



International Conference on Diabetes and Endocrinology

"Unfolding the Concepts of Diabetes and Endocrinology"

**Aston Priority Simatupang Hotel &
Conference Center, Jakarta, Indonesia**

26th - 27th November, 2019

Organized by:
BioLEAGUES Worldwide

Preface

This book reports the Proceedings of the “***International Conference on Diabetes and Endocrinology***” held at ***Aston Priority Simatupang Hotel & Conference Center, Jakarta, Indonesia*** on the **26th & 27th of November – 2019**, organized by ***BioLEAGUES Worldwide***.

The publishing department has received more than 75 abstracts. After an initial review of the submitted abstracts, 30 papers were presented at the conference and were accepted for publication in the Conference Proceedings. The topics that are covered in the conference include Glycogen Storage Disorders, Cardio Vascular Disease, Obesity and Diabetes, Biomarkers for Diagnosis of Diabetes, Gestational and infant Diabetes, Imbalanced Hormones in Diabetes, Metabolic enzymes impairment, Diabetic Pharmacology, Molecular approaches in diabetes, etc... We would like to thank all the participants for their contributions to the conference and the proceedings.

Reviewing papers of ***ICDE-2019*** was a challenging process that relies on the goodwill of those people involved in the field. We invited more than 15 researchers from related fields to review papers for the presentation and the publication in the ***ICDE-2019*** Proceeding. We would like to thank all the reviewers for their time and effort in reviewing the documents.

Finally, we would like to thank all the proceeding team members who with much dedication have given their constant support and priceless time to bring out the proceedings in a grand and successful manner. I am sure this proceeding will be a credit to a large group of people, and each one of us should be proud of its successful outcome...

From BioLEAGUES Director's Desk...

On behalf of **BioLEAGUES Worldwide**, I am delighted to welcome all the delegates and participants around the globe to the “**International Conference on Diabetes and Endocrinology**” which is going to be held at **Aston Priority Simatupang Hotel & Conference Center, Jakarta, Indonesia** on **November 26th & 27th, 2019**. This conference will revolve around the theme “**Unfolding the Concepts of Diabetes and Endocrinology**”



It will be a great pleasure to join with Doctorates, Research Scholars and Academicians all around the globe. You are invited to be stimulated and enriched by the latest innovations in all the aspects of diabetes and endocrinology based diagnostic and therapeutic procedures and techniques, while delving into presentations surrounding transformative advances provided by a variety of disciplines.

I congratulate the Chair person, Organizing Secretary, Committee Members, coordinator BioLEAGUES and all the people involved for their efforts in organizing the **ICDE 2019** and successfully conducting the International Conference and wish all the delegates and participants a very pleasant stay at Indonesia.

A. Siddh Kumar Chhajer
Director
BioLEAGUES Worldwide

Message from Organizing Secretary...



Prof S M RAJENDRAN, MD., FRCP., D.Litt.(Diab)., D.SC
Former Prof of Internal Medicine & Diabetology, Chennai

Dear Colleagues and Friends,

In this day and age, it is imperative that we can sustain and empower the exchange of knowledge, technology and implication that may have in our society. Even more so, medical sciences have an enormous power to grow and flourish through our dynamic society it's facing.

That's why it is our honour and privilege to welcome you to join us at the international conference on Diabetology and Endocrinology brought to you by BioLEAGUES, a more esteemed event holding profound topics and merge the knowledge of Internal Medicine and the current innovation scene for modern disciplines problems today.

The Conference which is to be held in the marvellous city of Indonesia, Jakarta on 26th and 27th November 2019. The conference will be equipped to enrich and kindles your innovation by various research scholars around the Globe who are participating and happy to share their experience and knowledge. Still Diabetes is mystery in many aspects, so the event should be graced by your eminent presence and share your excellent research papers in order to reverse and prevent Diabetes and endocrine disorders

We look forward to having the pleasure of joining with you and create a platform to exchange rich experience and knowledge that leads to strengthening and enriching our Global Health Care.

A handwritten signature in black ink, appearing to read 'S. M. Rajendran'.

(Dr.S.M.Rajendran)

Message from the Session Chair / Speaker...



Dr. Geeta Seth

Nutritionist and Dietician

Dear fellow professionals,

It gives me immense pleasure to welcome you all to BioLEAGUES ICDE 2019 conference. The starting of this century has seen many advancements in the field of diabetes management and treatment. Of this everyday concern to common doctors, endocrinologists, diabetes educators, diabetes researchers, nutritionists, has been to manage this metabolic disease in a way so that all the diabetics can live a normal life without developing any complications and come back to normal when they are in pre diabetic condition.

Diabetes management has emerged as a simple reliable treatment through experienced hands. Such conferences have a double role to play. It educates the doctors working at higher centres about the recent development in treatment of diabetes with medicines, gadgets, diet and latest research and innovation in the field and to train and average diabetes worker to improve upon the technics, skills, and knowledge to further treat a diabetic. Specially to improve the highly neglected lifestyle and food system.

I am sure this BioLEAGUES ICDE 2019 conference will be able to achieve targets and benefits the practicing, teaching, and research faculty.

Last but not the least, congratulations to team for a big task to make this event a grand success.

Wishing you all very interactive sessions.

Thank you.



Geeta Seth

From Bioleagues CEO's Desk...

It is indeed a privilege to acknowledge and thank all the supporters and organizers of the “*International Conference on Diabetes and Endocrinology*”, who contributed greatly to organize the conference successfully.

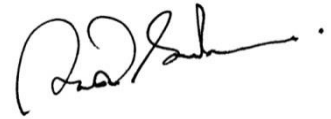
I would like to acknowledge and thank the Chief Guest for his/her valuable contribution in the *ICDE 2019, Jakarta, Indonesia*.



My special thanks to all our Special Guests who so graciously accepted our invitation to participate in the conference. I also wish to acknowledge and thank the sponsors of the conference whose financial support was extremely grateful.

I would like to specially thank our Advisory Committee Members from various Organization whose continuous support have helped us plan and execute the conference successfully.

I am highly indebted to the contribution given by all the Scientists, Doctorates, Research Scholars, Academicians and students to the conference.

A handwritten signature in black ink, appearing to read 'R. B. Satapathy'.

Mr. R. B Satapathy
Chief Executive Officer
BioLEAGUES Worldwide

Keynote Speakers

Detecting Paediatric Endocrinology Problems in the Out-Patient



Dr S Naunihal Singh

Pediatrician, Adolescent and Obesity specialist Director Tanvir Hospital, India

Abstract

Endocrinology diseases in pediatrics are one of the most under reported problems in developing countries. With the advancement in the field of pediatric endocrinology and the burden of disease, healthcare should be made accessible to the patients who need it. The general Paediatricians should be able to identify clinical signs and symptoms of these common pediatric endocrine problems such as acanthosis nigricans, early breast development and genital hair growth, weight loss, excessive sweating etc in their out patient practise. General Paediatricians should be made aware of the common pediatric endocrine problems(short stature, hypothyroidism, type 1 dm, precocious puberty, obesity) and be geared up with the clinical acumen and tools to screen and identify these problems and direct them to a pediatric endocrinologist for further evaluation and care. Laboratory and radiological studies are done selectively to prevent financial burden to families and reduce economic burden to the Nation.

Biography:

Dr S Naunihal Singh

Pediatrician, Adolescent and Obesity specialist Director Tanvir Hospital

President Tanvir Foundation Trustee,Guru Nanak Foundation ,Bidar

Member,Guru Nanak Health Centre ,Secunderabad

Past Joint Sec All India Association of Advancing Research in Obesity Vice President All India

Association of Advancing Research in Obesity Sec Adolescent Health Academy, HYD

Member ,Global Association of Physicians of Indian Origin Member,International Society of

Paediatric and Adolescent Diabetes Member,Neonatology Forum,

Member,Epileptic Society

Member,Indian Academy of Paediatrics Member,Paediatric critical care

Instructor,Neonatal resuscitation Programme, Past Instructor ,Paediatric Advanced Life Support

Number years of practice—40 yrs

Diabetic Cardiac Neuropathy and the Phenomenon of Early Aging of Regulatory Systems



Irina Kurnikova

RUDN University, Moscow, Russia

Pavel Ogurtsov

RUDN University, Moscow, Russia

Svetlana Kislaya

RUDN University, Moscow, Russia

Nikolay Kisliy

RUDN University, Moscow, Russia

Abstract

Diabetic autonomic neuropathy (DAN) detected in 3.5-6.0% of patients at the onset disease, and in 100% of patients with a longer course. Cardiac form (CAN) is most dangerous complication, can lead to reduced HRV (Heart Rate Variability) and sudden death. The purpose of research - to study influence of CAN on the state of autonomic regulatory mechanisms. Methodology: HRV data evaluated in 101 patients by daily monitoring with frequency analysis. The results compared with data obtained from healthy individuals (n=61). Examined patients divided into age groups: 20-30, 31-40, 41-50, 51-60 y.o. Findings: indicated significant dysregulation of HRV caused by CAN in all patients. An increase in VLF spectrum indicated activation of central regulation mechanisms and stress of adaptation mechanisms transferred by the organism from level of control to the level of centralization. From 41 years, an active centralization of the regulation mechanisms (increase in VLF) observed, which usually begins 10-15 years later. The indicators of vegetative balance in patients corresponded to the values of the older (by decade) age group of healthy individuals, what we described as the phenomenon of “early

International Conference on **Diabetes and Endocrinology**

26th-27th November 2019 at Jakarta, Indonesia



aging of regulatory systems”. Conclusion: the described phenomenon partially explains the early development of atherosclerosis in patients with diabetes.

Biography:

Irina Kurnikova - MD, PhD, Professor of Medicine of RUDN University, Moscow, Russia. Dealing with Problems of Endocrinology for over 20 years. Currently she is curator of the Scientific Direction Endocrinology in RUDN University. She had published more than 30 articles in well-known journals, the author of 25 books and tutorials in Russian language, 11 patents for inventions. The main areas of research are the optimization of the system approach to the treatment and rehabilitation of patients with diabetes, thyroid diseases. The main directions of scientific research: influence of regulation of the organism and other endogenous factors.

