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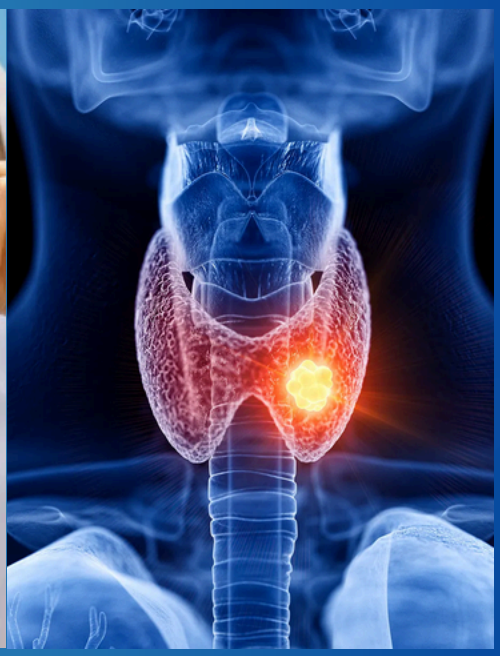
SCIENTIFIC PROGRAM

INTERNATIONAL SUMMIT ON DIABETES, ENDOCRINOLOGY, AND METABOLIC DISORDERS





HOTEL ROMA AURELIA ANTICA,
JULY 16-17, 2025, ROME, ITALY

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ACCREDITED PROVIDER #778533

LETTER FROM THE CEO & DIRECTOR UNITED RESEARCH FORUM

On behalf of United Research Forum, UK, we are delighted to welcome the organization of the International Summit on Diabetes, **Endocrinology, and Metabolic Disorders** at Hotel Roma Aurelia Antica, from July 16-17, 2025.

Our goal is to provide an international forum where international scientists meet with scientists from different fields of the health sector to exchange ideas and information on current trends in research results and practical experiences. We are looking forward to welcoming all of you to Italy and to having an excellent meeting with great scientists from different countries around the world and sharing new and exciting results in the different subjects of the conference.

We hope that you will enjoy your stay in Italy and advise you to take this opportunity to visit the beautiful historical sites that you can find everywhere in the country. Finally, I would like to add my best wishes for a successful and fruitful conference, and many thanks to our partners, the organizers of this Conference.

Dr. Vanga

Sincerely,

Dr. Vanga

CEO, Director | United Research Forum

United Kingdom

INTERNATIONAL SUMMIT ON DIABETES, ENDOCRINOLOGY, AND METABOLIC DISORDERS

REGISTRATIONS & OPENING REMARKS (08:00 - 09:00)

KEYNOTE FORUM (09:00 - 10:30)

09:00 - 09:30

Efsubaglutide-alfa Ameliorates MASH by Modulating Hepatic Lipid Metabolism and Energy Homeostasis in Rodent and Primate Models

Qinghua Wang (CEO & Founder), Innogen Pharmaceutical Technology Co. Ltd., China

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09:30 - 10:00

Is the user involvement a shortcoming of diabetes-related wound healing?

Carrinna Hansen, University of Southern Denmark, Denmark

10:00 - 10:30

Integrated Whole-Body PET/MR Imaging may improve the management of Gastroenteropancreatic Neuroendocrine Neoplasms: A Retro-Prospective Study

Iradj Sobhani & Djabbari Sobhani, University of Paris Est Creteil UPEC, France

REFRESHMENT BREAK & GROUP PHOTO (10:30 - 10:50)

TECHNICAL SESSION-I (10:50 - 12:55)

10:50 - 11:15

Can We Skip the IV? A Single-Center Review of Oral Versus IV Antibiotics for Diabetic Foot Osteomyelitis

Jennifer Kipp, Wake Forest University School of Medicine, USA

11:15 - 11:40

Islet transplantation: current limitations and challenges for successful outcomes

Allan Langlois, Strasbourg University, France

11:40 - 12:05

Endocrine-disrupting activity of triktone herbicide in Wistar rat offspring

Anja Katić, Institute for Medical Research and Occupational Health, Croatia

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12:05 - 12:30

Diabetes and Dermatology: The Overlooked Relationship Between Blood Sugar and Skin Health

Umida Mirsaidova, Republican Specialized Scientific & Practical Medical Center of Endocrinology, Uzbekistan

