MAKATI

https://doi.org/10.15605/jafes.034.02.S68

Jenny Lyn Mangulabnan and Jonathan Bernardo
Department of Internal Medicine, Ospital ng Makati, Philippines

INTRODUCTION
Each component of the metabolic syndrome raises the risk of coronary artery disease. Several studies among different ethnic groups showed a 26-66% prevalence of metabolic syndrome among patients with acute myocardial infarction (AMI). However, varying results were reported regarding its impact on various hospital outcomes. This study aims to ascertain the prevalence of metabolic syndrome among Filipino patients with acute myocardial infarction and study its impact on mortality, reinfarction, arrhythmia, heart failure and length of hospital stay.

METHODOLOGY
We conducted a cross sectional study among adult patients with acute myocardial infarction in Ospital ng Makati from March 2018 - Aug 2018. We classified patients with AMI as having metabolic syndrome based on the NCEP: ATP III 2001 and Harmonizing Definition criteria. We collected information on in-hospital outcomes such as Killip score, length of hospital stay, mortality, reinfarction and arrhythmia.

RESULTS
A total of 133 patients were included in this study. About 65% or 87/133 of the patients with AMI had metabolic syndrome. Patients with metabolic syndrome were mostly females, had larger waist circumference, higher fasting triglyceride, higher fasting blood sugar, and almost all were hypertensive. On the other hand, age, type of AMI, and HDL cholesterol level did not significantly differ between the two groups. The odds of dying among those with metabolic syndrome was 15% higher than among those without the syndrome. Furthermore, patients with metabolic syndrome were 2.5 and 1.1 times more likely to experience reinfarction and arrhythmia, respectively, than those without. However, all the odds ratios were not significant at the 0.05 significance level.

CONCLUSION
Our study confirmed the high prevalence of metabolic syndrome among Filipino patients with AMI. The most common component of MetS was hypertension while the least common component was hypertriglyceridemia. Although not statistically significant at alpha 0.05, metabolic syndrome is associated with severe heart failure, higher mortality rate, reinfarction and arrhythmia among patients with AMI.

KEY WORDS
metabolic syndrome, acute myocardial infarction, cross-sectional study

OA-GE-07

THE DIFFERENCES IN INTERLEUKIN-6 LEVELS AND MEAN PLATELET VOLUME BETWEEN NON-ALCOHOLIC FATTY LIVER DISEASE AND NON NAFLD GROUPS IN YOUNG SUBJECTS WITH CENTRAL OBESITY

https://doi.org/10.15605/jafes.034.02.S69

Nancy Lestari,[1] Linda Rotty,[2] Nelly Tendean,[3] Frans Wantania,[4] Jonathan Arifputra[1]

[1]Department of Internal Medicine, Sam Ratulangi University, Manado, North Sulawesi, Indonesia

[2]Department of Internal Medicine, Hematology Oncology Medic Division, Sam Ratulangi University, Manado, North Sulawesi, Indonesia

[3]Department of Internal Medicine, Gastroenterology Hepatology Division, Sam Ratulangi University, Manado, North Sulawesi, Indonesia

[4]Department of Internal Medicine, Cardiology Division, Sam Ratulangi University, Manado, North Sulawesi, Indonesia

INTRODUCTION

Obesity is one of the major risk factors of metabolic diseases such as NAFLD. Proinflammatory cytokines played specific role in the incidence of NAFLD. IL-6 influences megakaryocyte maturation and platelet size, which is measured as mean platelet volume (MPV). The purpose was to determine the difference in IL-6 and MPV levels between NAFLD and non NAFLD groups in central obesity.

METHODOLOGY

This research was a comparative analytic with cross sectional study conducted in May 2018 - July 2018. Samples were taken sequentially based on inclusion criteria. Serum IL-6 was examined by ELISA, reagent kit R&D System Inc. MPV was examined by Sysmex XN-2000-1-flR. NAFLD was diagnosed by abdominal ultrasound.

RESULTS

This study included 40 samples, with mean age 30±5 years old, including 28 people (70%) who experienced NAFLD. Subjects had mean waist circumference of 99.08±8.42 cm and mean BMI of 28.35±3.59 cm. The difference in mean IL-6 levels between NAFLD and non NAFLD groups was 2.27±1.08 pg/mL vs 1.21±0.25 pg/mL (p = 0.002). While the mean difference in MPV in the NAFLD and non-NAFLD groups was 10.19±0.82 fL vs 9.39±0.66 fL (p = 0.005). IL-6 plays an important role in the acute inflammatory response, include inducing liver to synthesize other inflammatory mediators. IL-6 affects the maturation of megakaryocytes, causing larger platelets to be released into the blood circulation.

CONCLUSION

There was a significant difference between IL-6 and MPV levels in NAFLD group compared with non NAFLD group in central obesity.

KEY WORDS

central obesity, NAFLD, IL-6, MPV

OA-GE-08

ANGIOPOIETIN-LIKE GROWTH FACTOR CONTROLS APPETITE VIA LEPTIN SIGNALING

https://doi.org/10.15605/jafes.034.02.S70

Jun Young Heo,[1,2,3,4] Yunseon Jang,[1,2,3] Soo Jeong Kim,[1,2,3] Min Joung Lee,[1,2,3] Min Jeong Ryu,[1,2,5] Jong Il Park, Gi Ryang Kweon[1,2,5]

[1]Department of Biochemistry, Chungnam National University School of Medicine, Daejeon South Korea

[2]Department of Medical Science, Chungnam National University School of Medicine, Daejeon South Korea

[3]Infection Control Convergence Research Center, Chungnam National University School of Medicine, Daejeon South Korea

[4]Brain Research Institute, Chungnam National University School of Medicine, Daejeon South Korea

[5]Research Institute for Medical Science, Chungnam National University School of Medicine, Daejeon, South Korea

INTRODUCTION

Hypothalamic regulation of appetite governs whole-body energy balance. Satiety is regulated by endocrine factors, including leptin, and impaired leptin induction causes obesity. Angiopoietin-like growth factor (AGF) promotes energy expenditure in the periphery, and systemic reconstitution of AGF antagonizes obesity. However, whether hypothalamic AGF plays a role in controlling food intake remains unknown.

METHODOLOGY

Immunofluorescence staining was used to identify the intensity of AGF and leptin signaling in the hypothalamus. In addition, to verify the function of AGF in the hypothalamus, we used stereotaxic intracerebroventricular injection with recombinant AGF.

RESULTS
We demonstrated that AGF is expressed in proopiomelanocortin (POMC)-positive neurons located in the arcuate nucleus (ARC) of the hypothalamus. AGF expression was stimulated by leptin-induced STAT3 phosphorylation. Notably, intracerebroventricular injection of AGF significantly reduced food intake by stimulating phosphorylation of CREB in the POMC and increasing α-melanocyte-stimulating hormone (α-MSH) content in the hypothalamus. We also found that hypothalamic injection of AGF significantly suppressed food intake and decreased body weight in high-fat-diet–induced obese mice, which exhibit leptin insensitivity.

CONCLUSION
Collectively, our findings demonstrate that hypothalamic AGF provokes the anorectic melanocortin pathway and mediates leptin signaling to prevent obesity.

KEY WORDS
Obesity, AGF, Hypothalamus, Leptin signaling

OA-GE-09

DETERMINANTS OF INSULIN RESISTANCE AMONG PEOPLE LIVING IN A RURAL AREA OF INDONESIA

https://doi.org/10.15605/jafes.034.02.S71

Dicky Levenus Tahapary,[1,2] Dante Saksono Harbuwono,[1,2] Pradana Soewondo,[1,2]
[1]*Division of Metabolism and Endocrinology, Department of Internal Medicine, Dr. Cipto Mangunkusumo National General Hospital, Faculty of Medicine Universitas Indonesia*
[2]*Metabolic, Cardiovascular and Aging Cluster, The Indonesian Medical Education and Research Institute, Faculty of Medicine Universitas Indonesia*

INTRODUCTION
Worldwide prevalence of obesity has increased rapidly, of which the main driver is the rising of body weight among people living in the rural area. While obesity is one of the main risk factors for the development of type 2 diabetes (T2DM), in a rural area, other environmental factors might also play a role. This study aims to assess the determinants of insulin resistance (IR), the main pathogenesis of T2DM, among people living in a rural area of Indonesia.

METHODOLOGY
We analyzed the baseline data of the Sugarspin study (n=1669) which was conducted in Nangapanda, Flores Island, Indonesia. The influence of each risk factors to HOMA-IR, was analyzed using linear regression analysis.

RESULTS
The prevalence of IR was 27.8% and 28.2% for men and women respectively. Increasing BMI and waist circumference were associated with increasing IR. Increasing age was also associated with increasing IR, however, in men after the age of 55, further increment in age was not associated with increasing IR. Progressive increase in BMI was observed until the age of 40, which then plateau until the age of 55, and then decline afterward. Interestingly, helminth infection was independently associated with a lower IR.

CONCLUSION
In a rural area, the main determinant of IR was similar to the one we observed in an urban area, which is obesity. However, the more prevalent infectious disease in a rural area might also directly or indirectly influence IR by its impact on obesity or other factors which need to be elucidated further.

KEY WORDS
insulin resistance, determinants, Indonesia, obesity, environments, rural

OA-GE-10

ASSOCIATION OF BODY MASS INDEX AND ALL CAUSE MORTALITY IN A TERTIARY REGIONAL HOSPITAL

https://doi.org/10.15605/jafes.034.02.S72

Lei Anne Carolino, Maria Luisa Arkoncel, Misael Cruz
Jose B. Lingad Memorial Regional Hospital, San Fernando, Pampanga, Philippines

INTRODUCTION
This study is conducted to provide further clinical evidence to determine whether there is a significant association between body mass index and all-cause mortality risk. At present, there are no existing studies done in the Philippines regarding exploring BMI as risk factor for mortality among patients with existing illnesses.

METHODOLOGY
This prospective cohort study was conducted from September 2016 until September 2017. Analysis of BMI and mortality was done and logistic regression was performed to determine confounding variables.

RESULTS
There was a significant association between BMI and mortality. Among the 700 cases, 26% were underweight, 26% overweight, and 21% pre-obese (p<0.0001) while in logistic regression, odds of mortality is higher in patients who were obese class I (OR 10.50 CI 4.25-25.95), obese type II (OR 7.85 CI 3.93-15.70), and underweight (OR 6.76 CI 3.37-13.58). Mortality risk is increased when the patients were cigarette smokers (OR 1.27 CI 1.05-1.53), had upper gastrointestinal bleeding (OR 3.55 CI 2.34-5.38), chronic obstructive pulmonary disease (OR 0.30 CI 0.15-0.60), coronary artery disease (OR 0.04 CI 0.02-0.08), pneumonia (OR 1.67 CI 1.12-2.49), and cerebrovascular disease (OR 0.04 CI 0.02-0.08).

CONCLUSION
The patients' BMI is associated with all-cause mortality. Furthermore, the risk of mortality is increased further by intervening factors of body mass index such as patients' lifestyle and type of co-existing diseases. Mortality risk among underweight patients is increased by tobacco consumption as well as having related diseases such as upper gastrointestinal bleeding, chronic obstructive pulmonary disease, and pneumonia while obesity mortality risk could occur among those with concurrent coronary artery disease and cerebrovascular disease.

KEY WORDS
Body Mass Index, all-cause mortality, obesity, underweight

OA-GE-11

EFFECTIVENESS OF HEALTHY FOODIE NUTRITION GAME APPLICATION AS REINFORCEMENT INTERVENTION TO STANDARD NUTRITION EDUCATION OF SCHOOL-AGED CHILDREN: A RANDOMIZED CONTROLLED TRIAL

https://doi.org/10.15605/jafes.034.02.S73

Florence Rochelle Gan[1], Elaine Cunanan[1], Rebecca Castro[2]
[1] *Section of Endocrinology, Department of Internal Medicine, University of Santo Tomas Hospital, Philippines*
[2] *Section of Gastroenterology, Department of Pediatrics, University of Santo Tomas Hospital, Philippines*

**Full paper published in the Journal of ASEAN Federation of Endocrine Societies, Vol. No 34, Issue 2.*

INTRODUCTION
Games promoting nutrition education are helpful tools to improve nutrition knowledge. Healthy Foodie is an interactive web-based nutrition game for Filipino children. This study aimed to determine the effectiveness of Healthy Foodie on the nutrition knowledge of 7 to 10-year-old children.

METHODOLOGY
This was a randomized controlled trial conducted in two schools in Manila. This study had two phases. Phase one was the development and validation of the Healthy Foodie nutrition game application and Nutrition Knowledge Questionnaire involving 46 participants. The Nutrition Knowledge Questionnaire was composed of two 15-item questionnaires, namely: Food Group Knowledge questionnaire and Food Frequency Knowledge questionnaire. The Healthy Foodie game included topics on the three basic food groups, Filipino food plate, traffic light food groups, and food pyramid. Prior to each game play, a short discussion on the significance and examples of each food group was given.

Phase two was the implementation of the game and questionnaire involving 360 participants. Both the control and the experimental groups took the posttest Nutrition Knowledge Questionnaire one week after completion of the pretest and/or Healthy Foodie Nutrition Game Application.

RESULTS
For phase 1, internal consistency of the questionnaire using the Kuder-Richardson Formula 20 was 0.75 for part 1 and 0.70 for part 2.

In phase 2, comparing the adjusted posttest mean Food Group Knowledge scores, there was statistically higher score (F=111.84, p=0.0001) in the experimental (11.57±0.20) than the control (8.51±0.20). In the adjusted posttest mean Food Frequency Knowledge scores, there was a statistically higher score (F=56.12, p=0.0001) in the experimental (10.70±0.15) than the control (9.07±0.15).

CONCLUSION
A nutrition game-based intervention such as Healthy Foodie is effective as a reinforcement intervention to previous standard nutrition education of school-aged children.

KEY WORDS
Healthy Foodie, nutrition, health education, video games, nutrition questionnaire

OA-GE-12

EFFECT OF WEIGHT LOSS ON PHYSICAL FUNCTION MEASURED BY THE 6-MINUTE WALKING DISTANCE TEST IN INDIVIDUALS WITH OBESITY: RESULTS FROM THE SCALE IBT TRIAL OF LIRAGLUTIDE 3.0 mg

https://doi.org/10.15605/jafes.034.02.S74

Cyrus Pasamba and Mercerose Puno
Novo Nordisk Pharmaceuticals (Philippines), Inc.

INTRODUCTION
The SCALE IBT trial (NCT02963935) was a 56-week, randomized, double-blind, US-based multicenter trial of liraglutide 3.0 mg vs placebo, with intensive behavior therapy (IBT) (i.e., reduced calorie intake, increased physical activity [max target: 250 min/week], and 23 counseling) in both arms. The secondary endpoint was the change in 6-minute walking distance (6MWD), a test for walking capacity measured by total distance walked along a 20-m marked walkway over 6 minutes.

METHODOLOGY
For the trial, individuals aged ≥18 y with a BMI ≥30 kg/m^2 and without diabetes were randomized 1:1 to IBT plus liraglutide 3.0 mg or placebo.The change in body weight and 6MWD from baseline to week 56 was calculated using ANCOVA. Linear regression was used for the correlation analysis of the association between 6MWD and BMI. There were 282 randomized individuals in the full analysis set (47 y, 17% male, BMI 39 kg/m^2).

RESULTS
At 56 weeks, mean weight loss was 7.5% with liraglutide 3.0 mg and 4.0% with placebo, estimated treatment difference (ETD[95% CI] 3.5% [1.6, 5.3]; p=0.0003). Improvement in 6MWD was 49.5 m vs. 46.4 m, from a mean baseline of 439 m (ETD [95% CI] 3.1 [-12.7, 18.9]; p=0.70). Linear regression of baseline 6MWD vs. baseline BMI showed that on average an individual with a BMI that was 1 kg/m^2 lower compared to another individual was able to walk 4.9 m longer in 6 minutes (slope [95% CI] -4.9 m/(kg/m^2) [-6.2, -3.6]; p<0.0001).

CONCLUSION
This *post-hoc* analysis showed that greater weight loss was associated with greater improvements in 6MWD in a linear manner, indicating gains in walking capacity.

KEY WORDS
liraglutide, scale, IBT

OA-GE-13

WEIGHT LOSS WITH LIRAGLUTIDE 3.0 mg VERSUS PLACEBO FOR INDIVIDUALS WHO ADHERE TO THE TRIAL DRUG: A SECONDARY ANALYSIS FROM SCALE IBT

https://doi.org/10.15605/jafes.034.02.S75

Jena Shaw Tronieri,[1] Thomas Wadden,[1] Danny Sugimoto,[2] Michael T Lund,[3] Pernille Auerbach,[3] Lars Endahl,[3] Domenica Rubino,[4] Cyrus Pasamba[5]
[1]*Department of Psychiatry, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA, USA*
[2]*Cedar Crosse Research Center, Chicago, IL, USA*
[3]*Novo Nordisk A/S, Søborg, Denmark*
[4]*Washington Center for Weight Management and Research, Arlington, VA, USA*
[5] *Novo Nordisk Pharmaceuticals (Philippines), Inc.*

INTRODUCTION
The objective of the SCALE IBT trial was to compare the weight loss of liraglutide 3.0 mg to placebo, both in combination with 56 weeks of intensive behavior therapy (IBT). The primary outcomes of the study were assessed in the intention-to-treat sample, regardless of individuals' medication adherence. The weight loss estimated in the primary analysis, regardless of drug adherence, was 7.5% versus 4.0% for liraglutide 3.0 mg and placebo, respectively, reflecting a treatment difference favoring liraglutide 3.0 mg of 3.5% (95% CI: 1.6%; 5.3%; p=0.0003). In this pre-specified secondary analysis, we sought to determine the expected effect of liraglutide 3.0 mg on weight loss, as compared to placebo, if all randomized individuals had adhered to study drug for 56 weeks.

METHODOLOGY
A total of 282 individuals with obesity (BMI ≥30 kg/m^2) were randomized in a 1:1 ratio to 56 weeks of IBT combined with daily injections of either liraglutide 3.0 mg or placebo. The weight loss, based on the assumption that all individuals adhered to the medication, was estimated using two different approaches. The first approach (mixed model repeated measures; MMRM) estimated the weight loss that would have been achieved if all individuals adhered to the trial drug by utilizing information from individuals still on drug after the point of a given individual's discontinuation to provide a (counter-factual) weight change as if the individual in question had not discontinued the drug. The second (covariate) approach used a regression model to calculate the weight change of individuals with full adherence to trial drug by including adherence as a moderator of the effect of treatment condition on weight change.

RESULTS AND DISCUSSION
The MMRM approach yielded a weight loss difference of 4.6% (95% CI: 2.6%; 6.5%; $p<0.0001$), and the covariate approach yielded a weight loss difference of 4.6% (95% CI: 2.8%; 6.5%; $p<0.0001$), with both estimates favoring liraglutide 3.0 mg.

CONCLUSION
The estimated placebo-subtracted weight loss for liraglutide at week 56 of approximately 4.6% in medication-adherent individuals therefore indicates that underlying assumptions are robust. We believe this finding is an important supplement to the study's primary outcome and can inform practitioners' expectations when prescribing liraglutide 3.0 mg in combination with IBT for 56 weeks.

KEY WORDS
liraglutide, obesity, weight loss, scale-IBT

OA-GE-14

EARLY RESPONDERS TO LIRAGLUTIDE 3.0 mg AS ADJUNCT TO DIET+EXERCISE FROM THE SCALE MAINTENANCE TRIAL

https://doi.org/10.15605/jafes.034.02.S76

Louis Aronne,[1] Boris Stevenin,[2] Cecilie Jepsen,[3] Sean Wharton,[4] Ahsan Shoeb[5]
[1]*Weill Cornell Medicine, New York, NY, USA*
[2]*Novo Nordisk Inc, Plainsboro, NJ, USA*
[3]*Novo Nordisk, Søborg, Denmark*
[4]*Wharton Medical Clinic, Weight and Diabetes Management, Hamilton, Canada*
[5]*Novo Nordisk Pharmaceuticals (Philippines), Inc.*

INTRODUCTION
The SCALE Maintenance trial randomized adults with obesity (BMI ≥30 kg/m²) or overweight (BMI ≥27 kg/m²) + comorbidities who lost ≥5% of initial body weight (BW) during a 4–12-week low calorie diet (1200–1400 kcal/day) run-in period (mean weight loss [WL]: 6.0%) prior to randomization to liraglutide 3.0 mg or placebo as an adjunct to diet and exercise.