Session Chair

Effects of Diet and Lifestyle in Diabetes



GEETA SETH
NUTRITIONIST & DIETITIAN

Ms. Geeta Seth

Geeta Seth Nutritionist and Dietician Centre, Indonesia

Abstract

In general diabetes is taken for granted by the people who have it. Many a times they are not serious about the complications and take the disorder very lightly. Diabetes is defined an ability to produce insulin. There are two types of diabetes. Insulin dependent and non-insulin dependent. Non-insulin dependent which is also called type 2 is most common. People with sedentary lifestyle, overweight, above 45 of age, and people who have history of this disorder in the family are the most at risks. People above 45 should be regularly tested for diabetes. The common signs can be excessive thirst, unexpected weight loss, and hunger. The good part is that this disease can be prevented by the right diet and lifestyle change, and those who already have diabetes can live a normal life by good control of diet and exercise. Due to less awareness this disease is only known to the person after the symptoms have arrived already in the body. Due to over eating of carbohydrate, defective carbohydrate metabolism and large amount of sugar in the blood and urine are present. In this conference I would like to highlight diet and lifestyle changes for positive effect on diabetes. Type 1 is the type of diabetes which happens to teenagers and young adults before 30 years of age. Their body is totally dependent on insulin taken from outside through injections and insulin pump. Insulin helps turn sugar from food into energy for the body to work and at the same time exercise improves diabetes control and prevent disease. This has been observed that diet and lifestyle can make a person live a normal life avoiding the body complications which are created due to diabetes. Let us see the effect of food and diet on diabetes control. A correct saying for diabetes is A DIABETIC WHO KNOWS MORE LIVES MORE. So, let us educate everyone and create awareness for this disease.

CONTENTS

SL.NO	TITLES AND AUTHORS	PAGE NO
1.	Role of Prokineticins, Growth differentiation factor-15 and nitric oxide expressions in metabolic syndrome and non-alcoholic fatty liver disease (NAFLD) ➤ <i>Shyam Prakash</i> ➤ <i>Priyatma</i> ➤ <i>Shalimar</i> ➤ <i>Naval K Vikram</i>	1 - 3
2.	Third Eye Diabetes Reversible/Curable ➤ <i>Prof S M Rajendran</i>	4 - 5
3.	Recent Advances in Diabetes Diagnosis, Prevention and Management in the Post Genomic Era ➤ <i>Dr Manjeet Mehta</i>	6
4.	Anti-Oxidant Diet Effect to Embryo Quality of Infertile Male Especially with Asthenozoospermia ➤ <i>Ria Margiana</i> ➤ <i>Silvia Werdhy Lestari</i> ➤ <i>Muharam</i> ➤ <i>Andon Hestiantoro</i> ➤ <i>Gita Pratama</i> ➤ <i>Budi Wiweko</i> ➤ <i>Achmad Kemal</i>	7 - 8
5.	Histopathological Evaluation of <i>Curcuma longa</i> and <i>Trigonella foenum graecum</i> in Alloxan Induced Diabetes Rat Live ➤ <i>Dr. Mannur Ismail Shaik</i>	9 - 10
6.	Organochlorine Pesticides- New diabetogens to be added in the list? ➤ <i>Basu Dev Banerjee</i>	11 - 12
7.	Regeneration of Destroyed Pancreatic Beta-Cells ➤ <i>Lee Sam Goo</i>	13 - 14
8.	Can Diabetes be Cured or Is Remission Possible with Pharmacotherapy and Life Style Changes? ➤ <i>Prof.Prakash V Diwan</i>	15
9.	Potential of Medicinal Plants in the Management of Diabetes Mellitus- A Scientific Review ➤ <i>Dr. Bishnu Prasad Sarma</i>	16

CONTENTS

SL.NO	TITLES AND AUTHORS	PAGE NO
10.	To Compare Efficacy of Nishkatakadi Kwath With Metformin in Madhumeha with Special Reference to Diabetes Mellitus II ➤ Dr.Bhairav B. Tawshikar	17
11.	Role of Prebiotic Rich Diet in Diabetes Reversal ➤ Dr Biswaroop Roy Chowdhury	18
12.	Role of Green Leaves and Fruits Consumption to Eradicate Micronutrient Malnutrition ➤ Sreenivasa R Jarapala	19 - 20
13.	Medical Nutrition Therapy in Gestational Diabetes Mellitus ➤ Dr. P.Savitha	21 - 22
14.	Controlled Type 2 Diabetes Is a Simple Disease ➤ Prof Dr.Premanidhi Panda	23
15.	Role of Microbiome Gut on Insulin Resistance Progression in Type II Diabetes Melitus ➤ Andika Yusuf Ramadhan ➤ Suci Widya Primadhani ➤ Alyssa Fairudz Shiba ➤ Desti Nurul Qomariyah	24 - 25
16.	Ameliorating Effect of Cichorium Intybus Seeds on Type 2 Diabetes Mellitus as Add-On Therapy ➤ Kailash Chandra ➤ Vineet Jain ➤ Sayeed Ahmad ➤ S K Jain	26
17.	Evaluation of the Anti-Diabetic Medicinal Plants Fractions and Phytochemicals Efficacy in Vitro and In Vivo ➤ Prof. Dr. Hilal Zaid	27 - 28
18.	Integrating Personalised Genomics into Diabetes Management ➤ Dr Pleayo Tovarantonite ➤ Dr Andrew Winnington	29
19.	Risk Factors of Steroid-Induced Hyperglycemia in Childhood Systemic Lupus Erythematosus ➤ Damar Prasetya ➤ Sumadiono ➤ Madarina Julia	30 - 31

CONTENTS

SL.NO	TITLES AND AUTHORS	PAGE NO
20.	Effect of Social Factors and the Natural Environment on the Etiology and Pathogenesis of Diabetes Mellitus ➤ <i>Guangtong Dong</i> ➤ <i>Lianlian Qu</i> ➤ <i>Xuefeng Gong</i> ➤ <i>Bing Pang</i> ➤ <i>Weitian Yan</i> ➤ <i>Junping Wei</i>	32
21.	Intraoperative Near-Infrared Autofluorescence and Indocyanine Green Imaging to Identify Parathyroid Glands: A Comparison ➤ <i>Max Lerchenberger</i> ➤ <i>Norah Al Arabi</i> ➤ <i>Julia K. S. Gallwas</i> ➤ <i>Herbert Stepp</i> ➤ <i>Klaus K. J. Hallfeldt</i> ➤ <i>Roland Ladurner</i>	33 - 34
22.	Clinical outcomes with canagliflozin according to baseline body mass index: results from post hoc analyses of the CANVAS Program ➤ <i>Toshiaki Ohkuma</i> ➤ <i>Wayne Shaw</i> ➤ <i>Kenneth W. Mahaffey</i> ➤ <i>Dick de Zeeuw</i> ➤ <i>David R. Matthews</i> ➤ <i>Vlado Perkovic</i> ➤ <i>Bruce Neal</i>	35 - 36
23.	Fast-Acting Insulin Aspart in People with Type 2 Diabetes: Earlier Onset and Greater Initial Exposure and Glucose-Lowering Effect Compared With Insulin Aspart ➤ <i>Thomas R Pieber</i> ➤ <i>Eva Svehlikova</i> ➤ <i>Martina Brunner</i> ➤ <i>Inge B. Halberg</i> ➤ <i>Karen Margrete Due Thomsen</i> ➤ <i>Hanne Haahr</i>	37 - 38
24.	Clinical Genetic Testing In Endocrinology: Current Concepts and Contemporary Challenges ➤ <i>Paul J. Newey</i>	39

CONTENTS

SL.NO	TITLES AND AUTHORS	PAGE NO
25.	Prevalence of Undifferentiated Inflammatory Arthropathy in Patients with Hashimoto's Thyroiditis in an Endocrinology Clinic ➤ <i>Luis M. Valderrama-Hinds</i> ➤ <i>Eliangel García-Carrión</i> ➤ <i>Evelyn Hernández</i> ➤ <i>María I. Agostini</i> ➤ <i>Omar R. Reyes-Morales</i> ➤ <i>Liliana Fung</i> ➤ <i>Soham Al Snih</i> ➤ <i>Martin A. Rodríguez</i>	40 - 41
26.	Hypothalamic–Pituitary Function Following Childhood Brain Tumors: Analysis of Prospective Annual Endocrine Screening ➤ <i>Sarah A. Lawson</i> ➤ <i>Vincent E. Horne</i> ➤ <i>Marjorie C. Golekoh</i> ➤ <i>Lindsey Hornung</i> ➤ <i>Karen C. Burns</i> ➤ <i>Maryam Fouladi</i> ➤ <i>Susan R. Rose</i>	42 - 43
27.	Co-occurrence of Breast Cancer and Neuroendocrine Tumours: New Genetic Insights Beyond Multiple Endocrine Neoplasia Syndromes ➤ <i>Vincent Larouche</i> ➤ <i>Amit Akirov</i> ➤ <i>Emily Thain</i> ➤ <i>Raymond H. Kim</i> ➤ <i>Shereen Ezzat</i>	44 - 45



International Conference on Diabetes and Endocrinology

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ABSTRACTS

Jakarta, Indonesia

27th - 28th November, 2019



Role of Prokineticins, Growth differentiation factor-15 and nitric oxide expressions in metabolic syndrome and non-alcoholic fatty liver disease (NAFLD)

Shyam Prakash

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Priyatma

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Medicine, AIIMS, New Delhi, India