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12:30 - 12:55

Diabetes Through the Lens of Oral Health: A Comprehensive Exploration

Madinabonu Mirsaidova, Central Asian University, Uzbekistan

LUNCH @ RESTAURANT (12:55 - 13:55)

INTERNATIONAL SUMMIT ON DIABETES, ENDOCRINOLOGY, AND METABOLIC DISORDERS

TECHNICAL SESSION-II (13:55 - 17:35)

13:55 - 14:25

Plenary: Excess of Rare Non-coding Variants in Diabetic Families with Low Burden of Polygenic Risk

Dharambir Sanghera, Uni of Oklahoma Health Sciences Center, USA

14:25 - 14:50

Exploring the Severity and Early Onset of Familial Type 1 Diabetes in Romania: Genetic and Microbiota Insights

Amalia Ioana Arhire, Kilostop Junior, Romania

14:50 - 15:15

Ssubareolar incision as treatment of choice for gynecomastia in adolescents

Andrea Zangari, San Camillo Forlanini Hospital Trust, Italy

15:15 - 15:40

Assessing the Application and Effectiveness of Human Amniotic Membrane in the Management of Venous and Diabetic Ulcers: A Systematic Review and Meta-Analysis of Randomized Controlled Trials

Abeer Alomairi, King Saud bin Abdulaziz University for Health Science, Saudi Arabia

REFRESHMENT BREAK (15:40 - 16:00)

16:00 - 16:25

Immunomodulatory Nanodrugs Targeting TCL1A in Naïve B Cells to treat Type 1 Diabetes

Yiming Zhou, Sun Yat-sen Memorial Hospital, China

16:25 - 16:50

Microgreens with Iron and Zinc Fortification Ameliorate Oxidative Stress in a Streptozotocin-Nicotinamide Diabetic Model

Komal Chauhan, NIFTEM, India

16:50 - 17:15

Multiomics Research on Anti-diabetic Effects of Acylated and Non-acylated Anthocyanins

Baoru Yang, University of Turku, Finland

17:15 - 17:40

Sami Haddad, Jordanian Society of Endocrinology, Diabetes and Metabolic Diseases, Jordan

DAY 1 CONCLUDES

PANEL DISCUSSIONS

INTERNATIONAL SUMMIT ON DIABETES, ENDOCRINOLOGY, AND METABOLIC DISORDERS

VIRTUAL PRESENTATIONS
CET TIME ZONE

DAY 2 (JULY 17)

10:00 - 10:25

Community-Driven Diabetes Management in a Super-Aged Society: The Challenge of the Uonuma School for Community Health and Social Care

Seitaro Iguchi, Hideaki-E-Takahashi & Katsuya-Fuse, Niigata University Graduate School of Medical and Dental Sciences, Japan

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10:25 - 10:50

Modulation of linoleic acid metabolism by Camellia Japonica Radix alleviates oxidative stress in metabolic dysfunction-associated steatotic liver disease

Yiyuan Zheng, Shanghai Municipal Hospital of Traditional Chinese Medicine, China

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10:50 - 11:15

Magnesium's Impact on Insulin Resistance and Glycemic Control in Type 2 Diabetes

Mimoh Sharma, Integral Institute of Medical Sciences & Research, India

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11:15 - 11:40

Nephroprotective potential of Polyalthia longifolia roots against vancomycin-induced renal toxicity in experimental animals

A. Muthukumar, The Oxford College of Pharmacy, India

11:40 - 12:05

The use of angiotensin-converting enzyme inhibitors in hospitalized patients with COVID-19 is associated with a lower risk of mortality

Mykola Khalangot, Komisarenko Institute of Endocrinology and Metabolism, Ukraine

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12:05 - 12:30

Expression of the IL-1β and CX3CR1 pancreatic β-cells of mice fed with a high-fat/high-sucrose diet

Shaima Albeloushi, Dasman Diabetes Institute, Kuwait

12:30 - 12:55

Brachyury is elevated in the adipose tissue of individuals with overweight or obesity

Amal Hasan, Dasman Diabetes Institute, Kuwait

12:55 - 13:20

Clinical Evidence Regarding Spermidine–Hyaluronate Gel as a Novel Therapeutic Strategy in Vestibulodynia Management