METHODOLOGY
This *post-hoc* analysis of SCALE Maintenance compared outcomes in liraglutide 3.0 mg early responders vs. early non-responders (definition: ERs vs. ENRs; ≥4% vs. <4% WL at week 16 post-randomization). Efficacy outcomes are observed means or proportions for those completing 56 weeks' treatment. The safety analysis set is used for adverse events (AEs).

RESULTS AND DISCUSSION
Mean characteristics at randomization (n=212) for liraglutide 3.0 mg were: 46 years old, 84% female, BMI 36 kg/m². Of those completing 56 weeks' treatment, (n=159); 118 (74.2%) were ERs to liraglutide 3.0 mg and 41 (25.8%) ENRs. At week 56, mean WL was -9.2% in ERs vs. +0.3% in ENRs in addition to run-in WL. 89.8% of ERs maintained run-in weight loss (or lost further weight) during 56 weeks vs. 41.5% of ENRs. The percentage of those who regained all run-in WL by week 56 was 0.0% for ERs vs. 4.9% for ENRs. Percent achieving ≥5%, >10% or >15% WL at week 56 was 66.9%, 43.2% and 18.6% for ERs vs. 14.6%, 0.0%, and 0.0% for ENRs. ERs had greater change in mean waist circumference: -7.3 cm vs. +0.3 cm in ENRs. Changes in systolic/diastolic blood pressure were -0.2/+1.9 mmHg in ERs vs. -0.3/+1.6 mmHg in ENRs. Changes in HbA_{1c} in ERs and ENRs were: -0.2% and -0.1% and fasting plasma glucose: -0.5 and -0.6 mmol/L. ERs with AEs was 91.2% vs. 94.3% for ENRs. Serious AEs were 4.4% vs. 0.0% and gastrointestinal AEs 78.1% vs. 60.4% for ERs vs. ENRs, respectively.

CONCLUSION
Among those who completed 56 weeks' treatment on liraglutide 3.0 mg, a greater additional WL of -9.2% was observed for ERs vs. +0.3% for ENRs, with a similar proportion experiencing AEs.

KEY WORDS
scale-maintenance, liraglutide, early responders, obesity

OA-GE-15

OUTCOMES IN EARLY RESPONDERS ACHIEVING ≥5% WEIGHT LOSS AT 16 WEEKS WITH LIRAGLUTIDE 3.0 mg AS AN ADJUNCT TO INTENSIVE BEHAVIOUR THERAPY (IBT) IN INDIVIDUALS WITH OBESITY IN THE SCALE IBT TRIAL

https://doi.org/10.15605/jafes.034.02.S77

Thomas Wadden,[1] Pernille Auerbach,[2] Lars Endahl,[2] Jena Shaw Tronieri,[1] Dorthe Skovgaard,[2] Danny Sugimoto,[3] Domenica Rubino,[4] Ahsan Shoeb[5]

[1]Department of Psychiatry, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA, USA
[2]Novo Nordisk A/S, Søborg, Denmark
[3]Cedar Crosse Research Center, Chicago, IL, USA
[4]Washington Center for Weight Management and Research, Arlington, VA, USA
[5] Novo Nordisk Pharmaceuticals (Philippines), Inc.

INTRODUCTION

The SCALE IBT study demonstrated the overall efficacy of liraglutide 3.0 mg for weight reduction as an adjunct to IBT. The present analysis explored the effect of intervention in the subgroup of liraglutide-treated individuals categorized as early responders (ER) who lost ≥5% at week 16. This subgroup corresponded to individuals that would have been eligible to continue treatment after 16 weeks in a real-world clinical setting.

METHODOLOGY

The 56-week SCALE IBT trial randomized adults with obesity (BMI ≥30 kg/m²) and without diabetes to liraglutide 3.0 mg or placebo as an adjunct to a Centers for Medicare & Medicaid Services-based programme of IBT (CMS-IBT), including prescribed exercise (escalating to 250 min/week) and diet (1200–1800 kcal/day). This exploratory *post-hoc* analysis assessed the proportion of liraglutide-treated individuals categorized as ER and describes their outcomes after 56 weeks of treatment.

RESULTS AND DISCUSSION

Mean characteristics at randomisation (n=142) for liraglutide 3.0 mg-treated individuals were: 45.4 years old, 83.8% females, 109 kg, BMI 39.3 kg/m². At 16 weeks, 66.9% of these had achieved ≥5% weight loss. At 56 weeks, mean weight reduction in this ER subgroup was 10.4%, with 79.9% and 44.2% of this subset achieving weight loss ≥5% and ≥10%, respectively, and 88.4% of this subset still on drug. Other secondary outcomes are shown in the table. Adverse events were similar in the ER subset to the overall trial population, the most frequent adverse events were gastrointestinal events reported for 74.7% in the ER subset as compared with 71.1% in the overall liraglutide group and 48.6% in the overall placebo group.

CONCLUSION

More than two-thirds of people with obesity receiving liraglutide 3.0 mg as an adjunct to IBT were eligible for long-term treatment according to the EMA prescribing information. Of these, the majority continued on therapy to 56 weeks achieving clinically relevant reductions in body weight.

KEY WORDS

intensive behavior therapy, liraglutide, early responders, obesity, scale-IBT

OA-GE-16

THE MODIFIED FERRIMAN-GALLWEY SCORE AND HIRSUTISM AMONG FILIPINO WOMEN

https://doi.org/10.15605/jafes.034.02.S78

Ma. Karen Celine Ilagan,[1] Elizabeth Paz-Pacheco,[1] Darwin Totesora,[1] Lyra Ruth Clemente-Chua,[2] Jundelle Jalique[3]

[1]Section of Endocrinology, Diabetes, & Metabolism, The Medical City, Pasig City, Philippines
[2]Section of Gynecologic Ultrasound, Department of Obstetrics and Gynecology, The Medical City, Pasig City, Philippines
[3]Clinical and Translational Research Institute, The Medical City, Pasig City, Philippines

INTRODUCTION

The modified Ferriman-Gallwey (mFG) score is the gold standard in the clinical evaluation of hirsutism, a common manifestation of hyperandrogenism. Racial variations in terminal hair growth limit this tool. Ideally, race-specific mFG scores for hirsutism should be established. This study aimed to determine the mFG cut-off score among Filipino women and its association with biochemical hyperandrogenism.

METHODOLOGY

A total of 128 Filipino females were included in this prospective cross-sectional study and divided into 2 groups: PCOS (n=28) and non-PCOS (n=100). Polycystic ovary syndrome (PCOS) was diagnosed using the 2003 Rotterdam Criteria while non-PCOS subjects were healthy controls conveniently sampled from the general population. They underwent mFG score determination, ovarian ultrasound by a single sonographer, and hormone testing. The mFG cut-off score was determined based on the 95th percentile in the non-PCOS group. Logistic regression was used to analyze the relationship of the determined mFG score with biochemical hyperandrogenism.

RESULTS
Normal values of the total mFG score is between 0 and 7. Using a cut-off score of 7, a higher proportion of hirsute women were observed in the PCOS group (17.9% vs. 5.0%, *p*=0.025). Elevated calculated free testosterone (cFT) was also significantly associated with hirsutism (odds ratio, 5.9; 95% CI, 1.4 – 23.8; *p*=0.013).

CONCLUSION
A score of 7 and above represents hirsute women in this population. Hirsute women are more likely to have elevated cFT.

KEY WORDS
hirsutism, hyperandrogenism, modified Ferriman-Gallwey score

OA-GE-17

DELAYED PUBERTY AND INSULIN-LIKE GROWTH FACTOR-I IN THALASSEMIA MAJOR AND THALASSEMIA INTERMEDIA ADOLESCENTS: A COMPARATIVE STUDY

https://doi.org/10.15605/jafes.034.02.S79

Win-Yu Aung, Thae-Nu Htwway, Myat Thandar, Ohn Mar
Department of Physiology, University of Medicine 1, Pyay Campus, Yangon, Myanmar

INTRODUCTION
Delayed puberty, a common endocrine complication, is well-recognized in thalassemic adolescents. Evaluation of delayed puberty has been done in both thalassemia major (TM) and thalassemia intermedia (TI) patients but comparative study between them is still limited. Emerging evidence suggests that insulin-like growth factor-I (IGF-I) could have an influence on pubertal development. Therefore, this study aimed to determine and compare delayed puberty and serum IGF-I levels between thalassemic adolescents with different phenotypes.

METHODOLOGY
A total of 82 thalassemic adolescents (13-17 years), 24 with TM and 57 with TI, attending Day Care Center, Yangon Children Hospital, participated. Delayed puberty was defined as lack of breast development by age of 13, lack of pubic hair by 14, lack of menarche by 16 in female patients and no testicular enlargement by 14, lack of pubic hair by 15 or more in male patients. Fasting serum IGF-I concentrations were determined by ELISA method.

RESULTS
There was no significant difference in IGF-I concentrations between TM and TI adolescents (*P*=0.51). Nineteen (79.2%) of TM patients and 52 (91.2%) of TI patients showed delayed puberty. Median IGF-I concentration of TM patients with delayed puberty was significantly lower (*P*=0.004) than those without whereas, for TI patients, no significant difference (*P*=0.59) was seen.

CONCLUSION
A higher percentage of delayed puberty was noted in TI adolescents when compared with TM ones. Circulating IGF-I may play a role in delayed puberty of TM adolescents whereas, in TI adolescents, delayed puberty might not be related to IGF-I level.

KEY WORDS
delayed puberty, insulin-like growth factor-i, thalassemic adolescents

OA-GE-18

REPRODUCTIVE OUTCOMES FOLLOWING CHILDHOOD HEMATOPOIETIC STEM CELL TRANSPLANTATION: SUCCESSFUL PREGNANCIES AND 40 CHILDREN BORN TO 25 OF 180 ADULT LONG-TERM SURVIVORS

https://doi.org/10.15605/jafes.034.02.S80

Marta Šnajderová,[1] Petra Keslova,[2] Renata Formankova,[2] Petr Riha,[2] Petr Sedlacek,[2]
Jan Stary[2]
[1]Department of Pediatrics, 2nd Faculty of Medicine and University Hospital Motol, Prague, Czech Republic
[2]Department of Pediatric Hematology and Oncology, 2nd Faculty of Medicine and University Hospital Motol, Prague, Czech Republic

INTRODUCTION
Gonadal insufficiency and infertility are amongst the most frequent and emotionally sensitive late complications following hematopoietic stem cell transplantation (HSCT). So far little is known about reproductive outcomes following childhood HSCT.

METHODOLOGY
Successful pregnancies/births were evaluated amongst 180 adult long-term survivors following HSCT, transplanted at median age 15.5 (range 8.0–19.9) years.

RESULTS

So far 25/180 (14%) subjects (males=14; females=11) 10.4 (2.5-24.0) years after HSCT became parents (n=20 biological) of 40 children (n=34 in term). Primary diagnosis at HSCT was: Severe aplastic anemia (SAA; n=12), acute lymphoblastic (ALL; n=6), acute myeloid (AML; n=1) and chronic myeloid (CML; n=3) leukemia, myelodysplastic syndrome (MDS; n=3). Spontaneous conception with 28 children reached 16 subjects (males=9), 5/7 females still spontaneously menstruating. SAA received cyclophosphamide only (males=7; females=5). Two males (MDS and ALL) had full myeloablative dose of busulphan during conditioning, 2 females (MDS and CML with hormonal replacement) spontaneously conceived following previously unsuccessful assisted reproduction (ART), one after total body irradiation 14.4 Gy (probably residual oocyte reserve and ovarian hyperstimulation). After ART, remaining 9/25 subjects became parents (n=4 biological) of 12 children (n=2 males cryopreserved sperm; n=2 males TESE; n=1 male donor sperm; n=4 females donor oocytes).

CONCLUSION

The ability to have offspring significantly affects the quality of life after HSCT. At the peritransplant care, fertility issues, pregnancy outcome and the possibility of fertility preservation must be routinely discussed. Better knowledge of pregnancy rate in pediatric population following HSCT will require more data. Very limited data is available on frequency of abortions.

KEY WORDS

children, HSCT, offsprings

Prediabetes / Diabetes Mellitus / Hypoglycemia

CR-D-37

ERUPTIVE XANTHOMA IN A YOUNG ADULT MALE WITH SEVERE DYSLIPIDEMIA AND NEWLY DIAGNOSED TYPE 1 DIABETES

https://doi.org/10.15605/jafes.034.02.S81

Ma. Jean Capulong Linsao and Mary Jane Gutierrez-Benavidez
Department of Internal Medicine, Bulacan Medical Center, Malolos, Bulacan, Philippines

INTRODUCTION
Eruptive xanthomas are multiple, red-yellow papules that appear in crops on the extensor surface of the extremities and the buttocks and are pathognomonic skin manifestations of severe hypertriglyceridemia, especially in patients with newly diagnosed or decompensated diabetes mellitus. In the Philippines, there are no nationwide prevalence or incidence studies on Type 1 Diabetes, particularly those in association with dyslipidemia and eruptive xanthoma formation

CASE
This report provides a comprehensive view of the unusual case of an adult male, who was managed as a case Eruptive Xanthoma secondary to Dyslipidemia and Type 1 Diabetes.

CONCLUSION
This case recognizes the importance of prompt awareness and recognition of eruptive xanthoma and its association with dyslipidemia, and newly diagnosed or decompensated diabetes mellitus to help prevent its serious complications with timely evaluation and therapy, and consequently decrease morbidity and mortality.

KEY WORDS
eruptive xanthoma, dyslipidemia, type 1 diabetes mellitus

CR-D-38

DIABETIC KETOACIDOSIS (DKA)-ASSOCIATED HEMICHOREA-HEMIBALLISM IN TYPE 2 DIABETES MELLITUS: AN UNCOMMON EVOLVING CONDITION FROM NON-KETOTIC HYPERGLYCEMIA TO DIABETIC KETOACIDOSIS

https://doi.org/10.15605/jafes.034.02.S82

Yotsapon Thewjitcharoen, Nopparath Tongpoo, Veekij Veerasomboonsin, Tawee Anuntakulnatee, Soontaree Nakasatien, Sirinate Krittiyawong, Thep Himathongkam
Diabetes and Thyroid Center, Theptarin Hospital, Bangkok, Thailand

INTRODUCTION
Non-ketotic hyperglycemic hemichorea-hemiballism is a well-known phenomenon in elderly patients who have poorly controlled type 2 diabetes mellitus (T2DM), typically in female Asians. Its occurrence as an evolving condition from non-ketotic hyperglycemia to diabetic ketoacidosis (DKA) is extremely uncommon.

CASE
A 79-year-old Thai woman with T2DM was transferred from a provincial hospital to our intensive care unit with urosepsis and abnormal movements in right arm and leg for 4 days. At the referral hospital, she had been admitted with uncontrolled hyperglycemia with the similar less severe right-sided abnormal movements. A plain cranial CT revealed bilateral basal ganglion calcification without hypodense lesions. However, she was diagnosed with lacunar stroke and abnormal movements subsided with supportive treatments. Two months later, she returned to the hospital with lethargy and abrupt onset of right-sided involuntary movements. She was diagnosed with non-ketotic hyperglycemia with a plasma glucose level of 343 mg/dL and glycated hemoglobin of 9.8%. Supportive treatment with subcutaneous insulin was given but her abnormal movements worsened. On arrival at our hospital, urosepsis-precipitated DKA was diagnosed with right-sided abnormal movements that were compatible with hemichorea-hemiballism. The non-contrast cranial CT revealed slightly increased attenuation at left putamen. DKA-associated hemichorea-hemiballism was suspected and her condition slowly improved over 2 months after resolution of DKA with strict glycemic control and anti-dopaminergic medications.

CONCLUSION
This case highlights the importance of considering: diabetic Striatophaty or hyperglycemia-induced hemichorea hemiballisim syndrome could be developed in both non-ketotic and ketotic conditions.

KEY WORDS
diabetic ketoacidosis, hemichorea, hemiballism

CR-D-39

SCROTAL PYOCELE ASSOCIATED WITH SODIUM-GLUCOSE CO-TRANSPORTER 2 INHIBITOR (SGLT2i): THE NEED FOR HIGH INDEX OF SUSPICION

https://doi.org/10.15605/jafes.034.02.S83

Yotsapon Thewjitcharoen, Nampetch Lekpittaya, Soontaree Nakasatien, Somsong Polchart, Suchart Chaimuangraj, Thep Himathongkam
Diabetes and Thyroid Center, Theptarin Hospital, Bangkok, Thailand

INTRODUCTION
Recent data showed that SGLT2i is linked with Fournier gangrene. Scrotal pyocele is a rare clinical condition often commonly associated with acute epididymo-orchitis. Previous evidence suggested potential risk of serious genitourinary infection in patients using SGLT2i. however, scrotal pyocele associated with SGLT2i has never been reported.

CASE
A patient with poorly-controlled type 2 DM on SGLT2i presented with acute scrotal pain.

CONCLUSION
Although rare, SGLT2i may result in serious genitourinary infection including scrotal pyocele. Clinicians must take great care when prescribing SGLT2i to elderly male patients with pre-existing hydrocele. Treatment requires broad-spectrum antibiotics and emergent surgical consultation to prevent testicular damage or Fournier gangrene.

KEY WORDS
SGLT2i, scrotum, pyocele, urinary tract infection

CR-D-40

QUADRUPLE TROUBLE: NUTRITIONAL MANAGEMENT OF A MULTIPLE GESTATION PREGNANCY IN A FILIPINO PRIMIGRAVID

https://doi.org/10.15605/jafes.034.02.S84

Angelique Bea Uy and Ma. Cecille Anonuevo-Cruz
Section of Endocrinology, Diabetes and Metabolism, Department of Medicine, Philippine General Hospital-University of the Philippines Manila

INTRODUCTION
Nutritional requirements among pregnant women vary according to pre-pregnancy bodyweight, BMI, trimester, and number of fetuses. Those bearing multiples require additional calories to promote adequate growth and development, and prevent pregnancy complications. We report the nutritional management of a 29-year-old Filipino primigravid bearing quadruplets on her 24th week age of gestation, admitted for preterm labor.

CASE
The patient was referred to Endocrinology service for sugar control while on dexamethasone therapy for fetal lung maturation, and nutritional upbuilding. She had histories of twin pregnancies from both her and her husband's sides of family. No family history of diabetes, PCOS, and glycosuria noted, nor was she overweight or obese on her pre-pregnant state. Only dexamethasone was noted as a medication the patient had that could affect carbohydrate metabolism.

CONCLUSION
The nutritional recipe prescribed was 3500 kcal daily with 40% carbohydrates, 40% protein, and 20% fat, achieving adequate interval growths for the foetuses. Multivitamin supplements were also given daily. Infants were delivered live at 31 weeks AOG, with birth weights 1100 g, 640 g, 720 g, and 835 g, respectively, all small for gestational age.

KEY WORDS
prediabetes / diabetes mellitus / hypoglyvemia

CR-D-41

EUGLYCAEMIC DIABETIC KETOACIDOSIS (DKA) IN A 21-YEAR-OLD PATIENT ON SGLT-2 INHIBITOR

https://doi.org/10.15605/jafes.034.02.S85

Khai Tong Tan
Mount Elizabeth Medical Centre, Singapore

INTRODUCTION
A 21-year-old lady with Type 2 Diabetes Mellitus for 2 years was on Empagliflozin, Linagliptin and Metformin for 10 months. She developed Euglycaemic Ketoacidosis after voluntarily going on a low carbohydrate diet for 3 days.