Abstract

Non-alcoholic fatty liver disease (NAFLD) is increasing worldwide, imitating the current epidemics of lifestyle diseases. This is frequently escorted by dyslipidaemia, inadequate exercise, oxidative stress and thereby leading to NAFLD/NASH that typically have insulin resistance or diabetes. Unhealthy diet, genetics, environmental exposures and lifestyle changes are associated factors to the onset and that may lead to cirrhosis and hepatocellular carcinoma. Inadequate physical activity and calorie rich drinks are an alarming state to metabolic defect. Expansion of adipocytes, recruitment of macrophages and monocytes releases prokineticin, and growth differential factor -15 (GDF-15). Prokineticin has potential role and their regulations have interlinked with excessive oxidative stress, and mediators of inflammatory molecules in diseases conditions. Biochemically nitric oxide (NO) can be produced via two distinct inter related pathways either vasodilatory effect of NO or enzymatic gene transcription generated metabolic abnormalities. As NAFLD is progressed by multiple parallel hit mechanisms thus we explored whether GDF-15 and Prokineticin affects the severity of NAFLD via independent of insulin resistance or mediated with other factors of metabolic syndrome. Blood samples were collected from the OPD of Gastroenterology, and department of Medicine, AIIMS, New Delhi. Biopsy samples were collected only from NAFLD patients. Each of them was screened for serology and

subsequently patients were sub-grouped for NAFLD (n=30), Hepatitis (disease control n=38), diabetes mellitus without metabolic syndrome (DM without Mets) (n=20), Metabolic syndrome without diabetes mellitus (Mets without DM) (n=25), and Diabetes mellitus with Metabolic syndrome (DM with Mets) (n=30). Healthy subjects (n=25) were also included and screened for serology in the study. Clinical, haematological, biochemical and serological, anthropometrical evaluations were done for all subjects. Various parameters such as Adiponectin, leptin, Insulin Resistance, BMI, pro-inflammatory and anti-inflammatory cytokine, oxidative markers, Prokineticin and GDF-15 were done using standard methodology. GDF15 levels and Prokineticin expressions were found higher in NAFLD subjects, DM with MetS, and MetS without DM than in healthy controls. GDF-15 levels have some hidden relations towards changes in body weight, waist hip ratio, BMI and HOMA IR. Prokineticin expressions were found higher in NAFLD, HCC patients, and DM with Metabolic syndrome than diseases controls (HBV & HCV) and healthy controls. Furthermore, increasing pattern of viral load of HBV and HCV infections (>104 IU/ml) have suggested that the expression of Prokineticin are noticed more than 3-4 fold change in patients with cirrhosis and liver cancer (HCC). Our finding suggests that high circulating levels of GDF-15, iNOS and overexpression of Prokineticin could be potential biomarker of NAFLD, and decreased levels of antioxidants could be linked in development of future diabetes, CVD and metabolic syndrome. Thus, Prokineticin and nitric oxide dysregulations can be novel emerging biomarkers to treat NAFLD and diabetes.

Brief Biopic

Current Research Interest

- Molecular expression of viral kinetics particularly hepatitis (HBV-DNA, HCV-RNA, HEV RNA)
- Expression of vascular endothelial growth factors and matrix metalloproteinase in bone carcinoma
- Magnitude of program death-1 (PD-1) expression and cytokine expressions in Gastric cancer
- Role of reactive oxygen species in pathogenesis of several GI disorders.
- Molecular mechanism of the inactivation of Core proteins of hepatic virus in various hepatic disorders.
- Life style disease, Diabetes and Metabolic syndrome
- Role of iNOS mRNA, eNOS mRNA and NO in various liver disease.
- Mechanism of Nitric oxide pathway in Irritable bowel syndrome.
- Molecular pathophysiology of gastric cancer and NAFLD
- Role of oxidant and antioxidants in irritable bowel disease.

Professional Affiliation

- 1988 Society of Toxicology, India (Annual)
- 1989 Society of Biological Chemists, India (Life member)
- 1997 Association of Clinical Biochemists of India (Life member)
- 1999 Australasian Association of Clinical Biochemists, Australia (Associate member)
- 2005 Society for Free Radical Research (Life member)
- 2017 Indian Association of Biomedical Sciences (Life Member)
- 2017 Metabolic syndrome, Pre diabetic and PCOS Society (MPPCOS)

International Conference on **Diabetes and Endocrinology**

26th-27th November 2019 at Jakarta, Indonesia



Member of Review Committee:

- Member of project review Committee of the SERC division of DST.
- Member of project review Committee of the Nutrition Division of ICMR.
- Reviewer of research paper of the Indian J of Clinical Biochemistry
- BOS member of Biochemistry department of Poorvanchal University, Uttar Pradesh

- A. Publications : Books : 4 , Research papers: >75
- B. Active Member in National Community Programmes
- C. Active Member in Public Health Programmes
- D. Active Member in Health Awareness Programmes

International Conference on Diabetes and Endocrinology

26th-27th November 2019 at Jakarta, Indonesia



Third Eye Diabetes Reversible/Curable

Prof S M Rajendran

Former Prof of Internal Medicine & Diabetology, Chennai, India

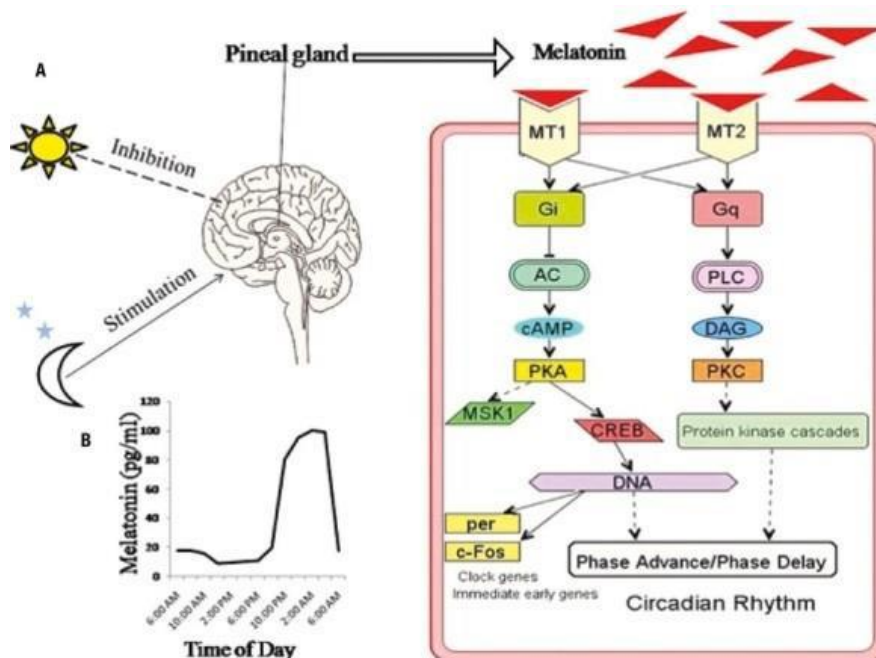
Abstract

In spite of extensive research for the past five decades by us we are yet to get a clear solution towards cure/reverse of diabetes. Where is the fault? Either physician, Pharma, people or inadequate research or yet to understand the basics of β cell. The biggest question is who controls and why not regenerated unlike other cells. The β cell is unique in character and does not possess any trophic hormones unlike other endocrine glands. Moreover, why β cell is not controlled by either pituitary or hypothalamus?

Related to the above questions, I carried out a research to find out a probable answer, my study included 500 Born Blind people with control group of same ages 35-50 years. Neither blind people nor controlled group did not have diabetes prior. The study reveals 85% are having diabetes. This has opened my eyes towards holistic scientific approach.

The literature reveals, MINR1A, MTNR1B receptors present in the cell, the figure will explain when we sleep the hormone melatonin will increase there by decrease the insulin secretion that leads to β cells to recover the function similarly, the meditation will open our third eye (pineal gland) and melatonin level will increase that will protect the β cell and it controls the blood sugar.

In spite of lot of drugs, people in the world are unable to control the diabetes in our country but in Tamil Nadu those who are on meditation and lifestyle adaptation their diabetes status come well under control within 6 months period. The meditation will release the desire, self-awareness & increase the will power and repairs the cells there by we obtain a healthy life without any side effects or genetic damage.



PUBLICATION:

1. Rajendran Etall:ADA 2008:Study of Inflammatory Markers in diabetes mellitus to detect insulin resistance.
2. Rajendran Etall:Journal of IJCE Sanfrancisco October 2017:Role of BNP as a screening tool to identify asymptomatic cardiac disease in chronic type 2 DM.
3. Rajendran Etall:Journal IJOART Volume 2 issue 7 July 2013:Prevalance of type 2 diabetes in Born Blind in correlation with serum melatonin.
4. Rajendran Etall:Indian Society of Athero Sclerosis.October 2007 Conference Study of peripheral vascular diasease in type2 diabetes.
5. Rajendran Etall:JIMSA Conference Ajman UAE 2012 Study of endocrine markers in critically ill Patients.
6. Hon'ble Editor in SCIRES LITERATURE SRL Clinical endocrinology.

**Recent Advances in Diabetes Diagnosis, Prevention and
Management in the Post Genomic Era**

Dr Manjeet Mehta

Bombay, India

Abstract

Diabetes constitutes a major public health problem world wide. India has been termed as the Diabetic capital of the World. Several millions of newly diagnosed cases are being reported all over the globe. Diabetes is a complex condition with several types, and no clear cause. If there is a history of diabetes in a person's family, they may have a higher risk of developing the same condition. This proves that there is a component of inheritance in the disease.

Type 2 diabetes It is the most common type, accounting for about 90–95 percent of all diabetes cases in the United States, according to the Centers for Disease Control and Prevention (CDC). Uncontrolled prolonged Diabetes affects all major organs in the human body in due course.

Genetic factors can make some people more vulnerable to some types of diabetes. However, a person may not inherit the condition, and there may be ways to reduce the risk. Knowing how type 2 diabetes affects family members, for example, can encourage a person to take steps to prevent it.

Knowing how genes, lifestyle, and the environment affect diabetes can encourage a person to minimize their risk of developing the condition and its complications.



Anti-Oxidant Diet Effect to Embryo Quality of Infertile Male Especially with Asthenozoospermia

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Achmad Kemal

Department of Obstetry and Ginecology, Faculty of Medicine, Universitas Indonesia, Jakarta, Indonesia.