Alessandra Graziottin, San Raffaele Resnati Hospital, Italy

INTERNATIONAL SUMMIT ON DIABETES, ENDOCRINOLOGY, AND METABOLIC DISORDERS

VIRTUAL PRESENTATIONS
CET TIME ZONE

DAY 2 (JULY 17)

13:20 - 13:55	**Menopausal Symptoms and Utian Quality of Life Scale Following a Breast Cancer Diagnosis and Its Impact on Endocrine Adherence** **Lara Armstrong,** Craigavon Area Hospital, UK
13:55 - 14:20	**Thyroid Hormone Resistance With a Novel Mutation** **Kulsum Khan**, NHS, UK
14:20 - 14:50	**Keynote: Liposome-Encapsulated Flavonoids as a Novel Approach to Target Hepatic Insulin Resistance and Inflammation in Type 2 Diabetes** **Marisa Freitas,** Faculty of Pharmacy of University of Porto, Portugal
14:50 - 15:15	**Cannabinoid hyperemesis syndrome in pregnancy: a case series and review** **Sarah Hanley,** Health Service Executive (Government agency), Ireland
15:15 - 15:40	**Balancing the Renin-Angiotensin System: A Strategy to Prevent Tubular Injury in Early Diabetic Kidney Disease** **Diogo B. Peruchetti**, Federal University of Minas Gerais, Brazil
15:40 - 16:10	**Keynote: Lean Diabetes: An Emerging Challenge for Physicians** **Bellamkonda K. Kishore**, University of Utah Health & ePurines, Inc., USA
16:10-16:35	**Clinical Applications of Monitoring Unmethylated Insulin cfDNA Associated with Beta-Cell Death for Diabetes and Metabolic Diseases** **Clifford Morris,** Kihealth, USA
16:35 - 17:00	**Excess of Rare Non-coding Variants in Diabetic Families with Low Burden of Polygenic Risk** **Dharambir Sanghera,** Uni of Oklahoma Health Sciences Center, USA
17:00 - 17:25	**Clinical Applications of Monitoring Unmethylated Insulin cfDNA Associated with Beta-Cell Death for Diabetes and Metabolic Diseases** **George Burke,** University of Miami Miller School of Medicine, USA

CONFERENCE CONCLUDES

INTERNATIONAL SUMMIT ON DIABETES, ENDOCRINOLOGY, AND METABOLIC DISORDERS

Andrea Zangari

San Camillo Forlanini Hospital Trust, Italy

Subareolar incision as treatment of choice for gynecomastia in adolescents

Abstract:

Intro: Gynecomastia is a benign glandular proliferation affects many adolescents inducing at first an important phycological distress. Generally, it is idiopathic but underlying endocrinological conditions must be excluded. Different surgical techniques exist, subareolar correction achieve the goal of satisfactory aesthetic result for patients.

Methods: we collected all patients with diagnosis of gynecomastia. Laboratory tests and ultrasound were made to exclude endocrinological disorders. Subareolar incision with gland excision was made in all cases. Body – q chest module was submitted to all patients during follow up.

Results: 47 adolescents with median age of 15 underwent to surgery. 3 had endocrinological disorder. Grade of gynecomastia was III in 40 patients and II in 7 patients. Postoperative complications occurred in 5 patients. BODY – Q chest module result were 70/100.

Conclusion: Gynecomastia has an important psychological impact on adolescents. Pediatric endocrinological assessment is mandatory to exclude underlying conditions. Subareolar incision is feasible in all grades of severity, with good aesthetic results and low incidence of complications in gynecomastia of any grade and severity.

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Carrinna Aviaja Hansen

University of Southern Denmark, Department of Regional Health Research, 5000 Odense C, Denmark. & Zealand University Hospital, Department of Orthopaedic Surgery, 4600 Koege, Denmark
Camilla Misha Holde Hjelmgaard, Zealand University Hospital, Department of Orthopaedic Surgery, 4600 Koege, Denmark
Marlene Østermark Kristensen, Zealand University Hospital, Department of Orthopaedic Surgery, 4600 Koege, Denmark
Connie Berthelsen, Zealand University Hospital, Medical Department, 4600 Koege, Denmark

Is the user involvement a shortcoming of diabetes-related wound healing?