CASE
The patient was diagnosed to have Type 2 Diabetes Mellitus in 2016. She was well but not compliant with diet control. In Dec 2018, she was noted to have HbA1c of 9.3% and fasting Triglyceride was 13.06 mmol/L. For 3 days she decided to have a strict low calorie and low carbohydrate diet. She developed nausea and vomiting and was found to be in ketoacidosis. Euglycaemic Ketoacidosis was confirmed by blood glucose of 6.3 mmol/L; urine ketone positive 3+; blood ketone high; lactic acid normal; bicarbonate less than 10 mmol/L. She recovered after treatment with dextrose / insulin infusion.

CONCLUSION
More vigilance is required for patients on SGLT-2 inhibitors who may have to undergo fasting or periods of reduced food intake eg after surgery or procedures.

KEY WORDS
ketoacidosis, sglt-2 inhibitor, diet

CR-D-42

A SUCCESSFULLY TREATED CASE OF HYPEROSMOLAR HYPERGLYCEMIC STATE WITH RHABDOMYOLYSIS IN AN OBESE YOUNG MAN

https://doi.org/10.15605/jafes.034.02.S86

Kyujin Kim
Endocrinology Department, Che Ju Halla General Hospital, Korea

INTRODUCTION
Rhabdomyolysis is a syndrome caused by muscle breakdown which releases intracellular contents into the bloodstream. Rhabdomyolysis can be a life-threatening condition causing acute kidney injury and hyperosmolar hyperglycemic state in a diabetic patient.

CASE
A 30-year-old Korean male presented to the emergency department with bilateral lower extremity weakness and mental status changes. He had been recently experiencing fatigue, polyuria and polydipsia, as well as 6 kg weight loss over the past 3 days (120 kg, BMI 40.6). He was admitted to our intensive care unit due to impression of hyperosmolar hyperglycemic state combined with acute kidney injury.

CONCLUSION
Obese men with uncontrolled diabetes mellitus can be prone to rhabdomyolysis combined with a hyperosmolar hyperglycemic state. Delayed detection can be fatal, and timely renal replacement therapy can result in an excellent prognosis. Therefore, it is crucial for clinicians to detect and treat such patients as soon as possible to avoid impairing their renal function.

KEY WORDS
hyperosmolar hyperglycemic state, rhabdomyloysis, renal replacement therapy

CR-D-43

A RARE CASE OF CONCURRENT DIABETIC KETOACIDOSIS AND THYROID STORM IN PREGNANCY

https://doi.org/10.15605/jafes.034.02.S87

Cindya Klarisa Simanjuntak,[1] Dicky Levenus Tahapary,[2,3] Wismanandari Wisnu,[2,3] Dante Saksono Harbuwono[2,3]

[1]*Department of Internal Medicine, Dr. Cipto Mangunkusumo National General Hospital, Faculty of Medicine Universitas Indonesia*

[2]*Division of Metabolism and Endocrinology, Department of Internal Medicine, Dr. Cipto Mangunkusumo National General Hospital, Faculty of Medicine Universitas Indonesia*

[3]*Metabolic, Cardiovascular and Aging Cluster, The Indonesian Medical Education and Research and Institute, Faculty of Medicine Universitas Indonesia*

INTRODUCTION

Diabetes and thyroid disease are two closely associated disorders. Nevertheless, concurrent presence of diabetic ketoacidosis (DKA) and thyroid storm (TS) is rare, but life-threatening. In pregnancy, it may increase the risk of maternal and fetal complications.

CASE

Herein we present a 23-year-old pregnant woman in her 29 weeks of pregnancy who came to the emergency department with abdominal pain, nausea, and fever. Physical examination revealed tachycardia (>150 bpm), tachypnoea, and dehydration. Her initial laboratory work-up revealed high blood glucose, ketonemia, acidosis with high anion gap, and bacteriuria. Despite aggressive management for DKA, no apparent improvement was observed. Further examinations revealed hyperthyroxinemia and supressed TSH, which fulfilled the Burch Wartofsky score of 50 and TS 2 criteria according to Japan Thyroid Association diagnostic criteria for TS. She was then treated as thyroid storm and her clinical condition improved afterward.

CONCLUSION

The presence of persistent tachycardia despite DKA management lead us to the diagnosis of thyroid storm in this rare case of concurrent DKA and thyroid storm in pregnancy.

KEY WORDS

diabetic ketoacidosis, thyroid storm, pregnancy, concurrent

CR-D-44

CASE REPORT OF EARLY-DIABETES HYPOGLYCEMIA: LINK BETWEEN REACTIVE HYPOGLYCEMIA AND INSULIN RESISTANCE

https://doi.org/10.15605/jafes.034.02.S88

Oke Dimas Asmara,[1] Dicky Levenus Tahapary,[2,3] Wismandari Wisnu,[2] Em Yunir[2]

[1]*Department of Internal Medicine, Dr. Cipto Mangunkusumo National General Hospital, Faculty of Medicine Universitas Indonesia*

[2]*Division of Metabolism and Endocrinology, Department of Internal Medicine, Dr. Cipto Mangunkusumo National General Hospital, Faculty of Medicine Universitas Indonesia*

[3]*Metabolic, Cardiovascular and Aging Cluster, The Indonesian Medical Education and Research Institute, Faculty of Medicine Universitas Indonesia*

INTRODUCTION

Hypoglycemia rarely occurs in patients not being treated for diabetes mellitus. To this end, further investigation needs to be done to find the underlying cause of hypoglycemia, thus, determining appropriate treatment.

CASE

A 62-year-old man (weight: 46 kg, BMI: 18.8 kg/m^2) was referred for recurrent hypoglycemia within the last 4 months. There was no history of gastric bypass surgery nor consumption of hypoglycemic agent. Laboratory examination taken during a hypoglycemic episode (blood glucose of 40 mg/dL) revealed elevated serum insulin and C-peptide levels, which were 38.6 (NV 2.6-24.9) uU/mL and 8.73 (NV 1.1-4.4) respectively. Neither abdominal ultrasound, endoscopic ultrasound, abdominal CT scan nor MRI revealed a mass in the pancreas or other organs in the abdomen. Following the given complex carbohydrates, the patient could finish extended oral glucose tolerance test (eGTT) and the result was 97 mg/dL. Following 1-2 hour administration of 75 g anhydrous glucose, patient' blood glucose levels were 244 and 203 mg/dl, respectively. Hypoglycemia occurred after 4 hours eGTT (48 mg/dL).

CONCLUSION

Approach to hypoglycemia in patients not treated with diabetic medication is a challenging issue for clinicians. The first step is to confirm the presence of hypoglycemia. Second is to measure the serum levels of insulin and C-peptide during a hypoglycemic episode. However, reactive/functional hypoglycemia can be found in early diabetes mellitus. Extended/prolonged oral glucose tolerance test should be considered in a patient suspected to have reactive hypoglycemia.

KEY WORDS

hypoglycemia, insulin resistance, early-diabetes mellitus

CR-D-45

SEVERE INSULIN RESISTANCE REQUIRING HIGH DOSE INSULIN IMPROVED WITH ADD-ON EMPAGLIFOZIN THERAPY: A CASE REPORT

https://doi.org/10.15605/jafes.034.02.S89

Xin Yi Ooi, Chee Keong See, Noorhidayah Arifin
Hospital Sultan Haji Ahmad Shah, Temerloh, Malaysia

INTRODUCTION
Empagliflozin, an SGLT-2 transporter inhibitor is known to improve glucose control with weight loss. Its role in reducing insulin resistance is under-recognised.

CASE
A young patient with BMI of 47.4 kg/m^2 and diabetes has been treated with high dose multiple daily insulin injection totalling 600 iu/day (4.2 iu/kg/day). Despite compliance, lifestyle intervention and add-on therapy of metformin and vildagliptin, insulin requirement only reduced to 275 iu/day(2 iu/kg/day) and remained static. We subsequently started him on 25 mg daily of empaglifozin.

CONCLUSION
In an obese patient with insulin resistance, empaglifozin improved insulin sensitivity leading to significant reduction in insulin requirement

KEY WORDS
insulin resistance, obesity, empaglifozin

CR-D-46

A CASE OF HYPOGLYCAEMIA IN A NON-DIABETIC ADULT

https://doi.org/10.15605/jafes.034.02.S90

Malathi Karupiah, Nor Azmi Kamaruddin, Norasyikin Abd Wahab
Pusat Perobatan Universiti Kebangsaan Malaysia (PPUKM)

INTRODUCTION
Hypoglycaemia is diagnosed based on the Whipple's Triad. Nondiabetic adult hypoglycaemia may be related to critical illnesses, drugs, cortisol or glucagon insufficiency, insulinoma or it can be factitious. Post prandial hypoglycaemia may be an early sign of prediabetes.

CASE
We report a 26-year-old female with recurrent symptomatic hypoglycaemia with symptoms of sweating, giddiness and lethargy for 6 months. She has no known medical illnesses but has a strong family history of type 2 diabetes mellitus. She denies taking traditional medications. The hypoglycaemic symptoms occur after 3-4 hours of her main meals. She had documented glucose level of 1.8-2.8 mmol/L by finger prick testing. The symptoms resolve after consuming sugary drinks. Body mass index was 20 kg/m^2, HbA1c was 4.5%, eGFR 60 ml/min. A prolonged oral glucose tolerance test was performed over 5 hours. At 0 hour her glucose was 4.9 mmol/l, 60 min 10.3 mmol/L, 120 min 8.9 mmol/L and at 5 hours it was 2.8 mmol/L. Her cortisol was 579 nmol/l, insulin level 7.24 uIu/mL (NV 2.6-24.9) and C-peptide 509.3 pmol /L (NV 370-1470). The occurrence of biochemical hypoglycaemia at 5 hours post OGTT is likely suggestive of inappropriate hyperinsulinemic state of an individual with prediabetes.

CONCLUSION
Hyperinsulinemic hypoglycaemia is biochemically due to unregulated secretion of insulin from the pancreatic beta cells during low blood glucose levels. This mechanism occurs in prediabetic patients as a counterregulatory effect towards insulin resistance leading to prolonged insulin secretion. Further research is needed to better understand the underlying mechanism.

KEY WORDS
hypoglycemia, hyperinsullinemic, prediabetic

CR-D-47

BULLOUS PEMPHIGOID ASSOCIATED WITH SITAGLIPTIN USE: A CASE REPORT

https://doi.org/10.15605/jafes.034.02.S91

Ma. Guia Estrella Dela Cruz,[1] Mark Henry Joven,[2] Clarisse Mendoza,[3] Emmerson Gale Vista[3]
[1]*Chinese General Hospital and Medical Center, Manila, Philippines*
[2]*University of Santo Tomas Faculty of Medicine and Surgery, Manila, Philippines*
[3]*Research Institute for Tropical Medicine, Muntinlupa, Philippines*

INTRODUCTION
DPP-IV inhibitors are considered one of the safest anti-diabetes drugs given its low hypoglycemic risk and neutral effects on weight. Recently, cases of bullous pemphigoid have been reported on patients with type 2 diabetes treated with DPP-IV inhibitors.

CASE
A 70-year-old Filipino male of Chinese descent presented with pruritic eczematous papular rash on both shins. Lesions progressed to blisters in the trunk and extremities. Medical history was significant for T2DM and hypertension. He was on sitagliptin 50 mg daily (started a month prior) and losartan 50 mg daily.

CONCLUSION
We present a patient with T2DM on sitagliptin who presented with bullous pemphigoid. Physicians should be aware of this association since early detection may circumvent its progression and avert complications.

KEY WORDS
sitagliptin, dpp-iv inhibitors, bullous pemphigoid

CR-D-48

L-ASPARAGINASE-INDUCED DIABETIC KETOACIDOSIS IN AN ADULT WITH ACUTE LYMPHOBOLASTIC LEUKEMIA

https://doi.org/10.15605/jafes.034.02.S92

Jenn Danielle Gargar, Karen Loise Lat, Henny Tannady Tan, Reynaldo Dela Fuentes Rosales
St. Luke's Medical Center Global City, Taguig City, Philippines

INTRODUCTION
The mainstay treatment for acute lymphoblastic leukemia (ALL) includes L-asparaginase, doxorubicin, vincristine, and prednisone. Hyperglycemia is common with asparaginase, with or without glucocorticoid therapy. Development of diabetic ketoacidosis (DKA) however, is rare and mostly reported in children with an incidence of 0.8%. Incidence among adults is unknown. Fourteen cases have been reported in patients below 18 years old, and only 3 occurring in 21 to 25-year-olds. This case is of a 57-year-old female with precursor B cell ALL developing DKA post 3rd cycle of L-asparaginase therapy.

CASE
Literature reviewed from 1986 to present revealed seventeen cases of DKA post L-asparaginase therapy.

CONCLUSION
This report shows that DKA from L-asparaginase occurs even in the older population. It is vital that patients with hyperglycemia and decreased sensorium receiving L-asparaginase for ALL be screened for DKA. Determination of risk factors among patients who develop DKA from L-asparaginase is important in order to prevent future incidences.

KEY WORDS
diabetic ketoacidosis, l-asparanginase, acute lymphobolastic, leukemia

CR-D-49

POST-OPERATIVE HYPERGLYCEMIA IN A NON-DIABETIC PATIENT WITH OPERATIVE HYSTEROSCOPY INTRAVASCULAR ABSORPTION SYNDROME (OHIAS)

https://doi.org/10.15605/jafes.034.02.S93

Adrian Oscar Bacena,[1] Mark Anthony Sandoval,[2] Carmela Aquino – Cabral,[2] Margaret Joyce Cristi – Limson[2]

[1]Division of Endocrinology, Diabetes, and Metabolism, Department of Medicine, Philippine General Hospital-University of the Philippines Manila

[2]Section of Reproductive Endocrinology and Infertility, Department of Obstetrics and Gynecology, Philippine General Hospital-University of the Philippines Manila

INTRODUCTION

Operative hysteroscopic intravascular absorption syndrome (OHIAS) is an uncommon condition arising from excessive fluid overboard from distending medium intravasation during hysteroscopy. This causes acute hyponatremia, pulmonary edema and other metabolic disturbances. This case aims to report the uncommon presentation of hyperglycemia in a non-diabetic patient after hysteroscopy using 5% dextrose water (D5W) as distending fluid.

CASE

Clinical examination and laboratories were employed to arrive at a diagnosis and therapeutic plan.

CONCLUSION

The patient's hyperglycemia was a response to the use of D5W as distending medium, with consequent volume expansion and dilutional hyponatremia. Vigilance is imperative not only in monitoring fluid overload and serum electrolytes, but also to the glycemic status of the patient.

KEY WORDS

hysteroscopy, hyperglycemia, irrigating fluid

CR-D-50

A CASE REPORT ON GIANT INSULINOMA

https://doi.org/10.15605/jafes.034.02.S94

Fathima Marwa Abdulaziz, Jerne Kaz Neils Paber, Jerome Barrera

Zamboanga City Medical Center, Zamboanga City, Philippines

INTRODUCTION

Insulinomas are rare pancreatic islet cell tumors with an incidence of 1 case per 250,000 person-years. The clinical manifestation of an insulimona is fasting hypoglycemia with neuroglycopenic symptoms that may or may not be preceeded by sympathoadrenal symptoms. Tumors are usually very small, with 80% being less than 2 cm in diameter. Giant Insulinomas (>9 cm in diameter) are rare.

CASE

A 56-year-old, female without diabetes came in for repeated episodes of hypoglycemia. Biochemical work-up showed an elevated serum insulin of 34.57 (4.50-20.0 uIU/ml) and C-peptide at 12.93 (1.37-11.8 ng/ml) during a supervised fast (RBS 55 mg/dl). Computed Tomography of the whole abdomen with contrast noted a large (12 cm) pancreatic tail mass. Distal pancreatectomy with en bloc splenectomy was done and histopathology revealed a well differentiated neuroendocrine tumor. She remained euglycemic postoperatively.

CONCLUSION

Insulinoma is a rare neuroendocrine tumor, usually benign, but can be life threatening and cause hypoglycemic accidents. Surgical resection remains the treatment of choice with a highly favorable outcome even among giant insulinomas. Medical options are reserved for unresectable or metastatic tumors. Long term follow-up is important to detect recurrence.

KEY WORDS

non-diabetic, hypoglycemia, benign insulin-secreting tumor, giant insulinoma

CR-D-51

FIBROCALCULOUS PANCREATIC DIABETES IN INDONESIA: A CASE SERIES

https://doi.org/10.15605/jafes.034.02.S95

Luse Loe,[1,2] Nanny NM Soetedjo,[2] Hikmat Permana[2]
[1]*Atma Jaya Catholic University of Indonesia, Jakarta Padjadjaran University, Hasan Sadikin Hospital, Bandung, Indonesia*
[2]*Padjadjaran University, Hasan Sadikin Hospital, Bandung, Indonesia*

INTRODUCTION
Fibrocalculous pancreatic diabetes (FCPD) is a rare form of secondary diabetes that is related to malnutrition and low socioeconomic status. We would like to report this case series with FCPD in Hasan Sadikin Hospital.

CASE
In the first case, a 30-year-old female came with loss of consciousness, abdominal pain, and steatorrhoea. She has history of low birth weight and underweight (BMI 17.9). She was later diagnosed with diabetic ketoacidosis, anemia and severe malnutrition. Second case, a 31-year-old female came with malaise, weight loss, and dysuria. She has history of giving birth to a large baby and underweight (BMI 15.8). She was diagnosed with severe dehydration, urinary tract infection, acute kidney injury and malnutrition. Third case, a 24-year-old male came with abdominal pain, chronic diarrhea and weight loss. He was underweight (BMI 16.9). He was diagnosed with dehydration, anemia and thrombocytosis. Fourth case is a 46-year-old female with normal weight who was admitted to hospital due to relapsing abdominal pain. Fifth case, a male 24-year-old came with decreased consciousness, dyspnea, cough, headache, orbital pain and weight loss. He was later diagnosed with diabetic ketoacidosis, pneumonia, mycosis of the lungs, non arteritic anterior ischemic optic neuropathy, acute kidney injury, severe malnutrition, and anemia. In all patients we found calcification in the pancreas on plain xray of the abdomen.

CONCLUSION
FCPD should be included as a differential diagnosis of diabetes among the young in Indonesia. We recommend to check plain xray of the abdomen in young patients with diabetes.

KEY WORDS
fibrocalculous pancreatic diabetes, indonesia

CR-D-52

HEMICHOREA-HEMIBALLISM SYNDROME CAUSED BY NONKETOTIC HYPERGLYCEMIA IN A NEWLY DIAGNOSED DIABETES MELLITUS TYPE II PATIENT WITH EUGLYCEMIA AT PRESENTATION

https://doi.org/10.15605/jafes.034.02.S96

Tisha Gay Tancongco and Rossini Abbie Lim
Internal Medicine Department, Maria Reyna Xavier University Hospital, Cagayan de Oro, Misamis Oriental, Philippines

INTRODUCTION
Nonketotic hyperglycemia among type II diabetic patients has recently been documented to cause the rare movment disorder called hemichorea-hemiballism syndrome. This syndrome is a hyperkinetic movement disorder presenting as continuous, non-patterned, involuntary movements caused by a basal ganglia dysfunction. It has an overall incidence rate of 1 in 500,000 of the general population, while the incidence directly caused by nonketotic hyperglycemia is yet to be determined.

CASE
A 76-year-old male presented with involuntary movements of the right extremities. An increase in the frequency and intensity of the invouluntary movements over a span of 10 days prompted consult. On admission, the patient was conscious with stable vital signs. Involuntary flailing movements of the right upper and lower extremities were observed. He was not a known diabetic and had no prior history of stroke. He presented with normal glucose levels with random blood sugar of 156 mg/dl, with further laboratory investigation confirming uncontrolled diabetes with an HbA1c of 12.6% and fasting blood sugar of 128 mg/dl. The brain MRI with contrast demonstrated T1 hyperintensity signals involving the left caudate and left lentiform nucleus. The t2/FLAIR weighted imaging showed mixed hyperintense and hypointense signals on the left basal ganglia consistent with abnormal MRI findings in patients with HC-HB syndrome caused by nonketotic hyperglycemia. He was treated for diabetes and was maintained on risperidone and clonazepam for the hemichorea-hemiballism. After 5 months, his diabetes has been controlled, and the involuntary movements have completely resolved.