Abstract

STo explore the relationship antioxidant play in improving male fertility and which are the best food to consume. Literature views were done using PubMed, Cochrane electronic database, Medline, Oxford academic, NCBI, PopLine, EMBASE, and Trip Pro. Keywords used included antioxidants, semen, sperm function, pregnancy rate, and male infertility.

The first study result shows that the cases had a lower BMI of 19.9 against 26.1 and total energy intake of 1705.3 against 1935.8. Importantly, as it was expected because of the study design the sperm mobility in the cases was lower than in the controls. The second study shows the highest tertile of the whole vegetables and fruits was associated with a low risk of asthenozoospermia. The subgroups of

International Conference on **Diabetes and Endocrinology**



26th-27th November 2019 at Jakarta, Indonesia

vegetables mainly increase of tomatoes, and dark green vegetables were associated with a low risk of asthenozoospermia. Fruits and vegetables were the primary sources of fibre intake in the population that was considered for the study. In the high research intake of processed meat mainly those that have high saturated fat it was evident there was reduced sperm mobility. The conclusion of the study can be stated that to improve the fertility of men, it is necessary they consume high intakes of fruits and vegetables and low intake of processed meat and dairy products.

Keywords:

Infertility, asthenozoospermia, male fertility, nutrition



Histopathological Evaluation of *Curcuma longa* and *Trigonella foenum graecum* in Alloxan Induced Diabetes Rat Liver

Dr. Mannur Ismail Shaik

Faculty of Fisheries and Food Sciences, University Malaysia Terengganu, Kuala Nerus, Terengganu, Malaysia.

Abstract

Diabetes mellitus is a chronic, metabolic disorder characterized by elevated blood glucose levels, which leads to a major cause of blindness, kidney failure, heart attacks, and stroke. According to WHO, the number of people with diabetes has been raised from 108 million in 1980 to 422 million in 2014. An estimated stated that, in the year 2016, 1.6 million deaths were directly caused by diabetes. Diabetes prevalence has been rising more rapidly in middle and low-income countries. In Indian traditional medical system Ayurveda, several herbal formulations used for treatment of diabetes. In the current study, *Curcuma longa* (CL) and *Trigonella Foenum Graecum* (TFG) plants used to treat the alloxan induced diabetic rats. The rats divided into six groups and named as group-I (Normal), group-II (Diabetes), group-III (Diabetes + CL), group-IV (Diabetes + TFG), group-V (Diabetes + CL + TFG) and Group-VI (Glibenclamide). CL and TFG extracts individually and in combination were administrated orally at a concentration of 250mg/kg BW to group-III, group-IV and group-V for 30 days. After experimental period rats sacrificed and liver tissue of all the groups were isolated for histopathological studies and hematoxylin and eosin stain used. The histopathological observations of group-I shows the normal cyto-architecture, whereas, several degenerative changes observed in group-II and it shows, periportal necrosis of hepatocytes and congested portal vessels as well as areas of inflammatory cell infiltration. This condition was also reversed in rats treated with CL, TFG and CL+TFG plant extracts and glibenclamide treated rats. These histopathological results confirm the anti-diabetic potential of CL and TFG.

Biography:

Dr. Mannur Ismail Shaik, currently working as Lecturer in Universiti Malaysia Terengganu. He received PhD degree from Acharya Nagarjuna University, India in 2017. Expertise in the field of medicinal plant, hematological studies, food technology, histopathology and molecular biology. From 2013 to 2018 worked as Contract lecturer and Project fellow during 2009-2012 in S.V. University,

International Conference on **Diabetes and Endocrinology**

26th-27th November 2019 at Jakarta, Indonesia



India. Published 18 research articles and 2 book chapters, attended for 40 National and International conferences, 23 workshops and received 7 awards. Delivered several talks as keynote speaker, invited speaker and guest lecturer. Member for several scientific organizations and committees.



Organochlorine Pesticides- New diabetogens to be added in the list?

Basu Dev Banerjee

Environmental and Molecular Biology Lab, Department of Biochemistry, University College of Medical Sciences, University of Delhi, Dilshad Garden, Delhi-110095, India

Abstract

The pathogenesis of diabetes mellitus is multifactorial which include strong genetic component as well as many lifestyle and environmental influences. Emerging research evidence strongly links the environmental contaminants, including pesticides, to the pathogenesis of diabetes (1). One meta-analysis study found that exposure to any type of pesticide was associated with a 61% increased risk of diabetes, with some pesticides appearing riskier than others (2).

Endocrine disruptors, chemicals having ability to interfere with the body's endocrine system, have come under scrutiny in recent years, showing evidence of their association with various health problems and more recently for their link with diabetes. The main concern for these chemicals is due to their slow degradation and persistence in the environment for decades. People continue to be exposed through air, water and food.

Researchers have found that pesticide applicators exposed to heptachlor, a potent organochlorine pesticide, have 94 percent increased odds of developing diabetes (3). Significantly elevated serum levels of γ HCH have been found in patients with metabolic syndrome (4) and pre diabetic subjects (5). Exposure to DDE, a metabolic product of the organochlorine insecticide DDT, is also associated with an increased risk of diabetes (6). Daniels et al also reported that diabetes mellitus is associated with higher p,p' DDE and γ HCH levels in South Asian Population (7). A meta-analysis study also linked hexachlorobenzene significantly as an environmental risk factor in pathogenesis of type 2 diabetes (8).

As these evidences add to the growing literature of positive epidemiological associations between OC pesticides and diabetes mellitus, confirmation of the associations could have public health implications on a global scale as well as highlights the need for active interventions on a International scale restricting the use of OCPs and their replacement by safer and environment friendly alternatives.

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239

Regeneration of Destroyed Pancreatic Beta-Cells

Lee Sam Goo

239bio Inc., South Korea

Abstract

This study was carried out by Non-Clinical Evaluation Center of Biomedical Research Institute, Chonbuk National University Hospital, South Korea to investigate the preventive efficacy of *Gryllus Bimaculatus* extracts "D&D" in Streptozotocin-induced T1DM rats. Among nine weeks male STZ-induced(65mg/kg) diabetic Sprague-Dawley rats, STZ-induced diabetic rats were randomly divided equally into six groups: Control, high-dose D&D and untreated diabetic rats, D&D (1.63, 3.25 and 6.5g/kg) and treated through oral gavage for 4 weeks. Diabetic related biomarkers were investigated using biochemical and immunohistochemical analysis. Treatment with D&D markedly improved the blood glucose level which was analyzed by Intra Peritoneal Glucose Tolerance Test(IP GTT) and Insulin tolerance test (ITT). At the end of the experimental period, expression levels of phospho-mammalian Target Of Rapamycin(mTOR), B-cell lymphoma 2(Bcl-2), Bcl-2 associated X protein(Bax) and phospho-serine and threonine kinase(p-Akt Ser473) were measured in pancreas by immunoblotting. The D&D treatment led to significant increase in p-Akt(Ser473), p-mTOR and Bcl-2 expression; decrease in Bax expression; and enhanced the production of intracellular insulin in pancreas. In addition, D&D treated diabetic rats were compensated for body weight loss and alleviated hyperglycemia. These results suggest that the supplementation of D&D improves diabetes by inhibiting oxidative stress and ameliorating STZ-induced pancreatic damage through AKT/mTOR mechanism. Accordingly, the results strongly support that the D&D is beneficial in the treatment of T1DM by regenerating beta-cells against pancreatic dysfunction.

Biography

Dr Lee Sam Goo is the CEO of 239bio Inc., South Korea. He has successfully accomplished the research for "Regeneration of Pancreatic Beta-Cells" using 'D&D' in T1DM. Dr. Lee showed this revolutionary efficacy on Diabetes from 14 groups of 180 T1DM rats induced by Streptozotocin. Those scientific revolutionary regeneration of beta cells destroyed was conducted by AAALAC at ChonBuk National University in Republic of Korea and proven scientifically every biomarkers such as C-peptide, Insulin

International Conference on **Diabetes and Endocrinology**



26th-27th November 2019 at Jakarta, Indonesia

secretion, Bax, Bcl-2, Cleaved caspase-3, HbA1c, no side effects in Liver and Kidney included, FBG, PP2, ITT andGTT etc.,. Dr. Lee's researches are not limited to non-clinical trials, but made a much better achievements in human trials. Even T1DM patients showed remarkable recoveries from the worst cases of DM and became normalized of their C-Peptide and Insulin levels less than 2 years of D&D trials.

Can Diabetes be Cured or Is Remission Possible with Pharmacotherapy and Life Style Changes?

Prof. Prakash V Diwan

Former President Indian Pharmacological Society, Founder Director, NIPER, Hyderabad, India

Abstract

Diabetes is an epidemic, with over 422 million people affected globally. Researchers are striving hard to find a cure to this chronic disease, but how close are we? Diabetes is the major cause of blindness, kidney failure, heart attack and stroke. What's next, in diabetes treatment? The diabetes market is expected to reach a massively big €86Bn by 2025.

One of the popular therapies for type 2 diabetes treatment is glucagon-like peptide (GLP)-1 receptor agonists, which induce insulin production in beta-pancreatic cells while suppressing the secretion of glucagon.

The human microbiome, and especially the gut microbiome, is found to be linked to multiple chronic diseases, including diabetes. The microbotics will be part of our drug delivery. Whatever the future, it will undoubtedly make a huge difference in the lives of millions of people worldwide. Therapies targeting the microbiota could therefore have the potential to help prevent type 1 diabetes in the future." Targeting specific microbiota in the gut could be one way to protect against type 1 diabetes, a new study concludes. Researchers suggest that targeting the gut microbiota could lead to the prevention of type 1 diabetes. This is a new era of beginning of islet transplantation. Our ultimate goal is to prevent the need for life-long anti-rejection therapy.

No Guts, No Glory: Microbiome Research is Changing pharmacotherapy. Currently, detecting insulin resistance requires a six-hour test that costs thousands of dollars, but a microbial assay, from stool samples, could cost a few dollars.

The drug that simultaneously targets the pancreas, the liver and the muscles, where it helps to recover the lost function of mitochondria, which is thought to drive the progression of type 2 diabetes. A 2018 clinical trial on humans found that an existing blood pressure drug verapamil may be helpful for people with diabetes. However, the FDA have not yet approved verapamil as a treatment for diabetes.