Abstract:

Diabetes-related foot ulcer disease self-maKøgenagement and educational interventions depend on the engagement of patients, relatives, and social networks. Illuminating the patient's pathways, experiences, needs, and preferences regarding involvement is essential. We used a semi-structured interview guide for a qualitative study of interviews with 21 patients with diabetes-related foot ulcers. Patients were recruited parallel to ongoing treatment courses at the four multidisciplinary foot centres in the Eastern Danish Region of Zealand. A phenomenological-hermeneutical perspective was utilised to allow participants to share their experiences. For analysis, we adapted inspiration from Paul Ricoeur's philosophy of text interpretation.

Three themes were identified:
1) Becoming dependent on patient involvement to cope and comprehend,
2) Experiences and needs regarding the involvement of relatives and equals, and
3) Being vulnerable and limited by diabetes-related foot ulcers while striving for normality.

Patients' dependence on healthcare professionals' communication skills was evident while narrating the complexity and burdens of life with treatment-required diabetes-related foot ulcers. They expressed the need for involvement, shared decision-making, and individualised person-centred approaches comprising information communicated and adapted to individual and family needs and levels. One of the most crucial aspects of patient treatment is supporting the patient's self-management, often fostered through understandable information.

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This necessitates enhancing healthcare professionals' communication skills using person-centred approaches. By emphasising the need for family-centred strategies, we can improve health and well-being by involving patients, relatives, and patients' networks as active team players in the treatment process. Recent research has referred to this as the cornerstone of self-management, wound healing, and prevention.

Keywords: communication; disease self-management; foot ulcer, diabetic; health knowledge, attitudes, practice health; multidisciplinary; patient involvement.

Biography:

Research manager at the Orthopaedic Surgery Department and associate professor at the University of Southern Denmark (SDU). Her qualifications include trained Registered Nurse 1998, a master's degree of Public Health from Copenhagen University 2007, and PhD from SDU 2014. She teaches and supervises nurses and master's and PhD students from various disciplines. Her research interests primarily focus on chronic pain, diabetes-related foot ulcers, osteoporosis, consumer involvement, disease self-management, empowerment, evidence-based practice, family-centred and multidisciplinary approaches, health knowledge, attitudes, and practices, health promotion, engagement of relatives', self-efficacy, shared decision making, and methodological aspects such as epidemiology, PRO's, and qualitative research.

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Camelia Abi[1], Jenny Tannoury [1], Mathieu Uzzan [1], Edouard Reizine[2], Sébastien Mulé [2], Marjan Djabbari[2], Julia Chalaye[3], Alain Luciani [2], Emmanuel Itti [3], **Iradj Sobhani**[1,4]

[1]*Dep. of Gastroenterology, Henri Mondor Hospital, 1 Rue Gustave Eiffel, 94000 Creteil, France.*
[2]*Dep. of Radiology, Henri Mondor Hospital, 94000 Creteil, France.*
[3]*Dep. of Nuclear Medicine, Henri Mondor Hospital, 94000 Creteil, France.*
[4]*EC2M3-EA7375, Cancer Research Team, Faculty of Medicine, Université Paris Est Créteil, 94000 Creteil, France*

Integrated Whole-Body PET/MR Imaging may improve the management of Gastroenteropancreatic Neuroendocrine Neoplasms: A Retro-Prospective Study

Abstract:

Introduction and aim:

Simultaneous positron emission tomography/magnetic resonance imaging (PET-MRI) combines the high sensitivity of PET with the high specificity of MRI. It is poorly evaluated in gastroenteropancreatic neuroendocrine neoplasms (G-NENs). Thus, we evaluated the impact of PET-MRI in G-NEN patients at the time of diagnosis and during the surveillance.

Methods:

From June 2017 to December 2021, a monocenter controlled study including 71 G-NEN patients was conducted: patients underwent whole-body PET-MRI for staging and/or follow-up purposes. A whole-body emission scan with ^{18}F-6-fluoro-L-dihydroxyphenylalanine (^{18}FDOPA, n = 30), ^{18}F-fluoro-2-deoxy-D-glucose (^{18}FDG, n = 21), or ^{68}Ga-(DOTA(0)-Phe(1)-Tyr(3))-octreotide (^{68}Ga-DOTATOC, n = 20) with the simultaneous acquisition of a T1-Dixon sequence and diffusion-weighed imaging (DWI), followed by a dedicated step of MRI sequences with a Gadolinium contrast. They underwent PET-MRI every 6-12 months during the follow-up period until death. Over this period, 50 patients with two or more PET-MRI were evaluated.