CONCLUSION
This case report highlights hemichorea-hemiballism synsrome in a newly diagnosed patient with type 2 DM who had normal glucose level at presentation. The prompt recognition and correction of uncontrolled newly diagnosed diabetes lead to a rapid improvement of symptoms, less neurologic sequelae and an overall favorable prognosis.

KEY WORDS
hemichorea-hemiballism, nonketotic hyperglycemia, basal ganglia, diabetes mellitus type II, movement disorder

Thyroid

CR-T-09

METASTATIC CLEAR CELL RENAL CARCINOMA MIMICKING AS A PAPILLARY THYROID CANCER: A CASE REPORT

https://doi.org/10.15605/jafes.034.02.S97

Pamela Ann Aribon and Maria Patricia Deanna Maningat
St. Luke's Medical Center- Global City, Taguig City, Philippines

INTRODUCTION
The thyroid gland is a vascular organ, however, metastatic cancer to the thyroid is a rare and uncommon clinical finding. These tumors can lead to diagnostic difficulties as they can mimic a primary thyroid gland tumor.

CASE
We present a 58-year-old Filipino woman with a history of Renal Cell Carcinoma (RCC), who underwent nephrectomy 13 years ago, referred due to a PET scan finding of a solitary right thyroid nodule. Fine needle aspiration biopsy of the thyroid nodule was done which was suggestive of a Papillary Thyroid Cancer. She then underwent total thyroidectomy however histopathology revealed right thyroid gland consistent with metastatic clear cell renal cell carcinoma

CONCLUSION
In patients presenting with thyroid nodule/s, with a history of malignant disease, relapse or progression of the malignancy within the thyroid must be considered until proven otherwise. If a patient with a history of nephrectomy for RCC subsequently has a solitary thyroid mass, one should consider isolated thyroid metastasis as well as a primary thyroid tumor. Fine Needle Aspiration Biopsy is not enough to diagnose metastatic renal cell carcinoma to the thyroid, a history of clear cell renal carcinoma or multifocal growth pattern and clear cell appearance of cytoplasm by histopathology should be considered. Preoperative distinction between primary and secondary thyroid tumors is difficult. Immunohistochemistry is essential for confirming the diagnosis.

KEY WORDS
metastatic clear cell renal carcinoma, papillary thyroid cancer, secondary thyroid cancer

CR-T-10

A FEMALE WITH LINGUAL THYROID

https://doi.org/10.15605/jafes.034.02.S98

Choirina Windradi,[1] Soebagijo Adi Soelistijo,[2] Sony Wibisono Mudjanarko,[2] Agung Pranoto[2]
[1]*Internal Medicine Department – Airlangga University, Surabaya, Indonesia*
[2]*Endocrinology, Metabolic, and Diabetes Division of Internal Medicine, Jalan Mayjen Prof. Dr. Moestopo, Surabaya, Indonesia*

INTRODUCTION
Lingual thyroid is a rare condition that involves defective embryogenesis of the thyroid gland. Its specific prevalence accounts for a single case in 100,000-300,000. The clinical presentation varies from mild dysphagia to severe upper airway obstruction.

CASE
A 20-year-old female noticed a mass at posterior lingual since 10 years ago. She remarked the mass grows over time and and she experienced mild dysphagia. Physical examination reveals a mass at the posterior lingual that moves with deglutition. Her head and neck computed tomography with contrast showed a high density 2.6x2.2x2 cm soft tissue mass posterior to the tongue which narrowed the airway to a diameter size 0.4 cm. She underwent partial lingual thyroidectomy followed by levothyroxine therapy. Thyroid function test preoperative was FT4 1.29 mg/dl (0.89-1.76); TSH 17.049 µIU/ml (0.55-4.78); T3 total 1.27 mg/dl (0.6-1.81) and postoperative was FT4 1.02 mg/dl (0.89-1.76); TSH 10.901 µIU/ml (0.55-4.78); T3 total 1.06 mg/dl (0.6-1.81). Histopathologic examination showed thyroid follicles.

CONCLUSION
Lingual thyroid is a rare manifestation which may present as dysphagia. Any specific complication will be preventable with prompt diagnosis and treatment.

KEY WORDS
lingual, thyroid, subclinical hypothyroid

CR-T-11

PARATHYROID CYST – A RARE ENTITY OF CRYSTAL-CLEAR FLUID IN THE NECK

https://doi.org/10.15605/jafes.034.02.S99

Yotsapon Thewjitcharoen, Siriwan Butadej, Soontaree Nakasatien, Sriurai Porramatikul, Sirinate Krittiyawong, Worawit Kittipoom, Thep Himathongkam
Diabetes and Thyroid Center, Theptarin Hospital, Bangkok, Thailand

INTRODUCTION
Parathyroid cyst is one of the less common causes (<0.1%) of neck masses. More than 90% of reported parathyroid cysts are non-functional cysts which are often misdiagnosed as thyroid cysts. A presumptive diagnosis of parathyroid cyst is made when characteristic crystal-clear fluid is aspirated from a neck mass and the diagnosis is then confirmed by parathyroid hormone (PTH) assay.

CASE
To describe clinical presentations and managements of parathyroid cysts seen in our thyroid clinic over the past 15 years (2004 to 2018).

CONCLUSION
Parathyroid cysts are very rare and often mistaken as thyroid nodules. Crystal-clear fluid from cystic aspiration with PTH detection could lead to a definitive diagnosis of parathyroid cyst.

KEY WORDS
parathyroid cyst, crystal-clear fluid, neck mass

CR-T-12

MEDULLARY THYROID CARCINOMA DISCOVERED THROUGH ELEVATED CEA IN THE COURSE OF HEALTH SCREENING – A REPORT OF 10 CASES

https://doi.org/10.15605/jafes.034.02.S100

Khai Tong Tan and Joshua Zhi Chien Tan
National University Hospital, Singapore

INTRODUCTION
10 cases of sporadic Medullary Thyroid Carcinoma were seen where their initial presentation was asymptomatic elevation of CEA level discovered on health screening.

CASE
6 men and 4 women (ages 36 to 68 years) were found to have elevated CEA levels (2 former smokers). The time between detection of elevated CEA to time of final diagnosis ranged from 2 months to 9 years. Significantly 3 patients had CEA elevation for 8, 8 and 9 years respectively before diagnosis. At diagnosis, 9 patients appeared to have limited disease (confined to the thyroid) in spite of the long duration of CEA elevation. One patient was noted to have lymph node metastases (diagnosed 4 months). This patient had persistent Calcitonin elevation and had a second operation later.

CONCLUSION
The long duration of asymptomatic presentation suggested that these incidental tumours may not be clinically significant. However one of the patients who was diagnosed only 8 years after initial CEA elevation, showed on follow-up, persistent elevation of Calcitonin (which doubled within 24 months). Lymph node recurrence was noted. After a second surgery, her Calcitonin remained above 400 ng/L. Four other patients had persistently elevated Calcitonin post-operation. Only 4 had normalisation of Calcitonin levels on follow-up (2 to 10 years). The 10 patients appeared to have innocuous presentation initially but on follow up had a variable outcome. Some may have significant long-term disease.

KEY WORDS
medullary, thyroid, carcinoma, CEA

CR-T-13

METHIMAZOLE-INDUCED APLASTIC ANEMIA WITH CONCOMITANT HEPATITIS IN A YOUNG FILIPINA WITH GRAVES' DISEASE

https://doi.org/10.15605/jafes.034.02.S101

Natalia Sisca Wijaya and Celeste Ong-Ramos
Delos Santos Medical Center, Quezon City, Philippines

Full paper is published in the Journal of the ASEAN Federation of Endocrine Societies, 2019 May; 34(1)

INTRODUCTION
Antithyroid drug therapy is essential for treatment of hyperthyroidism. However, its use is not without risks. Agranulocytosis, aplastic anemia and hepatotoxicity are uncommon but potentially serious adverse events reported to occur with patients on these agents. In our review of literature, this is the first case in the Philippines of methimazole-induced aplastic anemia and hepatitis that occurred after starting ATD.

CASE
A 34-year-old female Filipino with Graves' disease on methimazole came in due to fever, sore throat and jaundice. She was initially diagnosed with methimazole-induced agranulocytosis and drug-induced liver injury. She was treated with intravenous broad-spectrum antibiotic and granulocyte colony stimulating factor. On day 4 of admission, she developed pancytopenia and was managed as methimazole-induced aplastic anemia. She was started on steroid therapy and received 1 unit of packed red blood cell. The jaundice also increased, hence, she was given ursodeoxycholic acid. On day 9 of admission, with the consideration of"lineage steal phenomenon,"biopsy was done and eltrombopag was started. Patient was discharged stable at 12th hospital day. This case presents 3 rare life-threatening complications of methimazole namely: agranulocytosis, aplastic anemia and hepatitis.

CONCLUSION
This case underscores the importance of timely detection and recognition of these rare but dangerous side effects associated with methimazole, as well as the institution of proper therapeutic management to prevent mortality and morbidity. Physicians prescribing these drugs should be aware of these potential complications that can occur at any time irrespective of age, duration of use, and methimazole dose at the first or subsequent exposure.

KEY WORDS
anemia, aplastic, agranulocytosis, methimazole, antithyroid agents

CR-T-14

MYXEDEMA COMA PRESENTING AS LARGE PERICARDIAL EFFUSION WITH CARDIAC TAMPONADE

https://doi.org/10.15605/jafes.034.02.S102

Freyja Diana Ramos, Matilde Melanie Cheng, Sheryl Tugna, Jose Marcia
St. Luke's Medical Center- Global City, Taguig City, Philippines

INTRODUCTION
Myxedema coma is a life-threatening decompensated form of hypothyroidism with an underlying precipitating factor. It has a 20 to 40% mortality rate despite treatment. Most would present with decreased sensorium, hypothermia, hypotension, hyponatremia and hypoventilation.

CASE
Myxedema coma is a life-threatening decompensated form of hypothyroidism with an underlying precipitating factor. It has a 20 to 40% mortality rate despite treatment. Most would present with decreased sensorium, hypothermia, hypotension, hyponatremia and hypoventilation. We present a case of a 48-year-old male, known to have chronic glomerulonephritis and hypertension, who came in due to a lacerated scalp wound sustained after a fall due to lethargy. His chest radiograph showed an enlarged cardiac silhouette. Electrocardiogram showed low voltage complexes. A transthoracic echocardiography revealed a severe pericardial effusion with tamponade. He then underwent emergency pericardial window. He was able to tolerate the procedure well but was noted to have decreased sensorium post-operatively. Further laboratory investigations showed severe hypothyroidism with an undetected FT4 and elevated TSH. He also had an elevated thyroid peroxidase antibody level suggesting an autoimmune etiology for the hypothyroidism. He was started on treatment with intravenous hydrocortisone followed by levothyroxine. His mental condition improved within few days and hydrocortisone was gradually tapered off. He was eventually discharged after a month and was maintained on oral levothyroxine replacement.

CONCLUSION
His mental condition improved within few days and hydrocortisone was gradually tapered off. He was eventually discharged after a month and was maintained on oral levothyroxine replacement.

KEY WORDS
myxedema coma, pericardial effusion

CR-T-15

DISCORDANT THYROID FUNCTION TESTS: RTH SYNDROME OR TSH-OMA?

https://doi.org/10.15605/jafes.034.02.S103

Gayathri Devi Krishnan and Subashini Rajoo
Department of Medicine, Hospital Kuala Lumpur, Malaysia

INTRODUCTION
Resistance to thyroid hormone (RTH) syndrome and TSH secreting pituitary adenomas are important causes of discordant thyroid function tests (TFTs). Differentiating the two clinical entities requires thorough clinical history taking with a combination of laboratory tests and radiological imaging. We present a young lady with discordant TFT who has RTH syndrome and also a pituitary microadenoma.

CASE
A 25-year-old lady with no prior medical illness who underwent routine laboratory tests was found to have raised thyroid stimulating hormone (TSH) with raised free thyroxine (FT4) and normal *triiodothyronine (FT3) levels*. This pattern remained the same with repeated TFTs, including those that were done at a separate laboratory using a different analyser. She was not taking any supplements or traditional medications and there was no known family history of thyroid illness. She remained clinically euthyroid with no apparent goitre. Anti-TPO and anti- thyroglobulin antibodies were positive and MRI brain revealed a pituitary microadenoma. A TRH stimulation test showed exaggerated TSH response suggestive of resistance to thyroid hormone (RTH) syndrome.

CONCLUSION
In a patient with raised FT4 and inappropriately normal or raised TSH, once assay interference has been ruled out, it is important to differentiate a TSH secreting pituitary adenoma from RTH syndrome. Although our patient had a pituitary microadenoma, her lack of symptoms and TRH stimulation test findings were suggestive of RTH syndrome. A theoretical probability of developing thyrotroph adenomas due to longstanding increase in thyrotroph activity has been suggested with one reported case so far.

KEY WORDS
discordant, thyroid function test, resistance to thyroid hormone (rth), tshoma

CR-T-16

THYROID CRISIS IN A YOUNG WOMAN WITH GESTATIONAL TROPHOBLASTIC DISEASE

https://doi.org/10.15605/jafes.034.02.S104

Dewi Catur Wulandari,[1] I Made Pande Dwipayana,[2] Ketut Suastika,[2] AAG Budhiarta,[2] Wira Gotera,[2] Made Ratna Saraswati[2]
[1]*Metabolism and Endocrinology Consultant Programme, Department of Internal Medicine, Faculty of Medicine Udayana University/ Sanglah General Hospital Denpasar, Indonesia*
[2]*Division of Metabolism and Endocrinology, Department of Internal Medicine, Faculty of Medicine Udayana University/ Sanglah General Hospital Denpasar, Indonesia*

INTRODUCTION
Gestational trophoblastic diseases (GTD) include hydatidiform moles to highly malignant choriocarcinoma. Trophoblast produces human chorionic gonadotropin (hCG) which has the same structure as thyrotrophic hormone (TSH) and their receptors. The high level of hCG may induce secondary hyperthyroidism and thyroid crisis.

CASE
A 27-year-old pregnant woman with vaginal bleeding consulted at the Obstetric and Gynecology Department. She was tachypneic, tachycardic and febrile. She had history of hydatidiform moles twice. She denied having symptoms of hyperthyroidism before. Laboratory exams were leucocyte 18.700, TSH <0,01 μIU/mL, FT4 34,80 ng/dl, βhCG >1,125,000 mIU/mL. Burch Wartofsky score was highly suggestive of thyroid crisis. She was planned to be given prophyltiouracil and lugol, but these were not available. She got thiamazole 20 mg tid, propanolol 40 mg tid, hydrocortisone 100 mg i.v every 12 h, ceftriaxon 2 gram every 24 h. She immediately underwent curettage. Histopathology showed choriocarcinoma and she was planned to be given chemotherapy.

CONCLUSION
Thyroid storm is a rare endocrine emergency. One of the related conditions is GTD. Delays in diagnosis and misdiagnosis still contribute to morbidity and mortality.

KEY WORDS
geslational trophoblastic disease, choriocarcinoma, thyroid crisis

CR-T-17

EUTHYROID GRAVES' OPHTHALMOPATHY WITH NEGATIVE TSH RECEPTOR ANTIBODY (TRAB) IN 2 FILIPINO MALES

https://doi.org/10.15605/jafes.034.02.S105

Maria Regina Santos, Gabriel Jasul Jr., Francesca Paula Bautista
St. Luke's Medical Center-Quezon City, Philippines

INTRODUCTION
Graves' ophthalmopathy (GO) frequently occurs among female hyperthyroid patients. Commonly, they are positive for thyroid autoantibodies, as part of GO's pathogenesis. The occurrence of both euthyroidism and autoantibody negativity in GO can be a diagnostic dilemma. Below are 2 cases of euthyroid GO (EGO) among Filipino males with negative TRAb.

CASE
A 60-year-old diabetic male (poorly controlled) was admitted for a 2-week history of progressive left eye swelling, with pain and redness of the periorbital area, but with no fever. He was already treated with antibiotics but to no avail. He had history of EGO, but was already in remission for the past years. Examination revealed left eye swelling and erythema, which was warm, firm, and tender. Another 45-year-old male was seen in the OPD for a 5-year history of bilateral proptosis with no other symptoms. On examination, eyelids were noted to be swollen and non-erythematous. Orbital CT scans of both patients showed bilateral proptosis, with no orbital mass, with thickening of extraocular muscles, suggestive of thyroid-associated orbitopathy. TRAb levels were negative for both patients. Both were also biochemically and clinically euthyroid, and responded well to steroids and supportive measures.

CONCLUSION
GO can occur even in biochemically and clinically euthyroid males, though lesser in frequency (0.02-1.10/10,000 population). TRAb may also be negative, which may be due to assay sensitivity or intrathyroidal TRAb. In addition, imaging studies (CT and MRI) should be emphasized as an important part of diagnostic examinations.

KEY WORDS
graves ophthalmopathy, thyroid stimulating hormone receptor, male

CR-T-18

GRAVE'S DISEASE AND PCOS, A CASE REPORT IN SECONDARY RURAL HEALTH CARE FACILITY

https://doi.org/10.15605/jafes.034.02.S106

Marshell Tendean, Guntur Dharmawan, Raden Bagus Prakoso, Irene Maria Elena
Department of Internal Medicine, Faculty of Medicine, Krida Wacana Christian University, Indonesia

INTRODUCTION
Autoimmune thyroiditis and plycystic ovary syndrome (PCOS) are proposed to have bidirectional relationship. In Grave's disease this rare combination seems interesting. We reported an interesting case of PCOS in Grave's disease.

CASE
A 21-year-old female single, Chinese Indonesian, of normal weight, menarche at age of 12 sought consult to our internal medicine clinic. She was apparently well until 5 years ago complaining of goiter, palpitations, tremors, hair loss, and weight loss. She had no menstrual irregularities. She was diagnosed as Graves disease by a private physician and clinically improved after having thiamazole 10 mg BID. She started complaining of amenorrhea 2 months prior and sought consult to our internal medicine clinic. Physical examination revealed diffuse goiter with no bruit, no fine tremor, no hirsutism, thyroid function test was normal. Thyroid ultrasound was suggestive of Graves disease. Gynecologic referral was done and ultrasound revealed multiple ovarian cysts. She was diagnosed with PCOS according to Rotterdam criteria and got her menstrual cycle again after 1 and a half month treatment with metformin 500 mg BID.

CONCLUSION
It is important for physicians to investigate PCOS in Graves disease with menstrual problem.

KEY WORDS
Grave's disease, PCOS, metformin

CR-T-19

THERAPEUTIC USE OF PLASMA EXCHANGE IN THYROID STORM REFRACTORY TO CONVENTIONAL TREATMENT

https://doi.org/10.15605/jafes.034.02.S107

Harold Henrison Chiu,[1] Jim Paulo Sarsagat,[1] Angelique Bea Uy,[2] Dianne Corpuz,[2] Hydelene Dominguez,[2] Josephine Anne Lucero-Sacdalan,[3] Elizabeth Paz-Pacheco[2]

[1]Department of Medicine, Philippine General Hospital- University of the Philippines Manila

[2]Division of Endocrinology, Department of Medicine, Philippine General Hospital- University of the Philippines Manila

[3]Division of Hematology, Department of Medicine, Philippine General Hospital- University of the Philippines Manila

INTRODUCTION

Thyroid storm is a serious life-threatening condition resulting from uncontrolled hyperthyroidism with mortality rates reaching 30%. First-line treatment includes high doses of propylthiouracil, methimazole, potassium iodide, beta blockers, steroids, radioactive ablation and thyroidectomy. Patients poorly tolerant or have contraindications to medical therapy, or poor surgical candidates may require alternative treatments. Therapeutic plasma exchange (TPE) is a potential modality by rapidly removing thyroid hormones, antibodies and cytokines in plasma; it is listed by the American Society of Apheresis (ASFA) as Class III indication; its optimal role has not been established and initiation, based on the latest American Thyroid Association (ATA) 2016 guidelines, has mainly focused on patients responding poorly to traditional therapeutic measures.