Dietary intake and obesity both play a critical role in the development of type 2 diabetes. As such, people can reverse the symptoms of type 2 diabetes by adhering to specific lifestyle changes that include improving their diet and exercise regimen. Two main lifestyle changes can help manage type 2 diabetes: exercise and diet. There is no cure for diabetes, but it can go into remission. People can manage it with medication and lifestyle changes.



Potential of Medicinal Plants in the Management of Diabetes Mellitus- A Scientific Review

Dr. Bishnu Prasad Sarma

Government Ayurvedic college, SSUHS, Guwahati ,Assam, India

Abstract

Human beings have been using medicinal plants for treating themselves of the various ailments affecting them, since time immemorial. Data from various sources have shown that nearly 4.4 billion people comprising of 80% of the world's population rely on plants as their primary source of medicine and nearly 700 species of plants are utilized for the development of modern drugs. Amongst various diseases plaguing mankind, non communicable diseases are the major causes of mortality and long term morbidity. Currently amongst the non communicable diseases, the prevalence of diabetes mellitus has been rising at an alarming rate.

Despite tremendous progress made into the understanding of the aetiopathogenesis, diagnosis and management of diabetes mellitus an efficient, cost effective drug for long term management of diabetes remains elusive. Plants have been a source for drugs and humanity has reaped enormous benefits from the plant kingdom. Folkloric remedies when studied scientifically have lead way towards finding new and better drugs for various ailments.

Biography:

Prof (Dr) Bishnu Prasad Sarma, Dean , Faculty of Ayurvedic Medicine, Srimanta Sankara Dev University of Health Sciences(SSUHS),Assam, India and a Professor of department of Ayurveda medicine , is a renowned Ayurvedic physician. Prof Sarma has numerous scientific publications to his credit and has guided numerous Ph.D scholars. He has been actively involved in promoting collaborative research work in the field of Ayurvedic medicine.

To Compare Efficacy of Nishkatakadi Kwath With Metformin in Madhumeha with Special Reference to Diabetes Mellitus II

Dr. Bhairav B. Tawshikar

Associate Professor, Kayachikitsa Deptt. at Ashvin Rural Ayurved College, Manchihill, India

Abstract

The present era is full of chaos, stress & strain due to life style modifications, change in dietary habits, urbanization and industrialization. This has led in the upsurge of many diseases and one of them is Madhumeha. Though Madhumeha is a disease known since ancient times to the mankind, its upsurge is quite alarming. On the basis of its symptomatology Madhumeha can be correlated to the features of Diabetes mellitus.

Diabetes mellitus is one of the leading causes of morbidity and mortality. Recent survey conducted by World Health Organization (W.H.O.) has revealed that the Indian diabetic population is 35 million and is estimated to touch 57.2 million by the year 2025 and 79.4 million by the year 2030.

Ayurveda can provide better management for Madhumeha without hazardous side effects. In Ayurveda, Madhumeha has been described as one among one of the 20 types of Prameha.

Nishakatakadi Kwath has been mentioned in Sahasrayoga under Kashaya Prakaran for Prameha Chikitsa. This being Tikta, Katu, Kashaya Rasa, Katu Vipaka, Laghu, Ruksha & Tikshna Guna Pradhana Aushadhi may easily help in the dissociation of Pathogenesis of Madhumeha. They also possess Rasayana, Deepana and Pachana properties. Nishakatakadi Kwath is being used widely for the treatment of Madhumeha in Kerala. That is why Nishakatakadi Kwath has been selected for the present study.

International Conference on Diabetes and Endocrinology

26th-27th November 2019 at Jakarta, Indonesia



Role of Prebiotic Rich Diet in Diabetes Reversal

Dr Biswaroop Roy Chowdhury

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Abstract

Prebiotics are the non-living, non-digestible fibers which are the food for beneficial bacteria present in gut like lactobacilli and bifidobacteria. Prebiotics are naturally present in fruits and raw leafy vegetables. Thus prebiotics enhances the population of beneficial gut microbiota, helps in digestion and enhance the production of certain vitamins. Eleven diabetic patients were enrolled in the “Diabetes Reversal Program” in Kuala Lumpur, Malaysia on 10 May 2019. Age of patients ranged from 36-75yrs. In the program 90% prebiotic diet (raw fruits and vegetables) were given to patients and they were monitored using continuous glucose monitoring sensor for 14 days. Diabetes medicines and insulin were tapered down to nil for those patients (70%) who were able to maintain the average blood glucose less than 250mg/dl. Out of 11 type 2 diabetic patients, 4 patients were insulin dependent. Sensor data of each individual showed that there was a gradual reduction in sugar level. Average blood sugar level of these patients at the time of enrollment was 212 mg/dl (with medication/insulin) and after 14 days was 135 mg/dl (without medication/insulin). Out of four insulin dependent patients three became free from insulin while fourth one showed 50% reduction in insulin dependency. It is clear from the study that diabetes can be reversed within a span of few days using prebiotic rich diet. This diet can be extended to other diseases in future.

Biography

I am a medical nutritionist and President, India for Indo Vietnam Medical Board. I am doctorate in Diabetes from the Alliance International University, Zambia. I have developed a 3-Step Protocol called the “The DIP Diet” to reverse Diabetes in just 72 hours. With a global presence, I am successfully running centers in India, Vietnam and Malaysia. I am the member of Editorial Board of Reputed International Medical Journals. I am also the chief editor of India Book of Records and Asia Book of Records and have authored more than 25 books and various research articles.



Role of Green Leaves and Fruits Consumption to Eradicate Micronutrient Malnutrition

Sreenivasa R Jarapala

Food Composition and Nutrient Analysis Division, National Institute of Nutrition, ICMR, Jamai Osmania, Hyderabad, India

Abstract

Back ground: The World Food Summit in 1996 provided a wide-ranging definition for food security which brings into focus the connection between food, nutrition and health. The world is faced with the tackle to feed an estimated 9 billion population of the Earth by 2050. Research relevant for developing countries included the potential molecular targets to alleviate accumulation of toxicants in rice and other food and vegetable crops. As in further areas of research and life, human factor seems to be the most significant one for the safety of food. The five keys to safer food of the World Health Organization (WHO) – keep clean, separate raw and cooked, cook thoroughly, keep food at safe temperatures, use safe water and raw materials – are thus still very pertinent for the developed as much as the developing world. According to the WHO, food borne and waterborne diarrheal diseases kill an estimated 2.2 million people annually, 1.9 million of them children. Unsafe food can be the cause of or contribute to many diseases, from diarrhea to some cancers, so that food safety, nutrition and food security are among WHO's 13 strategic objectives. Among the disorders, Micronutrient Deficiencies (MNDs) are of great public health and socioeconomic importance worldwide. They affect low-income countries but are also a significant factor in health problems in industrialized societies with impacts among wide vulnerable groups in the population, including women, children, the middle aged and the elderly. By consuming a healthy diet, many of the health problems can be avoided. The diet is largely determined by the perceived palatability of foods. Globally majority of people are consuming consistently less than the daily recommended allowance requirement of the nutrient components. Even in developed countries like Australia, Canada, Europe, UK and USA researchers concluded that there is large gap between actual and recommended consumption of both Green Leafy Vegetables (GLV) and fruits despite decades of concern and publicity. This gap is much more in developing countries. The principal nutritional problems in developing countries include Protein-Energy Malnutrition (PEM), iodine deficiency, Vitamin A Deficiency (VAD) and Iron Deficiency Anemia (IDA). A growing number of countries are confronted with new health risks linked to diet, namely Cardiovascular Diseases (CVD), diabetes, obesity and cancer. Though GLV and vegetables are considered rich amount of micronutrients and playing an important role to prevent the nutritional

International Conference on **Diabetes and Endocrinology**



26th-27th November 2019 at Jakarta, Indonesia

disorders, the extensive literature explored that there is a gap of knowledge in the appropriate consumption of GLV and its benefits to human. Further in Asian countries culinary practices that involve factors such as temperature, light and alteration in moisture are playing major role in terms of nutrient retention in GLV and other foods. Further efforts should make to widen the knowledge in this unmapped area of research. More investigations are needed to provide a better understanding of the oxidative phenomena of carotenoids and micronutrients during cooking since different vegetables have different chemical and physical characteristics. A comprehensive food policy includes food security and distribution with special emphasis on the elderly and low-income populations is essential at this juncture. However for iron, articulated goals have not been translated into programs in terms of anemia, and the problem has remained the same or worsened. In addition, operational research is needed to develop, implement, and evaluate programs to improve micronutrient status. Never has so much evidence been amassed on the consequences of a deficiency disorder without programmatic application. The challenge now is to develop and implement programs for preventing and treating micronutrient deficiencies and to evaluate their effectiveness for child growth, health, and survival.