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Results:
The mean age was 61 [extremes, 31-92] years. At the baseline, PET-MRI provided new information in 12 cases (17%) as compared to conventional imaging: there were more metastases in eight, an undescribed location (myocardia) in two, and an unknown primary location in two cases. G grading at the baseline influenced overall survival. During the follow-up (7-381 months, mean 194), clinical and therapy managements were influenced by PET-MRI in three (6%) patients due to new metastases findings when neither overall, nor disease-free survivals in these two subgroups (n = 12 vs. n = 59), were different.

Conclusion:
Our study suggests that using PET/MRI with the appropriate radiotracer improves the diagnostic performance (staging and distribution of tumors) with no significant impact on survival.

Keywords: G-NET; MRI; PET; PET-MRI; endocrine; gastrointestinal; pancreas

INTERNATIONAL SUMMIT ON DIABETES, ENDOCRINOLOGY, AND METABOLIC DISORDERS

Jennifer Kipp DPM, Lindsay LeSavage DPM, Travis Denmeade MD, Joni Evans MS, Cody Blazek DPM

Wake Forest University School of Medicine, Winston-Salem, NC, USA

Can We Skip the IV? A Single-Center Review of Oral Versus IV Antibiotics for Diabetic Foot Osteomyelitis

Abstract:

Residual osteomyelitis is a frequent problem following surgical intervention for diabetic foot infection. The Infectious Diseases Society of America guidelines recommend a prolonged course of antibiotics for treatment of residual osteomyelitis. Recent literature suggests oral antibiotic therapy is not inferior to IV therapy. The primary aim of this study was to evaluate treatment success in 128 patients receiving oral versus IV antibiotics for residual osteomyelitis in the diabetic foot after amputation at a Level 1 academic medical trauma center. Treatment success was defined as completion of at least 4 weeks of antibiotic therapy, complete surgical wound healing, and no residual infection requiring further debridement or amputation within 1 year of the initial surgery. Patients with peripheral arterial disease were excluded. A retrospective chart review was performed, and we found no statistically significant difference in treatment success between these two groups ($p = .28$). The median time to healing for oral antibiotic treatment was 3.17 months compared to 4.06 months for IV treatment ($p = .10$). Furthermore, there was no significant difference in group demographics or comorbidities, aside from more patients in the IV group having coronary artery disease ($p = .04$). The type of closure and whether the infection was single or polymicrobial were also not associated with a difference in outcomes between the two treatment arms. The results of the present study suggest oral antibiotics for treatment of residual osteomyelitis are not inferior to IV therapy and may be more efficacious for certain patients regarding cost and ease of administration.

Keywords: diabetes, infection, osteomyelitis, antibiotics, foot, ankl

Biography:

Jennifer Kipp is a U.S.-trained podiatrist and foot and ankle surgeon who recently completed her surgical training at Wake Forest University School of Medicine. She specializes in diabetic limb-salvage, adult foot and ankle reconstruction, and sports medicine, providing both operative and nonoperative care for lower extremity conditions. She is honored to present her latest work at the International Summit on Diabetes, Endocrinology, and Metabolic Disorders.

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Allan LANGLOIS[1], Michel PINGET[1,2] and Karim BOUZAKRI[1,2]

[1]*UR « Diabète et Thérapeutiques », Centre européen d'étude du Diabète, Université de Strasbourg, Boulevard René Leriche, 67200 Strasbourg, France.*
[2]*ILONOV, Boulevard René Leriche, 67200 Strasbourg, France.*

Islet transplantation: current limitations and challenges for successful outcomes