CASE

We report a 49-year-old female in thyroid storm presenting as fever, jaundice, tachycardia, and diarrhea who was unable to tolerate both propylthiouracil and methimazole, and was a poor surgical candidate. TPE was performed for one cycle while propylthiouracil initiated at a lower dose. Over the treatment course, thyroid hormones normalized [FT3 (23.91 to 2.30 pmol/L) and FT4 decreased (64.35 to 13.18 pmol/L)]. However, symptoms progressed: sinus rhythm became atrial fibrillation, sensorium deteriorated to comatose, and was persistently hypotensive despite vasopressors. She eventually expired on her 7th hospital day from multiorgan failure.

CONCLUSION

TPE having only transient effects in thyroid hormone levels should ideally be used in conjunction with anti-thyroid medications and initiated early in the setting of clinical deterioration, without waiting for the effects of conventional treatment to take effect.

KEY WORDS

thyroid storm, thyroid hormones, plasmapheresis

CR-T-20

CARDIAC SYNCOPE DUE TO ATRIAL FIBRILLATION IN SLOW VENTRICULAR RESPONSE WITH PAUSE AS A CLINICAL MANIFESTATION OF HYPERTHYROIDSIM

https://doi.org/10.15605/jafes.034.02.S108

Elham Jaji, Shareefa Huda Mandangan, Walid Amil, Lowe Chiong, Jerome Barrera, Sarah Laida Isnani

Department of Internal Medicine, Zamboanga City Medical Center, Zamboanga City, Philippines

INTRODUCTION

Hyperthyroidism commonly affects the heart causing cardiac arrhythmias particularly sinus tachycardia or supraventricular tachyarrhythmias. Atrial fibrillation (AF) in slow ventricular response is typically not reported in such patients.

CASE

A 58-year-old male without co-morbidities initially consulted at the emergency department due to body malaise. At the ER, he had sudden onset of loss of consciousness. Initial ECG showed atrial flutter with pause. He was subsequently admitted at ICU where further work up was done.

CONCLUSION

Thyrotoxicosis exerts clear influences on electrical impulse generation and conduction. Numerous possible mechanisms could be considered for the effect of thyroid hormones on AF risk. Reentry has been assumed as one of the main mechanisms leading to AF. However limited literature talks about AF in slow ventricular response with pauses in hyperthyroid patients. In theory, if the patient achieved euthyroid state, ideally symptoms should improve, nonetheless pacemaker was opted for this patient.

KEY WORDS

hyperthyroidism, atrial fibrillation in slow ventricular response, pacemaker

CR-T-21

INVASIVE FOLLICULAR THYROID CARCINOMA PRESENTING AS LARGE SCAPULAR MASS WITH ROTATOR CUFF MUSCLE INVOLVEMENT

https://doi.org/10.15605/jafes.034.02.S109

Sienna Ross Chavez and JeremyJones Robles
Chong Hua Hospital, Cebu City, Philippines

INTRODUCTION

Follicular carcinomas occur in women beyond the 5th decade of life as a slow-growing thyroid nodule. Known to invade locally and metastasize distantly, direct extrathyroidal extension is possibly seen in its rarer widely invasive form. Common sites for metastases are lungs and bones. The bones often involved are vertebrae, long bones and flat bones particularly pelvis, sternum, and skull. Metastasis to scapula is an infrequent presentation and skeletal muscle metastasis is extremely rare. We present a rare case of metastatic follicular thyroid carcinoma that initially presented as a large right scapular mass.

CASE

A 65-year-old female presented with a right scapular mass. MRI revealed a huge (22.2x13.5x13.8 cm) lobulated mass with central necrosis and non-delineation of the 4 rotator cuff muscles, thus she was referred to an orthopedic surgeon. Biopsy of the scapular mass showed findings consistent with invasive metastatic follicular carcinoma. Thyroid ultrasound revealed a right thyroid nodule measuring 3.55x3.52x2.72 cm and few sub-centimeter nodules on the left lobe. Initial thyroid function tests showed low FT4 2.43 pmol/L (NV:11-22.5), normal TSH 2.374 (NV:0.30-5 mIU/mL) and FT3 5.96 (NV:3.1-6.5 pmol/L). The patient underwent total thyroidectomy and subsequent right total scapulectomy with biceps tendon transplantation attached to the clavicle. Histopathologic reports from both operations are consistent with widely invasive follicular carcinoma. The patient is scheduled for radioiodine therapy.

CONCLUSION

Soft tissue metastasis is an uncommon initial presentation of follicular thyroid carcinoma. Synchronous metastases to bones and soft tissues particularly on the scapula and surrounding muscles are rare occurrences that warrant this report.

KEY WORDS

follicular thyroid cancer, metastasis, malignancy, carcinoma

CR-T-22

A RARE SIDE EFFECT OF CARBIMAZOLE

https://doi.org/10.15605/jafes.034.02.S110

Lit Sin Yong,[1] Azlina Samsudin,[2] Nor Afidah Bt Karim,[1] Noor Lita Bt Adam[1]
[1]*Hospital Tuanko Jaa'far Seremban, Jalan Rasah, Seremban, Negeri Sembilan, Malaysia*
[2]*Hospital Sultanah Nur Zahirah, Jalan Sultan Mahmud, Kuala Terengganu, Terengganu, Malaysia*

INTRODUCTION

Carbimazole therapy is associated with a variety of adverse reactions, among the rarest being interstitial pneumonia.

CASE

An 18-year-old primigravid, non-smoker at POA of 28 weeks 5 days presented with fever and progressively worsening dyspnea occurring within a week. She had Graves' disease diagnosed just prior to pregnancy and was on carbimazole 30mg od since then. Rapid deterioration of her respiratory state required mechanical ventilation. Pulmonary auscultation revealed coarse crepitation at right lower zone. She was clinically euthyroid and had a diffuse goiter with absence of thyroid eye signs. Chest x-ray showed diffuse interstitial peripheral opacities. Computed tomography of the thorax revealed patchy ground glass opacities located at the subpleural regions, peripherally and the peribronchovascular areas in both upper, middle and lower lobes suggestive of cryptogenic organizing pneumonia. Culture of both blood and tracheal secretions were negative. Vasculitis as a cause of organizing penumonia has been sought however due to lack of other peripheral features and negative anti-neutrophil antibodies (ANA) and anti-neutrophil cytoplasmic antibodies (ANCA) render it less likely. A diagnosis of carbimazole-induced organizing pneumonia was made which led to carbimazole discontinuation, and introduction of oral prednisolone of 1mg/kg/day. The patient rapidly improved with eventual resolution of the lung disease.

CONCLUSION

Carbimazole given for hyperthyroidism can rarely cause severe pneumonitis requiring ventilation. Carbimazole should be withdrawn in the presence of respiratory symptoms and documented interstitial pneumonia.

KEY WORDS

carbimazole, interstitial pneumonia, cryptogenic organizing pneumonia

CR-T-23

PARATHYROID CARCINOMA AND INCIDENTAL FINDING OF HASHIMOTO'S THYROIDITIS: A CASE REPORT

https://doi.org/10.15605/jafes.034.02.S111

Irene Kei Bariuad, Irish Judy Gonzales, Cecile dela Paz
East Avenue Medical Center, Diliman, Quezon City, Philippines

Published in the Journal of the Endocrine Society, 2019 April-May; 3 (Suppl 1)

INTRODUCTION
Parathyroid carcinoma is a very rare endocrine neoplasia. The incidence reported is less than 1% in primary hyperparathyroidism. The presence of this rare carcinoma is even less likely in the setting of chronic kidney disease. Unfortunately, parathyroid carcinoma is difficult to differentiate clinically with parathyroid adenoma and hyperplasia pre-operatively.

CASE
A 48-year-old male, diagnosed with end-stage renal disease secondary to IgA nephropathy and maintained on chronic hemodialysis for 8 years, presented with progressive decreasing height and occasional bone pain. Despite compliance to hemodialysis, calcimimetics, phosphate binders, calcium and vitamin D supplementation to suppress the high PTH levels, he remained persistently hyperparathyroid with intact PTH of 4793 pg/ml (NV: 15-65 pg/ml). Other laboratory findings showed vitamin D sufficiency (Vitamin D 87 nmol/L (NV: >75 nmol/L), hypocalcemia (ionized calcium 1.08 mmol/L (NV: 1.10-1.35) and hyperphosphatemia (inorganic phosphate 2.15 mmol/L (NV: 0.01-1.45 mmol/L). With the failure of medications to suppress the high PTH levels, surgical removal of the parathyroid glands was the next plausible option. A dual phase sestamibi scan of the parathyroid revealed a single focal activity at the mid aspect of the right thyroid bed on the wash-out phase. He subsequently underwent total parathyroidectomy and total thyroidectomy. Intraoperative findings revealed enlarged bilateral parathyroid glands with the largest measuring 2x2 cm and incidental findings of multiple nodules in both thyroid lobes. Histopathology revealed parathyroid carcinoma in 3 out of 4 glands and Hashimoto's thyroiditis with multinodular adenomatous goiter.

CONCLUSION
It is a challenge to clinically differentiate parathyroid carcinoma and other causes of hyperparathyroidism among patients undergoing chronic maintenance hemodialysis due to the effect of renal insufficiency on calcium metabolism. This case highlights an unusual case of parathyroid carcinoma in a patient with ESRD and incidental finding of Hashimoto's thyroiditis, who presented with extremely elevated intact parathyroid hormone accompanied by hypocalcemia.

KEY WORDS
parathyroid carcinoma, hyperparathyroidism, Hashimoto's thyroiditis, End-Stage Renal Disease

General Endocrinology

CR-GE-19

SHE WAS TRAPPED IN A MAN'S BODY: A CASE REPORT OF ADRENOCORTICAL CARCINOMA

https://doi.org/10.15605/jafes.034.02.S112

Ralph Jefferson Ramos, Maria Luisa Cecilia Arkoncel, Ryan Joe Dungca, Francis Raymond Arkoncel

Jose B. Lingad Memorial Regional Hospital, San Fernando, Pampanga, Philippines

INTRODUCTION

Adrenocortical carcinoma is a rare malignancy with an annual incidence of 1-2 per million population. It most commonly presents as hirsutism, acne, and clitoral enlargement. This case report documents how the symptoms presented in the patient, how it was diagnosed and treated.

CASE

A 33-year-old female had amenorrhea for a year, accompanied by receeding hairline, mustache, hirsutism more on the hypogastric area and lower extremities, right-sided abdominal pain and deepening of the voice. She brought an ultrasound result with an impression of adrenal mass. Whole Abdominal CT scan revealed right adrenal mass with downward displacement of the ipsilateral kidney. DHEA-S and serum testosterone were elevated. She subsequently underwent laparoscopic adrenelectomy. Histopathology showed adrenocortical carcinoma with extracapsular invasion. On follow-up, repeat DHEA-S and serum testosterone levels were normal. Three months post-operation, the patient complained of amenorrhea for which she was referred to an obstetrician who confirmed her pregnancy. She eventually had an uneventful delivery.

CONCLUSION

Thorough history and physical examination are essential in the diagnosis. Appropriate imaging studies and laboratory work-up are the cornerstone in the diagnosis of androgen-secreting adrenal tumors. The only curative treatment is surgical resection.

KEY WORDS

adrenocortical carcinoma, adrenals, carcinoma

CR-GE-20

SEVERE ACUTE KIDNEY INJURY AS INITIAL PRESENTATION OF ADRENAL INSUFFICIENCY: A RARE PRESENTATION OF AN UNCOMMON CONDITION

https://doi.org/10.15605/jafes.034.02.S113

Shing Shen Bay,[1] Wan Yi Ho,[1] Rafidah Abdullah,[1] Nai-Chien Huan[2]

[1]*Department of Internal Medicine, Sultan Haji Ahmad Shah Hospital, Temerloh, Malaysia*

[2]*Department of Internal Medicine, Queen Elizabeth Hospital, Kota Kinabalu, Malaysia*

INTRODUCTION

Adrenal insufficiency (AI) is a condition whereby the adrenal glands fail to produce adequate amounts of hormones. AI may present acutely with hypotension, hypovolaemic shock although a more insidious presentation with fatigue and weight loss are more common. Acute kidney injury as initial presentation of AI is rare, causing diagnostic challenges.

CASE

We describe a 39-year-old gentleman who presented with a 1-week history of recurrent vomiting and epigastric pain. On examination, he appeared ill with heart rate of 110 beats/min. Urgent haemodialysis was initiated due to deranged renal profile (serum urea 29.3 mmol/L, sodium 122 mmol/L, potassium 7.4 mmol/L, creatinine 1340 umol/L) and metabolic acidosis (serum pH 7.1, bicarbonate 10.4 mmol/L). Hyperpigmented skin lesions were observed over both of his lower limbs. Further investigation excluded autoimmune and obstructive causes of his renal impairment but his laboratory findings were consistent with AI (serum cortisol: 117.5 nmol/L, sent due to history of consuming traditional medications). With the diagnosis in mind, he was started on hydrocortisone supplement with marked clinical improvement and normalization of laboratory indices (urea 12 mmol/L, creatinine 182 umol/L). He remained well without needing further haemodialysis on subsequent outpatient clinic follow-ups.

CONCLUSION

We hope that our case report highlighted acute kidney injury as an uncommon but potentially life-threatening manifestation of AI. The presence of an 'unexplained/atypical' acute kidney injury should prompt a thorough search for possible underlying causes, including AI in rare cases. Early recognition and prompt treatment is vital for good patient outcomes.

KEY WORDS

adrenal insufficiency, acute kidney injury, hypocortisolism

CR-GE-21

A CASE REPORT OF VON HIPPEL-LINDAU DISEASE WITH METASTATIC FOLLICULAR THYROID CARCINOMA AND RECURRENT PHEOCHROMOCYTOMA: ASSOCIATION OR COINCIDENCE?

https://doi.org/10.15605/jafes.034.02.S114

Hwee Ching Tee, Yin Khet Fung, Serena Sert Kim Khoo, Jin Hui Ho
Endocrinology Unit, Queen Elizabeth Hospital II, Kota Kinabalu, Malaysia

INTRODUCTION
Von Hippel-Lindau (VHL) disease is a rare autosomal dominant syndrome caused by germ line mutations in the VHL tumor suppressor gene. VHL manifestations encompass a spectrum of tumors, namely retinal and central nervous system hemangioblastomas, renal cell carcinoma, pheochromocytoma, pancreatic endocrine tumours and endolymphatic sac tumours. However, the association between VHL and follicular thyroid carcinoma (FTC) is unknown.

CASE
A 25-year-old lady with unremarkable family history was diagnosed with metastatic FTC and pheochromocytoma 10 years ago. She underwent a right adrenalectomy and was in remission postoperatively confirmed by normal 24-hour urinary catecholamines. As for the FTC, she underwent total thyroidectomy and 2 sessions of radioactive iodine ablation therapy for lymphovascular invasion and bone metastases. Post-ablation whole body scans and thyroglobulin level were normal. Unfortunately, she was lost to follow-up and presented 5 years later with headache, palpitation and uncontrolled hypertension. 24-hour urinary catecholamines revealed elevated noradrenaline and CT scan showed a left adrenal mass, suggestive of a recurrent pheochromocytoma and was treated with left adrenalectomy. Molecular genetic testing demonstrated c.467A>G (p.Tyr156Cys), which is confirmatory of VHL disease.

CONCLUSION
This is the first reported case of bilateral pheochromocytoma and FTC in VHL disease. The association of VHL gene alteration and thyroid carcinoma particularly FTC from literature is scarce. More studies are needed to evaluate the association between VHL and FTC to determine the surveillance strategy, prognosis and appropriate treatment.

KEY WORDS
von hippel-lindau, pheochromocytoma, follicular thyroid carcinoma

CR-GE-22

A CASE OF BENIGN PARAGANGLIOMA WITH TRANSIENT HYPERPARATHYROIDISM

https://doi.org/10.15605/jafes.034.02.S115

Sivasangkari Mugilarassan[1] and Dr. Chong Hui Khaw[2]
[1]*Universiti Kebangsaan Malaysia Medical Centre, Malaysia*
[2]*Penang General Hospital, Malayisa*

INTRODUCTION
The co-existence of phaeochromocytoma with hypercalcemia is attributed to various factors including MEN2 (Multiple Endocrine Neoplasia), catecholamine-stimulated bone resorption and PTH secretion by the parathyroid glands, ectopic production of PTH by pheochromocytoma and PTH-related protein (PTHrP). In contrast to other causes, serum PTH is suppressed in PTHrP besides elevated urinary cyclic AMP and detection of PTHrP immunoreactivity in the tumor tissue. Irrespective of the cause, hypercalcaemia resolved in all reported cases after removal of the phaeochromocytoma lesions.

CASE
A 37-year-old Chinese lady with 2 years of hypertension developed hypertensive emergency with intracranial bleeding in 2017. She did not have any paroxysmal symptoms or features of other hereditary syndromes. Work-up for secondary causes of hypertension noted raised 24-hour urine norepinephrines at 290 micrograms. CT adrenals showed a left para-aortic lesion measuring 2.5x1.6x3.7 cm which was confirmed by Gallium 68 PET CT at L3 vertebrae level. She was incidentally noted to have hypercalcaemia with cCa 2.7 mmol/l and iPTH 108.7 pg/ml with normal phosphate, alkaline phosphatase and vitamin D levels. Neck ultrasound and sestamibi scan were negative for parathyroid lesion and abdominal ultrasound didn't reveal stones. Negative serum calcitonin and CEA ruled out medullary thyroid carcinoma as part of MEN2. However, the calcium and PTH levels normalised within a few months, even before laparoscopic excision of the benign left paraganglioma.

CONCLUSION
The likely reason for hypercalcaemia in this case could be due to stimulation of PTH secretion by the catecholamines which was transient as the hypercalcaemia resolved before removal of phaeochromocytoma.

KEY WORDS
paranganglioma, hyperparathyroidism, hypercalcaemia

CR-GE-23

AN AUTOIMMUNE POLYGLANDULAR SYNDROME TYPE II PRESENTING WITH HASHIMOTO'S THYROIDITS, DIABETES MELLITUS AND ADRENAL INSUFFICIENCY: A CASE REPORT

https://doi.org/10.15605/jafes.034.02.S116

Ivan Rommel Caluscusin and Jerome Barrera
Zamboanga City Medical Center, Zamboanga City, Philippines

INTRODUCTION
Autoimmune Polyglandular Syndrome affects 2 or more endocrine glands. It is more commonly seen among females with a gender ratio of 3:1 and usually manifests at a peak age of between 20 and 60 years. Among the 3 subtypes, type 2 is the most frequent one, manifesting with autoimmune thyroiditis, Diabetes Melitus Type 1 and Addison's disease.

CASE
We report a 40-year-old male who presented with multiple concomitant endocrine abnormalities. Physical and laboratory examinations revealed hyperthyroidism, diabetes mellitus and adrenal insufficiency. He was initially diagnosed with hyperthyroidism which eventually converted to hypothyroidism most likely Hashimoto's thyroiditis, as evidenced by high TSH levels even after 1 month of discontinuing antithyroid medication. He was also discovered to have diabetes mellitus type 1 after initially being admitted for diabetic ketoacidosis. During his most recent admission for acute gastroenteritis, he came in hypotensive. ACTH stimulation test result was compatible with adrenocortical insufficiency.

CONCLUSION
A prompt diagnosis can prevent mortality and morbidity with this kind of syndrome. This can be treated individually by hormonal therapy.