Biography:

Sreenivasa R Jarapala is a Senior Scientist/Asst. Director in National Institute of Nutrition, ICMR, Hyderabad. He is working on micro greens, indigenous foods, micro nutrient malnutrition research and chronic kidney disorders particularly on vulnerable people since two decades and published several research articles in the area of food and analytical science and biochemistry. He was presented research papers in international seminars, and received many awards and honors for his achievements includes “Sagarmal Goenka” young scientist award for the year 2012 by IDA and best paper award in nutrition research from American Society of Mass Spectroscopy Chicago in 2016. He is a resource person and invited speaker for many universities and research organizations. He was involved in Indian Food Composition Tables (IFCT) which the book contains with detailed information of Indian foods nutritional composition. He is a board member of NIN Scientist Association and life member of NSI, SBCL, IDA and AFSTI. He is a faculty member of masters course applied nutrition, sports nutrition and diploma in nutrition related courses organized by NIN since decade

International Conference on Diabetes and Endocrinology

26th-27th November 2019 at Jakarta, Indonesia



Medical Nutrition Therapy in Gestational Diabetes Mellitus

Dr. P.Savitha

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Abstract

GDM has emerged as a public health problem globally and marks beginning of a vicious cycle in which diabetes begets more diabetes, leaving a legacy for both affected mother and her offspring to face impending long-term consequences. For effective continuum of care in GDM, early diagnosis and adequate management is very essential and nutrition intervention through MNT has been recognized as the cornerstone of therapy. MNT is a self-management therapy and the clinical goals of MNT in GDM are to achieve normoglycemia, prevent ketosis, provide adequate weight gain and add to the foetal wellbeing. Education, support and follow-up are required to assist the woman to make lifestyle changes essential to successful nutrition therapy. The management of GDM entails calorie and nutrient restrictions and the challenge for MNT in GDM is to balance the needs of a healthy pregnancy with the need to control glucose level. The food plan should be individualized and culturally appropriate to take into account the patient's body habitus, weight gain and physical activity and be modified as needed throughout pregnancy to achieve treatment goals. Nutrition intervention should emphasize overall healthy food choices, portion control and cooking practices that can be continued postpartum and may help prevent later diabetes. It is utmost important to seek nutrition intervention for adequate maternal nutrient intake for growth of foetus without draining on mother's own tissue to maintain pregnancy. MNT remains front and foremost in the management of GDM as there could be long-term cost savings in the prevention of negative future consequences of GDM for mothers and children.

GDM- Gestational Diabetes Mellitus

MNT- Medical Nutrition Therapy

Biography:

Dr.P.Savitha is an Assistant Professor, School of Food Science, MOP Vaishnav College for Women, Chennai. Graduated with M.Sc., M.Phil and Ph.D from Avinashilingam University, Coimbatore, has a teaching experience of more than 15+ years and has been guiding several Post graduates and M.Phil Scholars in their research work. She has several article publications in

International Conference on **Diabetes and Endocrinology**



26th-27th November 2019 at Jakarta, Indonesia

National and International Journals to her credit and also authored chapters in Medical books on Medical Nutrition Therapy.

She is active in designing new curriculum and implementing new concepts, she consistently strives to create a challenging learning environment and nurtured the young minds in taking up various job avenues in the food industry besides inculcating entrepreneur skills in the food based sector.

Life member of professional bodies like Association of Food Scientists and Technologists(AFSTI), Nutrition Society of India(NSI) Indian Dietetic Association(IDA) and Network of professionals of Food and Nutrition (NetProFan) has organised International, National conferences, workshop and Seminars, besides participation. She is currently the Secretary for AFSTI, Chennai Chapter. Has received best paper awards at the National & International Conference of Diabetes in Pregnancy Study Group (DIPSI), IDA & NSI.

Controlled Type 2 Diabetes is a Simple Disease

Prof Dr.Premanidhi Panda

Dr Panda Diabetes Center, BDA Colony, Chandrasekharapur, Bhubaneswar, India

Abstract

Definition of control as a reduction in the incidence, prevalence, morbidity or mortality of an disease to a locally acceptable level.

Type 2 Diabetes is a simple and Chronic disorder rather than a Serious disease(To me if Controlled).Common diseases like Heart Diseases, Type 2 Disease, Obesity do not have a genetic cause rather than multiple genetic cause in combination of life style modification and environmental factors. My slogan is Control diabetes is not a disease but Uncontrolled diabetes is a Disease.

Definition of Simple Disease is " Disease may apply generally to any deviation of the body from its normal or healthy state, or it may refer to a particular disorder with a specific cause and characteristic symptoms; , malady usually refers to a deep-seated chronic disease, frequently one that is ultimately fatal; , ailment refers to a mild, chronic disorder.

simple definition: 1. easy to understand or do; not difficult, presenting no difficulty, uncomplicated in form, nature (If kept Under Controlled).There are 40Pathies in Diabetes. I declare that No Pathy if Blood sugar kept under Control. I have given

my Idea No Retinopathy, Neuropathy etc if Blood sugar kept under Control with "Nutritious diet". No cure has yet been found for the disease; however, treatment modalities include lifestyle modifications, treatment of obesity, oral hypoglycaemic agents, and insulin sensitizers like metformin, a biguanide that reduces insulin resistance, is still the recommended first line medication especially for obese patients. Other effective medications include non-sulfonylurea secretagogues, thiazolidinediones, alpha glucosidase inhibitors, and insulin.

I do not agree with ADA-EASD Guideline. I have tried with Insulin Degludec,SGLT-2,GLP analogue due to Very Cost effective ,serious side effects like Hypoglycemia,Serious Mycotic Infection with Gangrene, developing cancer.

Keywords:

Type 2 diabetes mellitus, Diagnosis, Management, Newer drugs Vs Older simple drugs.

Role of Microbiome Gut on Insulin Resistance Progression in Type II Diabetes Melitus

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Suci Widya Primadhani

General Hospital Dr. H. M. Rabain, Muara Enim, South Sumatera, Indonesia

Alyssa Fairudz Shiba

General Practioner, Siloam Hospital Lippo Village, Karawaci, West Java, Indonesia

Desti Nurul Qomariyah

General Practioner, RS Hermina, West Java, Indonesia

Abstract

Background : Diabetes Melitus is a metabolic disease that characterized by high level of blood sugar for some periode. Diabetes melitus caused by inadequate of insulin production or insulin resistance or both. Lastest study shows, that microbiom in gut could be an important factor in insulim resistance progression.

Purposes : to investigated and evaluate the correlation between microbiome gut with insulin resistance progression.

Method : Method of this study is a systematic review which is including three sources major journals.

Results : results of this study shows that microbiome gut have a correlation in insulin resistance progression. Diet is a major modulator of the alteration of composition and function from microbiome gut. Population of microbiome gut change rapidly when exposed to high fibre dietary patterns and continuously. Another study showed that there were a difference of the microbiomes' population in gut in patient with diabetes and non diabetes. In patient with diabetes often found an increasing Lactobacillus population, and decreasing of Clostridium population.

Discussion : Progresivity of insulin resistance is influenced by the increasing of the population of Lactobacillus and the decreasing of the population of Clostridium. Imbalance of the bacterial population can caused a defect of the integrity of gastrointestinal structure and triggers low grade inflammation mediated Lipopolysaccharide (LPS). The LPS itself has a major role of metabolic disturbance in glucose (metabolic endotoxemia) and finally can be an insulin resistance.

International Conference on Diabetes and Endocrinology



26th-27th November 2019 at Jakarta, Indonesia

Conclusion : An uncontrolled dietary pattern and an unhealthy diet can trigger an imbalance of the normal microflora in gastrointestinal and metabolic endotoxemia, and finally can be an insulin resistance.

Keyword :

Type-2 Diabetes melitus, Insulin, Microbiome

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Ameliorating Effect of Cichorium Intybus Seeds on Type 2 Diabetes Mellitus as Add-On Therapy

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S K Jain

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Abstract

Diabetes Mellitus (DM) is one of the major health problems. One of the major causes of DM, especially type 2 DM (T2DM) is stress, lack of exercise and unhealthy food habits, some of the evils of modern life style. While a number of drugs are available in Allopathic system of medicine to manage T2DM, these often have side effects. The herbal drugs, on the other hand, have holistic effect and may be highly effective in management of T2DM. In our search for novel natural product, we found that Aqueous Extract of Cichorium Intybus Seeds (AECIS) has strong hypoglycemic property. It is also hypolipidemic and anti-oxidative in nature. To validate our experimental data, a limited human trial was carried out to test if AECIS would have added beneficial effect in T2DM patients. We report the results of a double blind randomized clinical study where 150 subjects were enrolled to assess the Add-On Efficacy and Safety of AECIS in T2DM patients at HAH Centenary Hospital, New Delhi, India. The patients were randomized (1:1) to AECIS treatment (n=51) and placebo (n=49) groups. The subjects in both groups continued to take prescribed doses of Metformin. The standardization of AECIS was carried out by LC-MS and phytochemical analysis. The mean HbA1c level in AECIS and placebo groups at baseline was 8.6 % and 8.5 %, respectively. Mean values of HbA1c at the end of 12 weeks of intervention were 7.42 % in AECIS group (a reduction of 1.18% from baseline) and 8.4 % in placebo group (mean reduction of 0.1%). Further, significant reduction in inflammation, oxidative stress, and hypertriglyceridemia was seen in AECIS group ($p < 0.05$). The study shows for the first time that AECIS supplementation ameliorates the disease progression and it is beneficial as a potential adjunct dietary supplement for the management of T2DM.

Keywords:

Type 2 diabetes mellitus; Randomized clinical study; Cichorium intybus; Inflammation; Oxidative stress.

International Conference on Diabetes and Endocrinology

26th-27th November 2019 at Jakarta, Indonesia



Evaluation of the Anti-Diabetic Medicinal Plants Fractions and Phytochemicals Efficacy in Vitro and in Vivo

Prof. Dr. Hilal Zaid

Life Sciences Department, Al-Qasbi & The Faculty of Science, The Arab American University, Palestine

Abstract

Diabetes is one of the world's most widespread diseases, which is characterized by persistent hyperglycemia and related to metabolic disorders. It affects over 327 million people and causes about 300,000 deaths annually. Despite great advances in the prevention and therapy, existing treatments for this disorder have serious side effects. Plants used in traditional medicine represent valuable sources in the search for new medicinal compounds. In traditional system of medicine, at least 1200 species of medicinal plants are used for their antidiabetic attributes. However, only a small proportion of such plants have been scientifically validated.

The objective of this study was to assess the *in vitro* and *in vivo* anti diabetic activity of selected medicinal plants. The plants extracts were tested for GLUT4 activity and translocation to the plasma membrane (Fig. 1). These plants include but are not limited to *Abelmoschus esculentus* L., *Allium cepa* (bulb), *Allium sativum* (bulb), *Asparagus aphyllus* L., *Atriplex halimus*, *Cinnamomum cassia*, *Crataegus azarolus* L., *Gundelia tournefortii*, *Nigella sativa* (seeds), *Ocimum Basilicum*, *Olea Europea*, *Trigonella foenum-graecum*, *Teucrium polium* and *Urtica dioica*. GC/MS phytochemical analysis for most of these plants are applied and the potential active compounds are discussed (Fig. 2). The most effective plant extracts were selected and are being tested *in vivo* in diabetic mice model. The activity of these plants will be presented and discussed.