KEY WORDS
autoimmune polyglandular syndrome type 2, autoimmune thyroiditis, Addison's disease

CR-GE-24

ASYMPTOMATIC PHEOCHROMOCYTOMA PRESENTING AS ADRENAL INCIDENTALOMA

https://doi.org/10.15605/jafes.034.02.S117

Angeli Nicole Ong and JeremyJones Robles
Chong Hua Hospital, Cebu City, Philippines

INTRODUCTION
Adrenal incidentalomas remain a diagnostic dilemma for endocrinologists. Pheochromocytoma is the most critical of the differential diagnosis that needs to be ruled out because of its fatal consequences. More commonly symptomatic with elevations of blood pressure during spells of catecholamine secretion, a subset of patients has been reported with normal blood pressure. We present a clinically asymptomatic female that was evaluated for an incidental mass on her right adrenal.

CASE
A 32-year-old female consulted for a right adrenal mass noted on routine ultrasound for abdominal discomfort. She had no history of hypertension nor fluctuations of blood pressure up to initial evaluation. CT scan of abdomen with contrast showed a 3x4x3 cm right adrenal mass, with slow wash-out on delayed scan. She had elevated 24-hour urine metanephrine 1.96 mg/24 hrs (NV: 0-1), 24-hour urine epinephrine 129 mcg/24hrs (NV:2-24) and chromogranin A levels 225.38 ng/ml (NV:<100). 24-hour urine norepinephrine 84 mcg/24 hrs (NV 15-100) and dopamine 349 mcg/24 hrs (NV:52-480) were normal. Aldosterone-to-renin ratio was 56.21 (NV:<20 ng/dl per ng/ml/hr), with low renin 0.14 (NV:0.48-4.88 ng/ml/hr) and normal aldosterone 7.87 (NV:5.38-38.76 ng/dl). Luteinizing hormone 4.33 (NV:3.5-12.5 mIU/ml), follicle-stimulating hormone 3.21 (NV:<7 mIU/ml), estradiol 67.7 (NV:15-350 pg/ml). 8 am serum cortisol (28.28 nmol/L) was appropriately suppressed after overnight 1 mg dexamethasone. Alpha blocker and calcium channel blocker were given preoperatively. Laparoscopic adrenalectomy revealed a 4.5cm adrenal tumor. There were extreme fluctuations in blood pressure during tumor manipulation. Histopathology confirmed the pheochromocytoma.

CONCLUSION
Asymptomatic pheochromocytoma is a rare and potentially fatal finding in the background of adrenal incidentaloma. Proper diagnosis and perioperative management are essential for the successful removal of these tumors.

KEY WORDS
pheochromocytoma, asymptomatic, adrenal, mass, incidentaloma

CR-GE-25

A CASE OF CLASSICAL CONGENITAL HYPERPLASIA (CAH) PRESENTING WITH BILATERAL ADRENAL MASSES

https://doi.org/10.15605/jafes.034.02.S118

Ann Marie Abujen, Sarah Laida Tingkahan, Jerome Barrera
Zamboanga City Medical Center, Zamboanga City, Philippines

INTRODUCTION
Congenital Adrenal Hyperplasia (CAH) presenting with adrenal masses has been reported to be less than 0.4%. We report a 25-year-old diagnosed with simple virilizing Classical Congenital Adrenal Hyperplasia (CAH) with bilateral adrenal masses.

CASE
A 25-year-old phenotypic male came in due to right flank pain. He has an ambiguous genitalia. He has male secondary features and was raised as male since birth. Karyotype showed a female genotype.

CONCLUSION
It is recommended that all patients with ambiguous genitalia be tested for karyotyping and evaluation should be undertaken as soon as possible for immediate management and intervention.

KEY WORDS
congenital adrenal hyperplasia, bilateral adrenal mass, ambiguous genitalia

CR-GE-26

A CLINICAL FEATURE OF SEVERE HYPERTRIGLYCERIDEMIA IN REPRODUCTIVE WOMAN WITH PRIMARY POLYDIPSIA

https://doi.org/10.15605/jafes.034.02.S119

Primasari Deaningtyas,[1] Dyah Purnamasari,[2] Ikhsan Mokoagow[2]
[1]*Department of Internal Medicine, Faculty of Medicine University of Indonesia*
[2]*Endocrine and Metabolic Division, Faculty of Medicine University of Indonesia*

INTRODUCTION
Severe hypertriglyceridemia defined as triglyceride level above 1000 mg/dL may cause fatal cardiac event due to its atherogenic impact and also acute pancreatitis. This report described severe hypertriglyceridemia that occurred coincidentally with polyuria related to a psychogenic disorder.

CASE
A 35-year-old woman came to our clinic presenting with polyuria more than 6.5 L/day. She complained of nocturia more than 10 times/night with absence of weight loss and polyphagia. She denied consuming excessive water. She complained of dyspnea with absence of orthopnea. 2D-echocardiography showed concentric left ventricular hypertrophy with preserved EF (62.9%). She is obese (BMI 30,9 kg/m^2) with absence of diabetes mellitus, acanthosis nigricans and xanthomas. Her morning urine osmolality was low (213 mOsm) with normal plasma osmolality (283 mOsm). Her triglyceride was high (2375 mg/dL), high total cholesterol (385 mOsm), low HDL (25 mg/dL) and low LDL (48 mg/dL) wih normal blood glucose (70 mg/dL) and normal HbA1C 5.4%. In the 5th hour of water deprivation test, her urine osmolality exceeds 600 mOsm (688 mOsm). Dynamic contrast pituitary MRI revealed no intracranial lesions. Treatment with fibrates and water restriction showed gradual improvement in triglyceride level with last result 305 mg/dl. She was diagnosed with mixed depression and anxiety due to her cervical carcinoma in situ.

Certain literature has stated that hypertriglyceridemia can be secondary to other diseases including diabetes insipidus. Water deprivation test can be applied to differentiate diabetes insipidus and primary polydipsia. Since pituitary MRI with contrast showed absence of abnormality, psychogenic polydipsia was considered in this patient. Anxiolitic treatment relieved polyuria because of reduction in water consumption. Fibrates were chosen to reduce the high triglyceride level.

CONCLUSION
Hypertriglyceridemia can be primary or secondary. After exclusion of diabetes mellitus, hypothyroidism, alcohol consumption and drug effect, the precipitant of severe hypertriglyceridemia in this patient was the primary polydipsia. Lipid lowering agent and avoidance of excess water consumption led to significant improvement in triglyceride level.

KEY WORDS
phepertriglyceridemia, desmopressin acetate, gemfibrozil

CR-GE-27

AN UNUSUAL CASE OF SYMPTOMATIC HYPERCALCEMIA FROM GRAVES' DISEASE IN A YOUNG FILIPINO FEMALE

https://doi.org/10.15605/jafes.034.02.S119

Diana Colleen Dimayuga, Freyja Diana Ramos, Michael Villa
St. Luke's Medical Center-Global City, Taguig City, Philippines

INTRODUCTION
Hypercalcemia in hyperthyroidism is usually asymptomatic, and related to a concurrent primary hyperparathyroidism. In this report, we describe a case of symptomatic hypercalcemia secondary to Graves' disease alone.

CASE
Her ECG showed sinus tachycardia. The complete blood count and electrolytes were normal however, ionized calcium was high at 1.6 mmol/L (NV 1-1.3). Renal function was normal. Hydration with saline and furosemide 20 mg once daily was started though calcium levels remained elevated. Other causes of hypercalcemia were excluded as PTH was appropriately suppressed (8.8 ng/L; NV 14-72), vitamin D was also low (15.29 nmol/LNV: >30). CT scan of chest and abdomen together with bone scan did not point to any underlying malignancy nor metabolic bone disease. Medication history was also unremarkable. She was hyperthyroid with a suppressed thyroid stimulating hormone level of 0.004 pmol/L (NV: 0.55-4.78), elevated free T3 of >20 pmol/L (NV: 2.3-4.2), and elevated free T4 of 8.4 pmol/L (NV: 0.89-1.76). TSH receptor antibody levels were raised at 41.07 (NV: <1 kU/L) supporting the diagnosis of Graves'disease. She was started on propylthiouracil 50 mg four times daily, along with propranolol 40 mg three times daily. She was subsequently seen after two weeks with normal repeat calcium level and thyroid function tests.

CONCLUSION
This report highlights thyroid disease as a cause of hypercalcemia. The definitive treatment for the hypercalcemia is correction of thyroid function.

KEY WORDS
hypercalcemia, hyperthyroidism, philippines

CR-GE-28

A CASE OF PARATHYROID CRISIS SECONDARY TO BENIGN PARATHYROID ADENOMA

https://doi.org/10.15605/jafes.034.02.S120

Aye Chan Maung[1,2] and Joan Khoo[1]
[1]*Department of Endocrinology, Changi General Hospital, Singapore*
[2]*Department of Endocrinology Singapore General Hospital, Singapore*

INTRODUCTION
Hypercalcaemic parathyroid crisis is a rare and potentially fatal complication of primary hyperparathyroidism (PHPT) in which patients develop severe symptoms and signs of hypercalcemia.

CASE
67-year-old lady presented to Accident and Emergency with increasing generalized lethargy, vomiting and severe epigastric discomfort for 1 week. She had significant history of osteoporosis with T12 compression fracture and multinodular goiter. At admission, she looked lethargic and clinically dehydrated. There was no palpable neck lump, goiter or cervical lymphadenopathy. Her corrected calcium on admission was markedly raised at 4.1 mmol/l. Other biochemistries revealed significantly elevated intact PTH 189 [1.3-7.6 pmol/l] and serum alkaline phosphatase 618 [32-103 IU/l]. Her urea, creatinine, thyroid functions were normal. She was started on aggressive intravenous hydration with 0.9% sodium chloride followed by subcutaneous calcitonin and iv pamidronate. Technetium-99 sestamibi scan showed hyperfunctioning parathyroid tissue at the region of lower lobe of left thyroid. There was a prompt decrease in her calcium and parathyroid hormone level immediately after removal of a 5 cm left inferior parathyroid tumor. Histology revealed benign parathyroid adenoma.

CONCLUSION
Parathyroid crisis is a syndrome characterized by a serum calcium level usually greater than 3.5 mmol/l resulting from marked elevation of PTH with multiple organ dysfunction and profound dehydration. 3% of PHPT patients present with parathyroid crisis in which 88% are caused by parathyroid adenoma. It is important to institute multimodality treatment to lower serum calcium before early parathyroidectomy.

KEY WORDS
hypercalcaemia parathyroid crisis parathyroid adenoma

CR-GE-29

T3 THYROTOXICOSIS AND SECONDARY HYPERPARATHYROIDISM IN A 21-YEAR-OLD FEMALE WITH A HISTORY OF GONADOTROPIN-INDEPENDENT PRECOCIOUS PUBERTY AND RECURRENT FRACTURES

https://doi.org/10.15605/jafes.034.02.S121

Kevin Paul Enriquez and Jerome Barrera
Zamboanga City Medical Center, Zamboanga City, Philippines

INTRODUCTION
McCune Albright syndrome (MAS), caused by an activating mutation in the Gs alpha membrane associated protein, is a condition with a prevalence of 1:100,000-1:1,000,000. Diagnosis is usually established clinically by a constellation of cafe-au-lait spots, polyostotic fibrous dysplasia, and hyperfunctioning endocrinopathies. We report a 21-year-old female with cafe-au-lait spots, history of gonadotropin-independent precocious puberty, recurrent fractures, presenting with bone pain and symptoms of hyperthyroidism.

CASE
A 21-year-old female presented with symptoms of palpitations, tremors and heat intolerance. Testing revealed T3 thyrotoxicosis (suppressed TSH, elevated fT3, normal fT4), with radiographic findings of ground-glass appearance and endosteal scalloping of the humerus, ribs, and femur characteristic of fibrous dysplasia. The presence of decreased phosphorus, total calcium, 25-OH Vitamin D, and an elevated PTH level signified associated secondary hyperparathyroidism.

CONCLUSION
T3 thyrotoxicosis and secondary hyperparathyrodisim caused by vitamin D deficiency and renal phosphate wasting are common endocrinopathies associated with MAS. Both contribute significantly to the progression of fibrous dysplasia. Management is usually palliative and no form of therapy to date affects the natural course of disease.

KEY WORDS
mccune Albright syndrome, fibrous dysplasia, t3 thyrotoxicosis

CR-GE-30

GIANT PARATHYROID ADENOMA AND PARATHYROID CANCER: A CASE SERIES AND LITERATURE REVIEW

https://doi.org/10.15605/jafes.034.02.S122

Hazwani Aziz and Zanariah Hussein
Endocrinology Unit, Medical Department Hospital Putrajaya, Malaysia

INTRODUCTION
Only <1% of cases of primary hyperparathyroidism are due to parathyroid cancer, and 85% are due to parathyroid adenoma. Giant parathyroid adenoma (GPA) is defined as adenoma larger than 3.5 g.

CASE
Twenty-one cases of parathyroid masses >3.5g in patients with primary hyperparathyroidism who underwent parathyroidectomy in Hospital Putrajaya, Malaysia from 2012 till 2019 were identified. The youngest age was 17 years old, with majority between 50 to 65 years old. Eleven cases presented with nephrolithiasis, 6 cases had osteoporosis and 2 cases were asymptomatic. Average serum calcium was 3.2 mmol/L Average iPTH was 71.5 pmol/L, with highest iPTH 176.6 pmol/L. The sizes vary from 3.5 g to 38 g. 2 cases with adenoma size of 32.4 g and 6 g and ALP 3046 U/L and 405 U/L respectively, developed hungry bone syndrome. Two cases were reported as parathyroid cancer during histopathology examination. First case presented with nephrocalcinosis and chronic pancreatitis, calcium 4.0 mmol/L, iPTH 176 pmol/L and size of 4.2 g. The second case presented with symptomatic hypercalcaemia and osteoporosis, with calcium 3.61 mmol/L, iPTH 88.2 pmol/L and size of 38 g. Another symptomatic case with calcium 2.77 mmol/L, iPTH 87.8 pmol/L and size of 6.9 g had biopsy of atypical parathyroid adenoma with capsular and perivascular invasion.

CONCLUSION
Differentiating GPA with parathyroid cancer is a challenge as it will determine further surgical intervention.

KEY WORDS
primary hyperparathyroidism, parathyroid carcinoma, parathyroid adenoma

CR-GE-31

THE MANY FACES OF PARATHYROID CARCINOMA: A CASE SERIES

https://doi.org/10.15605/jafes.034.02.S123

Margaret Encarnacion, Celeste Ong-Ramos, Michael Villa, Eduardo Thomas Aquino, Roberto Mirasol
St. Luke's Medical Center-Quezon City, Philippines

INTRODUCTION
Parathyroid carcinoma is rare, affecting less than 1% of patients with primary hyperparathyroidism (PHPT). Parathyroid carcinoma with concomitant papillary thyroid carcinoma is also rare, and the etiology is not fully defined.

CASE
We present 3 patients with parathyroid carcinoma and discuss their presenting symptoms, characteristics, and treatment. Two women and 1 man (2 Filipinos and 1 Marshallese) ages 53-68 years old had parathyroid carcinoma. Two had primary hyperparathyroidism, one had non-functioning type of parathyroid carcinoma. Two had concomitant bone or renal disease. All three had concurrent thyroid disease- 2 had papillary thyroid microcarcinoma, one had colloid goiter. Because each one had different indications for neck surgery, different surgical techniques were done. Parathyroid cancer sizes ranged from 2.0-5.2 cm, with capsular and vascular invasion in all three. One case had double parathyroid carcinomas. On follow-up, the patient with the largest tumor size had tumor recurrence within 1 year from surgery.

CONCLUSION
This case series, to the best of our knowledge, includes the first reported case of synchronous parathyroid carcinoma and papillary thyroid carcinoma in a Marshallese patient, as well as the 7th case of double parathyroid carcinomas. Parathyroid carcinoma is a rare condition, and coupled with its highly variable presentation, as seen in the 3 cases, presents clinicians with a difficulty in arriving at a diagnosis. Histopathology remains the gold standard in diagnosis and is a key in guiding management. Since coexisting thyroid and parathyroid disease may occur, thyroid pathology should be evaluated in the presence of PHPT.

KEY WORDS
cancer, hyperparathyroidism, parathyroidectomy, microcarcinoma

CR-GE-32

THE PERILOUS PROTON PUMP INHIBITOR

https://doi.org/10.15605/jafes.034.02.S124

Yong Ting Tai and Chin Voon Tong
Endocrine Unit, Department of Medicine, Hospital Melaka, Malaysia

INTRODUCTION
Proton pump inhibitors (PPIs) are the mainstays of therapy for all gastric acid related diseases. PPIs have been associated with various adverse effects, including hypomagnesemia. The postulated mechanism of PPI-related hypomagnesemia involves inhibition of intestinal magnesium absorption via transient receptor potential melastin (TRPM) 6 and 7 cation channels. PPI-induced hypomagnesaemia (PPIH) has become a well recognized phenomenon since it was first reported in 2006. In this article, we report 2 cases of PPIH referred to endocrine unit for severe hypocalemia related to PPIH.

CASE
Patient 1 was newly diagnosed with pulmonary tuberculosis (PTB). She was started on pantoprazole due to vomiting after taking anti-TB medications. She presented a week later with supraventricular tachycardia. Blood investigations showed multiple electrolyte abnormalities, including hypomagnesaemia, hypocalcaemia, and hypokalemia. Her serum electrolytes failed to return to normal despite multiple corrections given. After pantoprazole was discontinued, the serum levels of magnesium, potassium and calcium started to respond to corrections given and returned to normal. Patient 2 was diagnosed with peptic ulcer disease and started on pantoprazole. 4 months later, she presented with lethargy and bilateral hand numbness. Blood investigations revealed severe hypocalcaemia and hypomagnesaemia. Her magnesium and calcium levels slowly returned to normal after the pantoprazole was discontinued.

CONCLUSION
Known risks of long-term PPIs administration must be considered in clinical practice and judicious use of PPIs is important to avoid potentially fatal complications.

KEY WORDS
proton pump inhibitor, hypocalcemia, hypomagnesemia

CR-GE-33

SODIUM-GLUCOSE CO-TRANSPORTER 2 INHIBITOR (SGLT2i)-INDUCED HYPERCALCEMIC ENCEPHALOPATHY IN AN ELDERLY PATIENT: A CAUTIONARY TALE IN GERIATRIC PATIENTS

https://doi.org/10.15605/jafes.034.02.S125

Yotsapon Thewjitcharoen,[1] Somboon Vongterapak,[1] Lapakorn Chatapat,[2] Siriwan Butadej,[1] Soontaree Nakasatien,[1] Sirinate Krittiyawong,[1] Sming Kaojaroen,[1] Thep Himathongkam[1]

Institution: [1]Diabetes and Thyroid Center, Theptarin Hospital Bangkok, Thailand

[2]Department of Clinical Tropical Medicine, Faculty of Tropical Medicine, Mahidol University, Bangkok, Thailand

INTRODUCTION

SGLT2i is currently being advocated as preferred medication in high-risk patients with diabetes. However, elderly patients are prone to known and less-known side effects from this medication. Moreover, polypharmacy can contribute to higher incidence of adverse effects from SGLT2i.

CASE

An 80-year-old Thai woman with uncontrolled type 2 DM, hypertension and CKD stage 3 (baseline GFR 32 mL/min/1.73 m^2) treated with insulin, linagliptin, dapagliflozin and hydrochlorthiazide presented with altered mental status. Dapagliflozin was prescribed 4 months earlier to control her diabetes (A1C 8.1%). Laboratory work-up at initial admission showed acute kidney injury (GFR 21 mL/min/1.73 m^2) and severe hypercalcemia of 13.3 mg/dL. Further investigations included low levels of PTH of 7 pg/ml (reference range 15-65), normal 25-hydroxy vitamin D of 31 ng/ml (reference range 30-100), and a normal level of TSH of 2.3 mU/ml (reference range 0.3-4.2). saline hydration led to improvement in hypercalcemia, renal function, and mental status over 48 hours. She is currently stable at 12 months after discharge.

CONCLUSION

SGLT2i is a unique and promising anti-diabetic agent. However, post-marketing surveillance data revealed various unexpected adverse events from this medication. Although the exact mechanisms are unclear, SGLT2i may predispose patients to hypercalcemia from various mechanisms including dehydration from osmotic diuresis, increased intestinal calcium absorption due to inhibition of SGLT1, and impact of concomitant medications especially diuretics. Clinicians must take greater care when prescribing SGLT2i to elderly patients.

KEY WORDS

SGLT2i, hypercalcemia, encephalopathy

CR-GE-34

EMPTY SELLA SYNDROME IN A PATIENT WITH TENOFOVIR-INDUCED FANCONI'S SYNDROME: DIAGNOSIS BY SERENDIPITY

https://doi.org/10.15605/jafes.034.02.S126

Yotsapon Thewjitcharoen,[1] Nampeth Lekpittaya,[1] Terapong Tantawichien,[2] Veekij Veerasomboonsin,[1] Soontaree Nakasatien,[1] Sirinate Krittiyawong,[1] Thep Himathongkam[1]

[1]Diabetes and Thyroid Center, Theptarin Hospital, Bangkok, Thailand

[2]Division of Infectious Disease, Department of Medicine, Faculty of Medicine, Chulalongkorn University, Thailand

INTRODUCTION

Empty sella syndrome (ESS) is generally asymptomatic, incidentally detected, and usually requires no specific treatment. However, hypopituitarism is present in some ESS patients.

CASE

A 63-year-old female asymptomatic patient with HIV on long-term antiretroviral treatment presented with progressive weight loss of 22 kg over 18 months prior to hospitalization from tenofovir-induced Fanconi's syndrome. Prior to hospitalization, extensive evaluation was carried out and did not yield any identifiable causes of weight loss. After hospitalization, polyuria and normoglycemic glucosuria from Fanconi's syndrome were identified but subsequently, a diagnosis of panhypopituitarism was made after hormonal evaluation studies. An MRI of pituitary gland revealed thinned pituitary gland with normal size of sella. She denied history of postpartum hemorrhage and had regular menstruation until menopause. Partial ESS with hypopituitarism was finally diagnosed and oral prednisolone with thyroid hormone were given. She gradually regained weight and well-being after tenofovir discontinuation and hormone replacement. Full normalization of proximal tubulopathy markers was obtained within two months of tenofovir discontinuation.

CONCLUSION

Antiretroviral therapy helps people with HIV live longer but sometimes these medications can cause late side effects as presented in our patient. Apart from a straightforward diagnosis, patients can have different diseases to explain their symptoms. Physicians should consider the possibility of adrenal insufficiency in the broad differential diagnoses of unexplained weight loss.

KEY WORDS

empty sella syndrome, Tenofovir-induced Fanconi's syndrome, HIV

CR-GE-35

SUBCLINICAL SECONDARY ADRENAL INSUFFICIENCY IN A PATIENT WITH MALNUTRITION – INTERRELATIONSHIP OF NUTRITION AND ENDOCRINOLOGY

https://doi.org/10.15605/jafes.034.02.S127

Yotsapon Thewjitcharoen,[1] Jantawan Annapann,[1] Patitta Songsiri,[1] Phawinpon Chotwanvirat,[1] Sonntaree Nakasatien,[1] Surat Komindr,[2] Thep Himathongkam[1]

[1]*Diabetes and Thyroid Center, Theptarin Hospital, Bangkok, Thailand*

[2]*Division of Nutrition and Biochemical Medicine, Department of Medicine, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Thailand*

INTRODUCTION

The syndrome of protein-calorie malnutrition (PCM) entails not only nutritional deficiencies, but also affects the levels of various hormones. Some vulnerable patients might have maladaptive responses and could lead to clinical catastrophic outcomes if left undetected.

CASE

A 41-year-old Thai man with underlying major depression presented with weight loss and nonhealing ulcer at the left heel for 3 months. Nutrition-focused physical examinations were consistent with severe PCM and multiple micronutrient deficiencies especially zinc deficiency. He was hospitalized and treated with combined enteral and parental nutrition. During admission, morning cortisols were done as a part of investigations. The cortisol results were unexpectedly low at the level of 3.7-4.7 μg/dL. The patient failed to respond to a 250 μg ACTH stimulation test (peak cortisol at 17 μg/dL) and plasma ACTH showed normal level. Other pituitary hormones were normal. MRI pituitary gland showed only a microadenoma 5 mm at left lobe of pituitary gland. Oral prednisolone was given and continued for 3 months after discharge. Subsequent ACTH test at OPD showed reversible adrenal insufficiency and prednisolone was tapered off. The patient gradually recovered from malnutrition and mental illness.

CONCLUSION

Endocrine changes due to malnutrition are part of an adaptive mechanism. Most malnourished patients have normal or high cortisol levels; however, some patients might have adrenal insufficiency from maladaptive responses to stress. Early detection and management of adrenal insufficiency should be addressed in these patients.

KEY WORDS

subclinical secondary adrenal insufficiency, malnutrition, interrelationship

CR-GE-36

HIDDEN IN PLAIN SIGHT: PITUITARY APOPLEXY IN A PATIENT PRESENTING WITH VISUAL LOSS AND CONJUNCTIVITIS

https://doi.org/10.15605/jafes.034.02.S128

Leslie Daphne Kawaji and Rowena Ejercito-de Jesus

St. Luke's Medical Center- Global City, Taguig City, Philippines

INTRODUCTION

Apoplexy, a rare complication of pituitary tumors, may be the initial manifestation of a previously unknown pituitary pathology. It usually presents with headache, visual impairment or ophthalmoplegia which may be severe and of sudden-onset. Imaging will reveal a pituitary mass with hemorrhagic component.

CASE

A 72-year-old male was admitted due to headache and blurring of vision. He was hypertensive, with history of ischemic stroke (2014) and bilateral renal cell carcinoma post-nephrectomy of the left kidney (2008). One week prior, he was given an initial dose of Pazopanib, a kinase inhibitor used in advanced renal cell carcinomas. He developed headache, anorexia and weakness after 4 days. Blurring of vision with lid swelling and mucoid discharge occurred a day prior to admission. Assessment was bacterial conjunctivitis, hence he was started on antibiotic eye drops. Visual acuity was reduced to light perception in both eyes during this time. Due to headache persistence, cranial MRI was done to rule out metastasis or stroke. There was a 2.8x1.9x2.2 cm mass in the sellar region with heterogenous internal signal displacing the optic chiasm. Pituitary apoplexy was considered, and hormonal work-up revealed central adrenal insufficiency, central hypothyroidism and hypogonadotropic hypogonadism. Steroid replacement was initiated followed by thyroid hormone supplementation then transphenoidal endoscopic pituitary surgery. Histopathology confirmed pituitary adenoma with hemorrhage and necrosis. He was sent home improved on levothyroxine and prednisone.

CONCLUSION

Pituitary apoplexy is a rare endocrine emergency. It can be a diagnostic challenge, hence, a high index of suspicion should be exercised by clinicians.

KEY WORDS

pituitary apoplexy, hypopituitarism, pituitary tumor

CR-GE-37

ELEVATED METANEPHRINES IN A NORMOTENSIVE FILIPINO WOMAN WITH A LATERAL NECK MASS

https://doi.org/10.15605/jafes.034.02.S129

Adrian Oscar Bacena,[1] Cecilia Jimeno,[1] Kimberly Mae Ong[2]
[1]*Division of Endocrinology, Diabetes and Metabolism, Department of Medicine, Philippine General Hospital-University of the Philippines Manila*
[2]*Department of Otorhinolaryngology, Philippine General Hospital-University of the Philippines Manila*

INTRODUCTION
Schwannomas are benign biochemically non-secretory neoplasms that originate from the myelin sheaths of nerves. Functioning schwannomas, especially that of the head and neck, are exceedingly rare with only a few published in the literature. This case aims to report the uncommon presentation of a patient with a neck schwannoma in an adult female with elevated urine metanephrines.

CASE
A 33-year-old Filipino female, non-hypertensive, was admitted for a two-year history of progressively enlarging non-tender pulsatile right lateral neck mass, without any symptoms. The patient underwent aspiration biopsy revealing no malignant cells. Contrast-enhanced CT Scan demonstrated well-defined heterogeneously enhancing soft tissue mass in the right paracervical area, with an initial impression of paraganglioma or nerve sheath tumor. To discriminate further, urine metanephrine was ordered and demonstrated high results (3.997 mg, 5.018 mg; Reference: 0-1.00 mg/24hr) on two occasions. Gadolinium-enhanced MRI showed the 6.3x3.9x4 cm mass as isointense on T1WI and hyperintense on T2WI. Despite normotension, terazosin was administered for pre-operative alpha blockade. She underwent excision of the tumor without post-operative complications. On follow-up, the histopathology and immunohistomorphologic features confirmed the mass as a Schwannoma. Four weeks later, the patient remained normotensive and repeat urine metanephrines yielded normal results (0.670 mg, 0.192 mg).

CONCLUSION
Surgery, which remains to be the cornerstone of treatment, heralded the biochemical remission of the urine metanephrines in the patient. Although there were no identified neuroendocrine elements in the histopathology, the decrease in urine metanephrines after tumor removal likely points to a secretory schwannoma.

KEY WORDS
metanephrines, secretory schwannoma, lateral neck mass

CR-GE-38

THE SLEEPING GIANT: AN ATYPICAL CASE OF A GIANT PITUITARY ADENOMA PRESENTING AS ACROMEGALY WITH MINIMAL SYMPTOMS OF MASS EFFECT

https://doi.org/10.15605/jafes.034.02.S130

Catherine Jordan, Carmen Carina Cabrera, Evelyn Esposo, Reynaldo Rosales, Rachelle Diane Maravilla
St Luke's Medical Center-Quezon City, Philippines

INTRODUCTION
This is a case of patient with giant pituitary adenoma (GPA) presenting with acromegalic features, minimal symptoms of mass effect who underwent surgical resection via transcranial approach with minimal surgical morbidity.

CASE
A 40-year-old female presented with typical acromegalic features over 14 years, occasional mild frontal headaches and blurred vision. She had elevated growth hormone (GH) and insulin-like growth factor-1 (IGF-1). Cranial MRI revealed a 6.4x7x5.5 cm lobulated pituitary mass with cystic degeneration, areas of necrosis with mass effect on several intracranial structures. Excision via craniotomy reduced mass size to 5.9x5.8x4.7 cm. Histopathology revealed a mixed GH- and prolactin-secreting pituitary adenoma. She was maintained on bromocriptine and underwent radiotherapy. Repeat IGF-1 levels remained elevated but symptoms did not progress.

CONCLUSION
This is a case of a patient with GPA with minimal symptom of mass effect, with no hormonal improvement post-surgery and radiotherapy. Ideally, a multi-staged surgery can be done with optimization of medical management. In the absence of these medications locally and reluctance of patient for re-surgery, the team opted to monitor tumor size, hormone levels and maximize management of co-morbidities.

KEY WORDS
acromegaly, pituitary adenoma, gh secreting

CR-GE-39

SELECTIVE ACTH SAMPLING IN LOCALIZING SOURCE OF ACTH IN VON HIPPEL LINDAU DISEASE WITH PANCREATIC NEUROENDOCRINE TUMOUR AND RENAL CELL CARCINOMA

https://doi.org/10.15605/jafes.034.02.S131

Carolina Shalini Singarayar,[1] Radhamani Rajakumar,[2] Nor Azmi Kamaruddin,[1] Norlela Sukor,[3] Anilah Abdul Rahim,[1] Ijaz Hallaj Rahmatullah,[1] Norasyikin Abd Wahab[1]

[1]Department of Medicine, Universiti Kebangsaan Malaysia Medical Centre, Cheras, Malaysia

[2]Department of Medicine, Hospital Kuala Lumpur, Malaysia

[3]Department of Medicine, Hospital Raja Permaisuri Bainun, Jalan Hospital, Malaysia

INTRODUCTION

Crushing's sundrome (CS) in a patient with VHL has been attributed to a number of possible causes; pancreatic NET and renal cell carcinoma. The precise location of ectopic ACTH aid enormously in the management of VHL.

CASE

A 31-year-old woman with Type 2 diabetes and family history of VHL presented with florid features of CS in her second trimester of pregnancy. Investigations supported a diagnosis of ACTH dependent CS. She underwent emergency caesarean section due to pre-eclampsia at 28 weeks gestation. MRI pituitary was normal. CT abdomen showed an enlarged pancreas, almost completely cystic and a right renal mass (3.7x2.7x4 cm). Serum chromogranin A was elevated. Twenty-four hour urinary free metanephrine was normal. Selective ACTH sampling was done with bilateral IPSS to elicit source of ACTH. Increased gradient of ACTH level compared to the periphery was detected from the hepatic vein that drains the pancreas (hepatic vein:138.92 pg/mL, IVC:115.12 pg/mL, renal vein:100.2 pg/mL). Total pancreatectomy and right nephrectomy were performed. A week after surgery, am cortisol was 103 nmol/L. HPE identified a solid tumour (16X12X12X mm) at the pancreatic tail which stained positive to Chromogranin A, synaptophysin and ACTH with mitoses of 0-1/10hof and a Ki67 index of 2%. The renal mass was a Grade 1 clear cell renal cell carcinoma. Two months later, there was resolution of cushingoid features.

CONCLUSION

When managing VHL with CS, there is always a possibility of more than one source of ACTH production. The use of selective ACTH sampling may be considered where functional imaging (DOTATATE) is unavailable to delineate the cause.

KEY WORDS

ectopic cushing's von hippel lindau, acth dependent cushing's

CR-GE-40

RECURRENT CAVERNOUS SINUS THROMBOSIS – AN UNUSUAL COMPLICATION OF CUSHING'S DISEASE

https://doi.org/10.15605/jafes.034.02.S132

Xin Yi Ooi, Yong Ting Tai, Chin Voon Tong

Hospital Melaka, Malaysia

INTRODUCTION

Cushing's disease increases risk of venous thromboembolism. However, its association with cavernous sinus thrombosis (CST) is rarely reported. We report a case of Cushing's disease complicated with recurrent bilateral CST.

CASE

She first presented at age 14 with pituitary apoplexy. Initial investigations showed non-functioning pituitary adenoma. Transphenoidal surgery was done. Left CST was diagnosed 6 months post-surgery when she had severe headache. This prompted further investigations which revealed Cushing's disease. She was started on warfarin, but developed right CST within 2 months and was switched to enoxaparin. Her cortisol levels remain elevated on surveillance and one year later, a recurrent pituitary macroadenoma was seen on MRI encroaching the left cavernous sinus with left CST. She subsequently underwent petrosal craniotomy for tumour debulking. Enoxaparin was stopped post-surgery, but 6 months post-surgery her MRI now shows presence of right pituitary macroadenoma with right CST with no normalisation of cortisol.

CONCLUSION

CST is a rare complication of Cushings and may occur due to hypercoagulablity due to hypercortisolism and compression from tumour extension from the pituitary fossa.

KEY WORDS

cushings, cavernous sinus thrombosis, recurrence

CR-GE-41

PANHYPOPITUITARISM FROM EMPTY SELLA SYNDROME ASSOCIATED WITH IDIOPATHIC PORTAL GASTROPATHY IN AN ADULT MALE

https://doi.org/10.15605/jafes.034.02.S133

Racquel Bruno,[1] Ray Anthony Bartolome,[2] Frances Lina Lantion-Ang[1]
[1]*Division of Endocrinology, Diabetes and Metabolism, Philippine General Hospital-University of the Philippines Manila*
[2]*Division of Gastroenterology Department of Medicine, Philippine General Hospital-University of the Philippines Manila*

INTRODUCTION
Hormone deficiencies from hypopituitarism have been linked to liver dysfunction in the neonates up to adulthood with a spectrum ranging from cholestasis, elevated transaminases, NAFLD, hepatitis and cirrhosis. The exact mechanisms are still unclear but points to growth- and adrenocorticotrophic hormone deficiencies affecting liver metabolic pathways. This paper presents a rare case of panhypopituitarism associated with portal gastropathy.

CASE
A 19-year-old male presented with hematemesis from bleeding esophageal varices, requiring rubber band ligation. He has no prior or family history of hepatic and metabolic disorders. Diagnostics revealed elevated transaminases, recent normal bilirubins but high alkaline phosphatase, and bicytopenia consistent with hypersplenism. Hepatitis profile and iron overload markers were normal. Work-up for common causes of cirrhosis were negative and a diagnosis of idiopathic portal hypertension was made. He was referred to endocrinology due to eunuchoid body habitus, signs of hypogonadism and symptoms of hypothyroidism and hypocortisolism. Hormonal evaluation revealed anterior pituitary and target-organ hormone deficiencies. Delayed skeletal maturity was seen on skeletal survey. Cranial MRI revealed bilateral hippocampal atrophy with unremarkable sellar structures. Hormone replacement with steroids and Levothyroxine was initiated with improvement of symptoms. He plans to start testosterone therapy and is scheduled for surveillance endoscopies.

CONCLUSION
Case reports have suggested that early hormone replacement therapy in hypopituitarism may still reverse liver dysfunction such as cholestasis but if initiated later, the pathology will most likely be persistent. Though rare, in patients presenting with idiopathic liver dysfunction and signs of hormone deficiencies, a neuroendocrinologic cause such as hypopituitarism should be entertained and addressed.

KEY WORDS
panhypopituitarism, portal gastropathy, cirrhosis

CR-GE-42

HYPOGONADOTROPIC HYPOGONADISM ASSOCIATED WITH CENTRAL HYPOTHYROIDISM AND SECONDARY ADRENAL INSUFFICIENCY IN TWO FILIPINO MALE ADULTS

https://doi.org/10.15605/jafes.034.02.S134

Maryan Carriaga Samson and Imelda Lagula-Bilocura
Chong Hua Hospital, Cebu City, Philippines

INTRODUCTION
Hypogonadotropic hypogonadism (HH) is a form of gonadal failure secondary to deficient gonadotropin secretion. HH that occurs in association with impaired secretion of other pituitary hormones result from defects in pituitary cell differentiation. We present two adult males with secondary hypogonadism, hypothyroidism and adrenal insufficiency.

CASE
A 32-year-old admitted for viral encephalitis was incidentally found to have absent secondary sex characteristics, microphallus and cryptorchidism. Diagnostics revealed low testosterone levels 0.025 nmol/L (NV=2.8–8), low DHEAS 3.9 ug/dL (NV=120-520) with inappropriately low LH 0.345 mIU/L (NV 1.7–8.6) and FSH 0.421 mIU/mL (NV=1.7–8.6).TSH was normal at 0.837 UIU/ml (NV=0.3–5) but with low FT4 6.96 pmoL/L (NV 11–22) and FT3 0.805 pmoL/L (NV 3.1–6.5). Morning serum cortisol was decreased at 74.26 nmoL/L (NV=171-536). The second patient is a 50-year old male with eunuchoid habitus complaining of low energy. Laboratory results similarly showed normal TSH 3.7 UIU/mL with decreased values of the following: FT4 8.42 pmol/L, morning cortisol 59.94 nmol/L, testosterone 0.020 nmol/L, LH <0.100 mIU/L and FSH 0.276 mIU/mL. Both had unremarkable pituitary imaging and normal male karyotypes. Hormone replacement therapy was given.

CONCLUSION
Detection of low testosterone and gonadotropin levels confirms the diagnosis of male hypogonadotropic hypogonadism. Early recognition and diagnosis of HH including associated hormone deficiencies can prevent negative physical and psychological sequelae and restore fertility in affected patients, thereby improving quality of life.