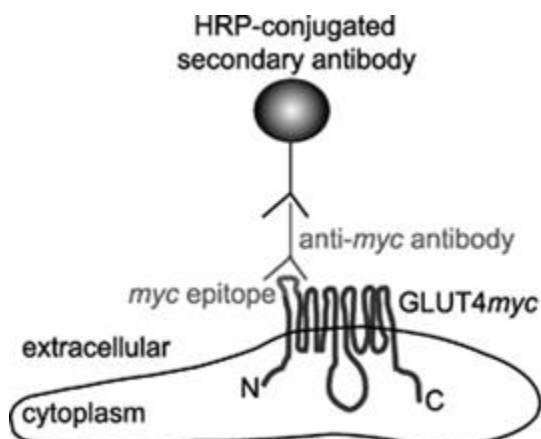


Fig.1. Model demonstrating the detection of the membrane insulin-responsive glucose transporter 4 (stably expressing myc-tag) -GLUT4myc .

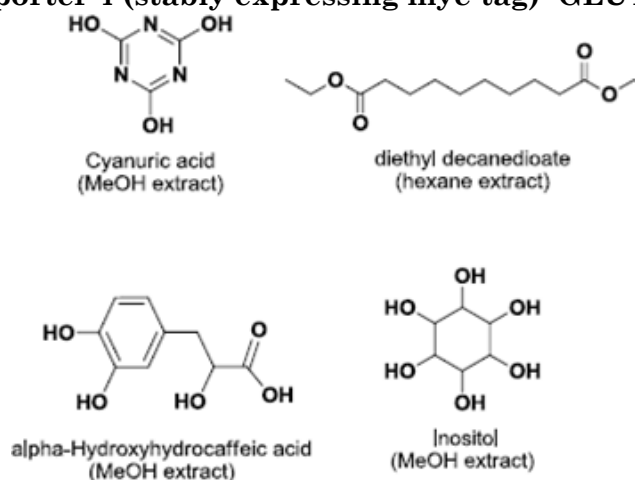


Fig.2. Some of the new detected phytochemicals.

Biography:

Prof. Dr. Hilal Zaid is a full Professor of Biochemistry and Cell Biology at the Arab American University (AAUP), Palestine. He is a former head of the sciences teaching department and a senior researcher in biochemistry and cell biology at Al-Qasemi Academic College, Israel. Dr. Zaid received his PhD in biochemistry and molecular biology from the Ben-Gurion University, Israel on June 2005 and then was trained as a postdoctoral fellow at the Banting and Best Department of Medical Research, the University of Toronto. On 2006, he joined the Program in Cell Biology at the Hospital for Sick Children as a postdoctoral fellow until July 2008. He was recruited temporary at Ben-Gurion University as a research associate for 7 months. At the beginning of 2009 (until now), he established his own lab at Al-Qasemi Research Center, Al-Qasemi Academic College and then Cell Biology, Biochemistry (including Prep-HPLC) and Animal Unite at AAUP, Palestine.

Integrating Personalised Genomics into Diabetes Management

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Abstract

The newly advancing medical field of Medical Genomics can be integrated into the day-to-day management of Type 2 Diabetes. Medical interventions are personalized to the molecular level to help patients achieve better diabetic control and prevent micro/macrovacular complications. Direct-to-consumer genetic testing is becoming increasingly more available and affordable. Together with decision-making tools that bridge the gaps between research and treatment, doctors can quickly and securely access the patient's genetic data to risk stratify patients to screen for complications, maximise lifestyle interventions, and optimise pharmacotherapy prior to dosing. To further improve outcomes, patients can also be screened for clinically-validated genetic markers associated with cardiovascular risk factors such as insulin resistance and hypertension, and also optimise end-stage treatments such as dialysis and kidney transplantation. This presentation will address the evolving role of genomics in guiding diagnoses and treatments of diabetes. Moreover, clinical examples of using an innovative digital health mobile application developed in New Zealand for real-time, point-of-care integration of clinical genomics by general practitioners and medical specialists will be presented.

Risk Factors of Steroid-Induced Hyperglycemia in Childhood Systemic Lupus Erythematosus

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Abstract

Background: Corticosteroid has been the mainstay treatment of childhood Systemic Lupus Erythematosus (SLE) which improved its outcome and survival. However, several side effects might arise as its consequences. Hyperglycemia is one of side effects of steroid treatment. Steroid-induced hyperglycemia increase morbidity and mortality in SLE and affect disease outcome.

Objective

This study aims to assess the incidence of steroid-induced hyperglycemia and to delineate risk factors of hyperglycemia during SLE treatment.

Methods

This retrospective study is a matched case control study involved data review of all childhood SLE patients from 2014 to 2018 in Sardjito General Hospital Yogyakarta. One case was matched with three controls based on age and treatment duration. Contributing risk factors were described by matched odds ratio (mOR) and adjusted OR (aOR) with 95% confidence interval using conditional logistic regression.

Result

Steroid-induced hyperglycemia was found in 14 (15.7%) of 89 patients. Fourteen cases and 42 controls were analyzed. Risk factors in univariate analysis were obesity after steroid treatment (mOR 4.0, 95% CI 1.41-13.93), MMF treatment (mOR 19.0, 95% CI 2.54-141.9), high cumulative dose (mOR 21.0, 95% CI 2.8-156) and pulse steroid treatment (mOR 20.0, 95% CI 2.68-149). Using conditional logistic regression, obesity (aOR 14.3, 95% CI 2.61- 78.68) and pulse steroid treatment (aOR 12.39, 95% CI 1.78-86.31) remained significant as risk factors.

International Conference on **Diabetes and Endocrinology**

26th-27th November 2019 at Jakarta, Indonesia



Conclusion

Obesity and pulse steroid treatment were main risk factors of developing steroid-induced hyperglycemia in childhood SLE. Glucose level monitoring should be performed in chronic use of steroid, especially in subjects with particular risk factors.

Keyword:

Hyperglycemia, Steroid, Systemic Lupus Erythematosus

Effect of Social Factors and the Natural Environment on the Etiology and Pathogenesis of Diabetes Mellitus

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Abstract

Type 2 Diabetes Mellitus (T2DM) is currently a public health problem worldwide and a threat to human health and social development. The incidence rate of the disease is steadily increasing. Various genetic and environmental factors have been established as influencing the pathogenesis of this disease. However, the influence of social factors and the natural environment on DM incidence should also be considered. Low-grade inflammation could represent a central point of connection integrating all these potential triggers, being partly responsible for the development of insulin resistance. This paper aims to elaborate on the impact of the natural environment and social factors on DM development, with a special focus on six aspects of the pathogenesis of DM: pollution, radiation, psychology, drink, sleep, and exercise. We identified a two-way relationship between T2DM and social and natural environments. Changes in these environments may lead to low-grade inflammation, which in turn induces or aggravates T2DM and vice versa. Poor lifestyle may lead to increased insulin resistance and promote DM development. Improvements in blood glucose control can be achieved through nonenvironmental and behavioural interventions.

Intraoperative Near-Infrared Autofluorescence and Indocyanine Green Imaging to Identify Parathyroid Glands: A Comparison

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Abstract

Objective. To investigate the feasibility of near-infrared Auto Fluorescence (AF) and Indocyanine Green (ICG) fluorescence to identify parathyroid glands intraoperatively. Methods. Fluorescence imaging was carried out during open parathyroid and thyroid surgery. After visual identification, parathyroid glands were exposed to Near-Infrared (NIR) light with a wavelength between 690 and 770 nm. The camera of the Storz® NIR/ICG endoscopic system used detects NIR light as a blue signal. Therefore, parathyroid AF was expected to be displayed in the blue color channel in contrast to the surrounding tissue. Following AF imaging, a bolus of 5 mg ICG was applied intravenously. ICG fluorescence was detected using the same NIR/ICG imaging system. Well-vascularized parathyroid glands were expected to show a strong fluorescence in contrast to surrounding lymphatic and adipose tissue. Results. We investigated 78 parathyroid glands from 50 patients. 64 parathyroid glands (82%) displayed AF showing the typical bluish violet color. 63 parathyroid glands (81%) showed a strong and persistent fluorescence after application of ICG. The sensitivity of identifying a parathyroid gland by

International Conference on **Diabetes and Endocrinology**



26th-27th November 2019 at Jakarta, Indonesia

AF was 82% (64 true positive and 14 false negative results), while ICG imaging showed a sensitivity of 81% (63 true positive and 15 false negative results). The Fisher exact test revealed no significant difference between both groups at $p < 0.05$. Neither lymph nodes nor adipose tissue revealed substantial AF or ICG fluorescence. Conclusion. AF and ICG fluorescence reveal a high degree of sensitivity in identifying parathyroid glands. Further, ICG imaging facilitates the assessment of parathyroid perfusion. However, in the current setting both techniques are not suitable as screening tools to identify parathyroid glands at an early stage of the operation.

**Clinical outcomes with canagliflozin according to baseline
body mass index: results from post hoc analyses of the
CANVAS Program**

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Abstract

Aims
Sodium glucose co-transporter 2 (SGLT2) inhibitors reduce several cardiovascular risk factors including plasma glucose, blood pressure, albuminuria and body weight. Long-term treatment lowers risks of cardiovascular and renal events. The objective of this post hoc analysis was to determine the effects of canagliflozin treatment versus placebo on clinical outcomes in relation to body mass index (BMI).

Materials and methods

The CANVAS Program randomized 10,142 participants with type 2 diabetes to canagliflozin or placebo. These analyses tested the consistency of canagliflozin treatment effects across BMI levels for cardiovascular, renal, safety, and body weight outcomes in 3 groups defined by baseline BMI: <25, 25-<30, and ≥30 kg/m².