KEY WORDS
hypogonadotropic, hypogonadism, hypothyroidism, adrenal, insufficiency, central

CR-GE-43

NEUROENDOCRINE TUMOR OF THE LUNGS SECONDARY TO DIFFUSE IDIOPATHIC PULMONARY NEUROENDOCRINE CELL HYPERPLASIA (DIPNECH)

https://doi.org/10.15605/jafes.034.02.S135

Richultz Montevirgen and Elizabeth Paz-Pacheco
Section of Endocrinology, Diabetes and Metabolism, The Medical City, Pasig City, Philippines

CASE

A 66-year-old female, known diabetic and hypertensive, with diagnosis of invasive ductal carcinoma of the right breast presented with a chest x-ray finding of a round lung density in the right paravertebral region at the level of T10-11. Chest CT scan showed multiple non-calcified nodules in the right middle and both lower lobes. CT guided biopsy of the dominant lung nodule was positive for Synaptophysin, Chromogranin, CD-56 with Ki-67 of 1-3%, compatible with Typical Carcinoid Tumor. Bone scan was negative. Video Assisted Thoracic Surgery (VATS) with wedge resection of the right lung and middle lobe confirmed the diagnosis of well differentiated pulmonary endocrine tumor, with nolymphovascular invasion. The background lung tissue from the right middle lobe revealed multiple foci of neuroendocrine tumor (0.1 cm to 0.4 cm); the right lower lobe tissue (0.1 cm to 0.3 cm) with areas of focal neuroendocrine cell hyperplasia. She was generally asymptomatic except for occasional cramps of the lower extremities, frequent watery stools with 4 kg weight loss and intermittent facial flushing. A multidisciplinary team confirmed the diagnosis of a rare case of lung carcinoid, non-functional, arising from Diffuse Idiopathic Pulmonary Neuroendocrine Cell Hyperplasia (DIPNECH). Consensus plan consisted of presevation of lung parenchyma and close follow-up. She underwent total right mastectomy and was maintained on Tamoxifen. No further surgery was planned at this time and she continues to be asymptomatic.

KEY WORDS

typical neureoendocrine tumor, diffuse idiopathic pulmonary neuroendocrine cell hyperplasia (dipnech), tumorlets, immunohistochemical staining

CR-GE-44

PRIMARY PARTIAL EMPTY SELLA PRESENTING WITH PREPUBERTAL HYPOGONADOTROPIC HYPOGONADISM: A CASE REPORT

https://doi.org/10.15605/jafes.034.02.S136

Maria Angela Matabang and Buena Sapang
Department of Internal Medicine, Ospital ng Makati, Philippines
Abstract published in the Journal of the Endocrine Society, 2019 Apr 15; 3 (Suppl 1): MON-LB072

INTRODUCTION

This case report discusses the approach to diagnosis of a 20-year-old male presenting with micropenis with absent secondary sexual characteristics.

CASE

The patient has eunuchoid habitus, gynecomastia, and genital and pubic hair development of Tanner Stage 1. He has a flaccid and stretched penile lengths of 2.5 and 3 centimeters respectively, palpable small, firm left testis and undescended right testis. Neurologic examination was unremarkable except for anosmia. Cranial MRI with contrast is suggestive of partially empty sella. Chromosome analysis revealed a kayotype with no numerical and structural aberrations and an XY sex chromosome. He has delayed bone age using Greulich-Pyle method and hormonal tests showed low testosterone, LH, FSH, estradiol and beta-HCG.

CONCLUSION

The incidence of primary partial empty sella varies depending on means of diagnosis ranging from 5.5-35% in the general population. It may manifest with various endocrine deficiencies. Prepubertal hypogonadotropic hypogonadism is its main manifestation, presenting as micropenis and lack of secondary sexual characteristics. It is rare with peak incidence at late 30 to 40 years of age and predilection for females with female to male ratio of approximately 5:1.

KEY WORDS

empty sella, hypogonadism

CR-GE-45

XO/XY MOSAICISM IN AN 18-YEAR-OLD GIRL WITH PRIMARY AMENORRHEA

https://doi.org/10.15605/jafes.034.02.S137

Eunice Yi Chwen Lau and Yin Khet Fung
Hospital Queen Elizabeth II, Kota Kinabalu Sabah, Malaysia

INTRODUCTION
45XO/46XY mosaicism is rare and may present with a wide spectrum of phenotypes which may go unrecognized. Y chromosome material has been shown to increase the risk for gonadal malignancy with gonadoblastoma being the most common germ cell tumour. Prophylactic gonadectomy has been recommended in all female individuals with Y chromosome material identified on standard karyotyping although it is debatable whether this may represent over-treatment.

CASE
We report an 18-year-old girl who was referred to endocrine clinic for primary amenorrhea. She is 145 cm tall with a mid-parental height of 152 cm. Breast development was Tanner 3 and pubic hair was Tanner 2. There were no obvious physical features of Turner syndrome, clitoromegaly or palpable gonads.

CONCLUSION
There are no guidelines on identifying the malignancy risk or timing of gonadectomy in patients with XY gonadal dysgenesis. This case illustrates the challenges in surveillance for these patients. A careful review of the physical features, hormonal evaluation, karyotype and malignancy risk should be undertaken and the findings discussed with the patient and family.

KEY WORDS
mixed gonadal dysgenesis, Turner syndrome, y chromosome, sex chromosome, aberrations, 45x/46y mosaicism

CR-GE-46

NONVIRILIZED: A CASE REPORT OF KALLMANN SYNDROME

https://doi.org/10.15605/jafes.034.02.S138

Maria Luisa Cecilia Arkoncel, Abigail Ramirez, Marialiese Cruz, Ma. Carmela Maminta, Erika Marie Medina, Salvador Rivera IV
Jose B. Lingad Memorial Regional Hospital, San Fernando, Pampanga, Philippines

INTRODUCTION
Kallmann Syndrome is a rare genetic disorder characterized by hypogonadotropic hypogonadism and hyposmia or anosmia due to mutations in one or more genes associated with olfactory bulb morphogenesis and the migration of GnRH neurons from their origin in the region of the olfactory placode.

CASE
A 25-year-old male initially consulted due to infertility. He had eunuchoid body proportion, high-pitched voice, absence of facial, axillary hair and pubic hair and small-sized penis. Laboratory work-up revealed an inappropriately normal serum luteinizing hormone and decreased serum testosterone level. Cranial MRI with contrast revealed empty sella. He was given supplementary Testosterone injection. At this time, he noticed development of sparse axillary hair, pubic hair, and decreased tone of voice. Examination of the genitalia revealing penis and testes at Tanner Stage III. He is currently receiving his testosterone injections which are 8 weeks apart aimed at maintaining his testosterone level at the mid normal range.

CONCLUSION
A thorough history and physical examination is needed and supplemented with appropriate diagnostic examinations for proper management of our patient. Although a rare disorder, we must include this differential diagnosis in approaching the case.

KEY WORDS
kallman, reproductive, infertility

CR-GE-47

FINDING THE NEEDLE IN A HAYSTACK

https://doi.org/10.15605/jafes.034.02.S139

Yong Ting Tai and Chin Voon Tong
Endocrine Unit, Department of Medicine, Hospital Melaka, Malaysia

INTRODUCTION

Leydig cell tumours (LCT) of the ovary are rare ovarian tumours that usually present with hyperandrogenism. Radiological imaging is helpful in localizing these tumours. However, some tumours may be too small to localize before surgical exploration. When imaging is unrevealing, selective ovarian and adrenal venous sampling (SOAVS) is the next option. We report a case of LCT that was localized by SOAVS.

CASE

A 43-year-old nulliparous Chinese woman presented with a 6-month history of increased growth of terminal hair in the face, chest, abdomen and thighs, associated with deepening of voice, secondary amenorrhea and clitoromegaly. Laboratory investigations showed markedly elevated serum total testosterone of 32.11 nmol/L. Dehydroepiandrosterone sulfate was normal at 4.97 umol/L. ACTH stimulation test for 17-OH progesterone was normal (0 minutes: 4.2 nmol/L; 60 minutes: 7.9 nmol/L). Pelvic ultrasound revealed a small right ovarian cyst measuring 2.1x1.6 cm. CT abdomen and pelvis was normal. FDG-PET showed mild right adnexal FDG hypermetabolism which is within physiological limit. SOAVS was performed to localize the tumour. The total testosterone level in the right ovarian vein was reported to be 1027 nmol/L, while in the left ovary was 26.06 nmol/L. Laparoscopic right salpingo-oophorectomy was done and histopathology confirmed LCT. Post-surgery, her symptoms resolved and testosterone normalized.

CONCLUSION

SOAVS is a useful diagnostic modality that can help localize small ovarian tumours that are otherwise elusive to other imaging techniques.

KEY WORDS

selective ovarian and adrenal venous sampling, Leydig cell tumours, hyperandrogenism

CR-GE-48

LATE DIAGNOSIS OF MALE HYPOGONADOTROPIC HYPOGONADISM: A POSSIBLE CASE OF KALLMANN SYNDROME?

https://doi.org/10.15605/jafes.034.02.S140

Livy Bonita,[1] Dicky Levenus Tahapary,[2,3] Em Yunir[2,3]
[1]*Department of Internal Medicine, Dr. Cipto Mangunkusumo National General Hospital, Faculty of Medicine Universitas Indonesia*
[2]*Division of Metabolism and Endocrinology, Department of Internal Medicine, Dr. Cipto Mangunkusumo National General Hospital, Faculty of Medicine Universitas Indonesia*
[3]*Metabolic, Cardiovascular and Aging Cluster, The Indonesian Medical Education and Research Institute, Faculty of Medicine Universitas Indonesia*

INTRODUCTION

Hypogonadism is a clinical syndrome characterized by disturbance of sexual organ functions and quality of life which is caused by androgen deficiency. While hypergonadotropic hypogonadism is the most frequent form of hypogonadism in male, hypogonadotropic hypogonadism is rare.

CASE

A 21-year-old male was referred to the endocrinology clinic with a problem of micropenis.While he had never reached puberty, anosmia and recurrent nasal congestion were present. His younger brother had similar complaints. Physical examination showed that he was in Tanner Stage I for Sexual Maturity Rating. In addition, gynecomastia, long arms and legs, and lack of skeletal muscle development (eunuchoidism) were observed. Genitalia examination showed no pubic hair; separated scrotums; testes with diameter of 1.5 cm; and penis with length of 2 cm without epispadia or hypospadia. While his testosterone, FSH, and LH levels were low, prolactin, fT4, TSH levels were within normal limits. No abnormalities were observed in the pituitary MRI imaging.

CONCLUSION

Early diagnosis and proper treatment in the case of delay/absence of signs of puberty is of paramount importance. The presence of anosmia or hyposmia concurrent with hypogonadotropic hypogonadism might indicate the presence of Kallmann syndrome.

KEY WORDS

delayed puberty, hypogonadotropic hypogonadism, micropenis, Kallmann syndrome

ICE

23-27 FEB
2022
SINGAPORE

Conjoint with AFES 2022 | AOCE 2022

www.ice2022singapore.com

SAVE the DATE

20TH INTERNATIONAL CONGRESS OF ENDOCRINOLOGY

Conjoint with

21ST ASEAN FEDERATION OF ENDOCRINE SOCIETIES CONGRESS
18TH ASIA OCEANIA CONGRESS OF ENDOCRINOLOGY

ise international society of endocrinology

EMSS Endocrine & Metabolic Society of Singapore

AFES THE ASEAN FEDERATION OF ENDOCRINE SOCIETIES 1981

FESAO Federation of Endocrine Societies of Asia and Oceania

** This Advertisement is a complimentary service of the JAFES for member societies/organizations.*

OJS
OPEN JOURNAL SYSTEMS

PKP
PUBLIC KNOWLEDGE PROJECT

JAFES utilizes **Open Journal Systems,** a powerful open source editorial management software developed and hosted by the **Public Knowledge Project** to streamline end-to-end journal publication online.

We invite you to visit our website at:

http://asean-endocrinejournal.org

The **Journal of the ASEAN Federation of Endocrine Societies (JAFES)** is an OPEN ACCESS, peer reviewed, English language, medical and health science journal that is published two times a year by the ASEAN Federation of Endocrine Societies (AFES). JAFES welcomes manuscripts on all aspects of endocrinology and metabolism in the form of original articles, review articles, case reports, feature articles (clinical practice guidelines, clinical case seminars, clinical practical guidelines, book reviews, et cetera), editorials , letters to the Editor, brief communications and special announcements. Authors may include members and non-members of the AFES.

Subsidized by the ASEAN Federation of Endocrine Societies, the **JAFES DOES NOT CHARGE ANY ARTICLE PROCESSING OR SUBMISSION FEES.**

"A world-class regional journal on endocrinology."
... the endocrine window between the ASEAN region and the world

Follow us on Social Media

@JAFESPhilippines

@JAFESphil

@JAFESphil

PERKENI PERKUMPULAN ENDOKRINOLOGI INDONESIA
30th Anniversary 1981-2011 MEMS Established 1981 Malaysian Endocrine & Metabolic Society
MSEM
EMSS Endocrine & Metabolic Society of Singapore
Endocrine Society of Thailand
VAEM

JAFES Now Included in the Emerging Sources Citation Index

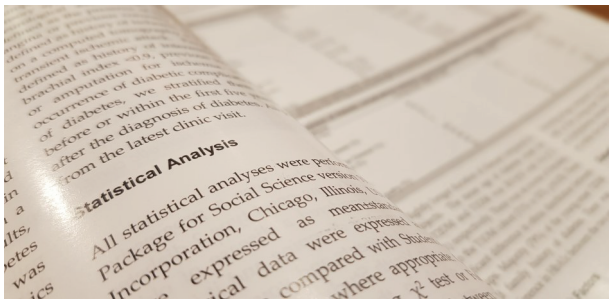
WEB OF SCIENCE™ Core Collection

Clarivate Analytics

We are pleased to announce that JAFES has successfully achieved another milestone in 2019, with our acceptance to the **Emerging Sources Citation Index (ESCI)** under **Clarivate Analytics™** (formerly Thomson Reuters).

JAFES' inclusion in the **Web of Science Core Collection** is expected to increase discoverability leading to enhanced and measurable citations of authors' scientific outputs.

Launched in 2017 to cover high-quality, peer-reviewed publications of regional importance and in emerging scientific fields, ESCI effectively places JAFES in the **Web of Science Core Collection.**



JAFES is also indexed in **Scopus, Directory of Open Access Journals (DOAJ), WHO Western Pacific Region Index Medicus (WPRIM), APAMED Central,** and the **ASEAN Citation Index (ACI).**

Articles published in the JAFES from May 2017, Volume 34 No. 1 henceforth, shall be indexed and available 100% Open Access, accessible through Clarivate Analytics™ Web of Science.

Indexing is a testament to the quality of JAFES. It is a validation of the international best practices that the journal has incorporated in its operations over the last nine years.

JAFES is also indexed in

Scopus® DOAJ DIRECTORY OF OPEN ACCESS JOURNALS

apamed central

WESTERN PACIFIC REGION INDEX MEDICUS

HINARI Research in Health

asean ASEAN CITATION INDEX

GLICALIZIDE

DIAMICRON® MR 60

Scored Tablets

Protect the kidney to save the heart [7]

ADVANCE

ACTION IN DIABETES AND VASCULAR DISEASE: PRETERAX AND DIAMICRON MR CONTROLLED EVALUATION

- Safely achieve HbA1c target [1-3]
- Complete renal protection [4-5]
- Proven legacy effect [6]

Up to 2 tablets at breakfast

References: 1. Jia Y et al. Obes Rev. 2018. doi: 10.1111/obr.12753; 2. Sawada F, Inoguchi T , Tsubouchi H et al. Metabolism 2008;57(8):1038-45. 3. AlSifri et al. Int J Clin Pract 2011. 65:1132-1140. 4. Wong et al. Diabetes Care. 2016;39(5):694-700. 5. Perkovic et al. Kidney International 2013;83:517-523. 6. Zoungas S. et al for the ADVANCE-ON Collaborative Group. N Engl J Med 2014; 371:1392-406 . 7. Tonelli M et al., Lancet 380:807-814, 2012

COMPOSITION: Diamicron MR 60 mg, modified release tablet containing 60 mg of gliclazide, contains lactose as an excipient. **INDICATION:** Non-insulin-dependent diabetes (type 2) in adults, in association with dietary measures and with exercise, when these measures alone are not sufficient. **DOSAGE AND ADMINISTRATION:** One half to 2 tablets per day i.e. from 30 to 120 mg taken orally as a single intake at breakfast time, including in elderly patients and those with mild to moderate renal insufficiency with careful patient monitoring. One tablet of Diamicron MR 60 mg is equivalent to 2 tablets of Diamicron MR 30 mg. The breakability of Diamicron MR 60 mg enables flexibility of dosing to be achieved. In patients at risk of hypoglycemia, daily starting dose of 30 mg is recommended. Combination with other antidiabetics: Diamicron MR 60 mg can be given in combination with biguanides, alpha glucosidase inhibitors or insulin (under dose medical supervision). **CONTRAINDICATIONS:** Hypersensitivity to gliclazide or to any of the excipients, other sulfonylurea or sulphonamides; type 1 diabetes; diabetic pre-coma and coma, diabetic ketoacidosis; severe renal or hepatic insufficiency (in these cases the use of insulin is recommended); treatment with miconazole (see interactions section); lactation (see fertility, pregnancy and lactation section). **WARNINGS:** Hypoglycemia may occur with all sulfonylurea drugs, in cases of accidental overdose, when calorie or glucose intake is deficient, following prolonged or strenuous exercise, and in patients with severe hepatic or renal impairment. Hospitalization and glucose administration for several days may be necessary. Patient should be informed of the importance of following dietary advice, of taking regular exercise, and of regular monitoring of blood glucose levels. To be prescribed only in patients with regular food intake. Use with caution in patients with G6PD-deficiency. Excipient: contains lactose. **INTERACTIONS:** Risk of hypoglycemia - contraindicated: miconazole; not recommended: phenylbutazone; alcohol; use with caution: other antidiabetic agents, beta-blockers, fluconazole, ACE inhibitors (captopril, enalapril), H2-receptor antagonists, MAOIs, sulfonamides, clarithromycin, NSAIDs. Risk of hyperglycemia - not recommended: danazol; use with caution: chlorpromazine at high doses; glucocorticoids; ritodrine; salbutamol; terbutaline; Saint John's Wort (hypericum perforatum) preparations. Risk of dysglycemia - use with caution: fluoroquinolones. Potentiation of anticoagulant therapy (e.g. warfarin), adjustment of the anticoagulant may be necessary. **PREGNANCY AND BREASTFEEDING:** Pregnancy: Change to insulin before a pregnancy is attempted, or as soon as pregnancy is discovered. Lactation: Contraindicated. **DRIVING & USE OF MACHINES:** Possible symptoms of hypoglycemia to be taken into account especially at the beginning of the treatment. **UNDESIRABLE EFFECTS:** Hypoglycemia, abdominal pain, nausea, vomiting, dyspepsia, diarrhea, constipation. Rare: changes in hematology generally reversible (anemia, leukopenia, thrombocytopenia, granulocytopenia). Raised hepatic enzymes levels (AST, ALT, alkaline phosphatase), hepatitis (isolated reports). If cholestatic jaundice: discontinuation of treatment. Transient visual disturbances at start of treatment. More rarely: rash, pruritus, urticaria, angioedema, erythema, maculopapular rashes, bullous reactions such as Stevens-Johnson syndrome and toxic epidermal necrolysis, and exceptionally, drug rash with eosinophilia and systemic symptoms (DRESS). As for other sulfonylureas: observed cases of erythrocytopenia, agranulocytosis, hemolytic anemia, pancytopenia, allergic vasculitis, hyponatremia, elevated liver enzymes, impairment of liver function (cholestasis, jaundice) and hepatitis which led to life-threatening liver failure in isolated cases. **OVERDOSE:** Possible severe hypoglycemia requiring urgent IV glucose, immediate hospitalization and monitoring. **PROPERTIES:** Diamicron MR 60 mg is a sulfonylurea reducing blood glucose levels by stimulating insulin secretion from beta cells in the islets of Langerhans, thereby restoring the first peak of insulin secretion and increasing the second phase of insulin secretion in response to a meal or intake of glucose. Independent hemovascular properties. **PRESENTATION:** Box of 60 tablets of Diamicron MR 60 mg in blister. **STORAGE:** Store at temperatures not exceeding 30 °C.

Foods, Drugs, Devices and Cosmetics Act prohibits dispensing without prescription.
For suspected adverse drug reaction, report to the FDA at www.fda.gov.ph.

SERVIER PHILIPPINES, INC. Unit AD, 11th Floor, 8 Rockwell, Hidalgo Drive, Rockwell Center, Makati City, 1210.
www.servier.com

Further information available upon request.

SERVIER