Results

A total of 10,128 participants with baseline BMI measurements were included. There were 966 participants with BMI <25 kg/m², 3153 with BMI 25-<30 kg/m², and 6009 with BMI ≥30 kg/m². Mean

body weight reduction with canagliflozin compared to placebo was greater at 12 months (−2.47 kg [95% CI: −2.64, −2.30]) than at 3 months (−1.53 kg [95% CI: −1.63, −1.44]). The HRs (95% CI) for canagliflozin compared with placebo control for the composite outcome of cardiovascular death, nonfatal myocardial infarction, or nonfatal stroke were HR 1.03 (95% CI: 0.66, 1.59) in participants with BMI <25 kg/m², 0.97 (0.76, 1.23) with BMI 25-<30 kg/m², and 0.79 (0.67, 0.93) with BMI ≥30 kg/m² (P for heterogeneity = 0.55). The effects of canagliflozin on each component of the composite were also similar across BMI subgroups, as were effects on heart failure, renal, and safety outcomes (all P for heterogeneity ≥0.15).

Conclusions

Canagliflozin improved cardiovascular and renal outcomes consistently across patients with a broad range of BMI levels.

**Fast - Acting Insulin Aspart in People with Type 2 Diabetes:
Earlier Onset and Greater Initial Exposure and
Glucose - Lowering Effect Compared With Insulin Aspart**

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Abstract

Aims
To investigate the pharmacokinetic/pharmacodynamic properties of fast-acting insulin aspart (faster aspart) versus insulin aspart (IAsp) in people with type 2 diabetes (T2D).

Materials and methods

In a randomized, double-blind, crossover design, 61 people with T2D usually treated with insulin ± oral antidiabetic drug(s) received single-dose faster aspart and IAsp (0.3 U/kg) on separate visits. Blood samples for pharmacokinetic assessment were collected frequently until 12 hours post-dose. Glucose-lowering effect was determined in a euglycaemic clamp lasting up to 12 hours post-dose (target 5.0 mmol/L).

Results

The serum IAsp pharmacokinetic profile and glucose-lowering effect profile were shifted to the left for faster aspart versus IAsp. Least squares mean ($\pm$ SE) onset of appearance was 3.3 ± 0.3 minutes for faster aspart, which was 1.2 minutes earlier than for IAsp (95% confidence interval [CI] $-1.8; -0.5$; $P = .001$). Onset of action for faster aspart was 8.9 minutes earlier (95% CI $-12.1; -5.7$; $P < .001$) than for IAsp. During the first 30 minutes after dosing, 89% larger IAsp exposure (ratio faster aspart/IAsp 1.89 [95% CI 1.56;2.28]; $P < .001$) and 147% greater glucose-lowering effect (2.47 [95% CI 1.58;6.22]; $P < .001$) were observed for faster aspart compared with IAsp. Offset of exposure (time to 50% of maximum IAsp concentration in the late part of the pharmacokinetic profile) occurred earlier for faster aspart (difference faster aspart – IAsp -36.4 minutes [95% CI $-55.3; -17.6$]; $P < .001$). The treatment difference of faster aspart – IAsp in offset of glucose-lowering effect (time to 50% of maximum glucose infusion rate in the late part of the glucose infusion rate profile) was -14.4 minutes (95% CI $-34.4; 5.5$; $P = .152$).

Conclusions

In people with T2D, faster aspart was associated with earlier onset and greater initial exposure and glucose-lowering effect compared with IAsp, as previously shown in people with type 1 diabetes.

Clinical Genetic Testing in Endocrinology: Current Concepts and Contemporary Challenges

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Abstract

Recent advances in DNA sequencing technology have led to an unprecedented period of disease-gene discovery offering many new opportunities for genetic testing in the clinical setting. Endocrinology has seen a rapid expansion in the taxonomy of monogenic disorders, which can be detected by an expanding portfolio of genetic tests in both diagnostic and predictive settings. Successful testing relies on many factors including the ability to identify those at increased risk of genetic disease in the busy clinic as well as a working knowledge of the various testing platforms and their limitations. The clinical utility of a given test is dependent upon many factors, which include the reliability of the genetic testing platform, the accuracy of the test result interpretation and knowledge of disease penetrance and expression. The increasing adoption of “high-content” genetic testing based on Next-Generation Sequencing (NGS) to diagnose hereditary endocrine disorders brings a number of challenges including the potential for uncertain test results and/or genetic findings unrelated to the indication for testing. Therefore, it is increasingly important that the clinician is aware of the current evolution in genetic testing, and understands the different settings in which it may be employed. This review provides an overview of the genetic testing workflow, focusing on each of the major components required for successful testing in adult and paediatric endocrine settings. In addition, the challenges of variant interpretation are highlighted, as are issues related to informed consent, prenatal diagnosis and predictive testing. Finally, the future directions of genetic testing relevant to endocrinology are discussed.

**Prevalence of Undifferentiated Inflammatory Arthropathy in
Patients with Hashimoto's Thyroiditis in an Endocrinology
Clinic**

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Abstract

A^{im} Rheumatic manifestations are common in patients with Hashimoto's Thyroiditis (HT). Since previous reports on the prevalence of arthritis in this disease may have a rheumatology referral bias, we sought to establish the prevalence of Undifferentiated Inflammatory Arthropathy (UIA) in unselected HT patients as seen in an endocrinology clinic.

Methods

Cross-sectional study of 92 consecutive HT patients and no definite rheumatic disease from the Endocrinology Division, Hospital Universitario de Caracas diagnosed by the presence of anti-thyroid peroxidase antibodies (n = 68) or typical ultrasonographic findings (n = 24). Undifferentiated inflammatory arthropathy was defined as combination of morning stiffness and joint pain with ≥ 2

International Conference on **Diabetes and Endocrinology**



26th-27th November 2019 at Jakarta, Indonesia

characteristics of inflammatory joint pain. The study was revised and approved by the Ethics Committee of our hospital and all patients signed an informed consent form.

Results

Twenty-three patients (25%; 95% CI 16-34) met the criteria for UIA. Joints most commonly affected were the knees, hands and ankles and the most common pattern was oligoarticular (82.6%). In the multivariate analysis, variables associated to the presence of UIA were the presence of myalgia (odds ratio [OR] = 19.41; 95% CI = 2.38-158.38) and Raynaud's phenomenon (OR = 4.32; 95% CI = 1.01-18.60). No association was found with demographics, duration of disease, comorbidities or thyroid function status.

Conclusions

Almost 1 in 4 patients with HT had no definite rheumatic disease present with UIA. An early identification of concurrent arthritis in HT patients is necessary for thorough differential diagnosis and prompt treatment initiation to halt potential joint damage and disability.

Hypothalamic–Pituitary Function Following Childhood Brain Tumors: Analysis of Prospective Annual Endocrine Screening

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Abstract

Background

Outcomes for childhood brain tumors are now associated with a five-year survival rate of 75%. Endocrine effects of brain tumors are common, occurring in 43% of patients by 10 years from tumor diagnosis. Optimal timing of screening for endocrinopathies remains undefined. We aim to identify incidence and timing of endocrinopathies following brain tumor diagnosis, to better refine screening guidelines.

Methods

Retrospective chart review of patients referred to our hospital's neuro-oncology clinic for evaluation and treatment of brain tumors. Inclusion criteria were a positive history for brain tumor diagnosis and evaluation at our center. Data collection included demographics, tumor diagnosis, tumor therapy, and endocrinopathy diagnosis and timing. Laboratory data and clinical documentation were reviewed.

Results

Four hundred nineteen subjects were included for analysis. Tumor locations included supratentorial 158 (38%), posterior fossa 145 (35%), suprasellar 96 (23%), and upper spinal cord 20 (5%). Only 61% had undergone endocrine screening. Forty-five percent of screened patients had endocrinopathies. Endocrinopathy diagnosis typically occurred within six years after tumor diagnosis. Tumor recurrence and repeated therapies increased the risk for endocrinopathies within the subsequent six years after tumor therapy. Higher rates of endocrinopathies were identified in patients who had received cranial irradiation for posterior fossa, supratentorial, or suprasellar tumors.

Conclusion

Endocrine screening should occur in childhood brain tumor survivors, particularly those who have received irradiation. Our study suggests that in children with brain tumors, the highest yield for finding a pituitary deficiency is within the first six years after tumor diagnosis and treatment. Screening should continue annually beyond six years, but with special attention in the subsequent six years after therapy for tumor recurrence. Prospective screening and endocrinology referral should be implemented in childhood brain tumor survivors.

Co-occurrence of Breast Cancer and Neuroendocrine Tumours: New Genetic Insights beyond Multiple Endocrine Neoplasia Syndromes

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Abstract

Objective

Age-standardized incidence of female breast cancer is 145.1 per 100000/year and 5.86 per 100000/year for neuroendocrine tumours (NET) in Canada. Evidence is scarce about gene variants that may predispose patients to develop both neoplasms. The objective of this study was to identify germline gene variants associated with this combination of tumours.

Design and patients

A retrospective chart review (2007-2018) in a tertiary NET referral centre was completed. A series of 9 female patients with concurrent breast cancer and NET is presented. All patients underwent a 37 gene hereditary cancer next-generation sequencing panel.

Results

Mean age was 61.4 years (35-85) at breast cancer diagnosis and 63.4 years (51-89) at NET diagnosis. Four patients had a pancreatic, three had a small bowel and two had a lung NET. Two patients were known cases of MEN1, and one patient was found to harbour a pathogenic variant in MEN1 and a variant of unknown significance (VUS) in ATM. A second patient was found to harbour a pathogenic variant in APC. A third patient was found to carry a pathogenic variant in PALB2 as well as a VUS in

International Conference on **Diabetes and Endocrinology**

26th-27th November 2019 at Jakarta, Indonesia



FANCM, MLH1 and STK11. Another patient was found to harbour a VUS in MSH2. One patient was found to carry a pathogenic variant in NTHL1.

Conclusion

The first cases of a PALB2, an APC and a NTHL1 pathogenic variants in patients with both breast cancer and NET were presented. NGS testing should be considered in specific patients with this combination of neoplasms, as certain germline variants beyond MEN1, have important implications for cancer surveillance.