Abstract:
Islet transplantation is a promising approach for treating patients with unstable T1DM. However, it is confronted with numerous obstacles throughout the various stages of the transplantation procedure. Significant progress has been made over the last 25 years in understanding the mechanisms behind the loss of functional islet mass and in developing protective strategies. Nevertheless, at present, 2 to 3 pancreases are still needed to treat a single patient, which limits the maximal number of patients who can benefit from islet transplantation. Throughout this lecture, we aim to provide an overview of recent findings on the deleterious mechanisms affecting pancreatic islet quality during the isolation process, and to present proposals to address these issues. Additionally, we discusse challenges and potential solutions for transplanted islets. This allowed us to appreciate the numerous complications that pancreatic islets face during the various stages of transplantation. As a result, there is still a great deal of work to be done to protect the functional mass of islets and reduce the number of pancreases needed for a single patient. Moreover, the standardization of the complete procedure between the different centers remains one of the key issues to be solve in order to optimize the success of the islet transplantation. However, the remarkable scientific advancements in the past few years in understanding these deleterious pathways have enabled the identification of numerous targets for action and the establishment of various strategies (genetic, pharmacological, organoid, encapsulation, stem cells), all of which are equally promising. Ultimately, these advances bring the hope of being able to propose pancreatic islets transplantation to a maximum of patients living with T1DM in the near future.

Keywords: Islet transplantation, ischemia, inflammation, immunosuppression, IBMIR, revascularization.-term functional mass of pancreatic β-cells.

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doi.org/10.51219/URForum.2025.Allan-Langlois

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Biography:

Dr Allan LANGLOIS is associate laboratory director at the European Centre for the Study of Diabetes. Throughout his career, he has been interested in understanding insulin secretion mechanisms, in particular insulin granules trafficking, in order to develop protective strategies to prevent β-cell destruction and dysfunction. Indeed, the preservation of a physiological insulin secretion by protecting pancreatic β-cells is the major challenge to prevent and treat diabetes. In this context, Dr Allan LANGLOIS is also invested in pancreatic islet transplantation therapeutic strategy for T1DM, to develop solutions to maintain a long

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Anja Katić*

Institute for Medical Research and Occupational Health. Zagreb, Croatia

Endocrine-disrupting activity of triktone herbicide in Wistar rat offspring

Abstract:

Tembotrione, as chemical allelopathic triketone herbicide approved by the European Commission in 2006, is used post-emergently to control broadleaf and grassy weeds. Today, many pesticides have been recognized as endocrine-disrupting chemicals (EDCs) that may interfere with sex hormones. Triketone herbicides are suspected as EDCs but so far there are no data about endocrine-disrupting effects of tembotrione. Since the most sensitive subpopulation to the adverse effects of pesticides are children, in this study we focused on the offspring that may not be exposed directly but can be through the placenta or maternal milk. The aim of this study was to evaluate the endocrine-disrupting potential of the tembotrione by studying the hormone status of Wistar rat offspring exposed through the treated dams. Three doses of tembotrione (0.0004, 0.0007, and 4.0 mg/kg b.w./day), relevant for both residental and occupational human exposure, were administered to dams during gestation and/or lactation period. The levels of 17β-estradiol and testosterone in the serum of newborn, weaning, and pubertal female and male offspring were determined using an enzyme-linked immunosorbent assay. A decrease in 17β-estradiol and testosterone was observed in female and male weaning and pubertal offspring exposed to all doses of tembotrione during gestation and lactation. In weaning offspring exposed only during lactation, 17β-estradiol dropped significantly after exposure to the two lower doses and testosterone after exposure to the lowest dose of tembotrione. The greatest effect was observed at the lowest dose of tembotrione. In newborns, we observed increased 17β-estradiol after exposure to two lower doses of tembotrione and significantly increased testosterone after exposure to the lowest dose. The highest dose of tembotrione decreased 17β-estradiol significantly in newborn females. In this study we have shown for the first time that tembotrione exposure during sensitive periods of development provoked proestrogenic or estrogen agonistic effects in rat offspring until puberty.

Keywords: tembotrione; pregnancy; lactation; 17β-estradiol; testosterone; rats

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Biography:

Anja Katić, Ph.D., graduated at the Faculty of Food Technology and Biotechnology, University of Zagreb in 2005. She acquired Ph.D. in Biomedicine and Health Sciences at the Faculty of Pharmacy and Biochemistry, University of Zagreb in 2015. She is employed in Division of Toxicology at the Institute for Medical Research and Occupational Health, Zagreb, Croatia, since 2007. Anja Katić published 25 original scientific papers and more than 30 abstracts at the international and national scientific meetings. She attended several courses at foreign institutions, for which she received scholarships, and she is a member of few scientific associations.

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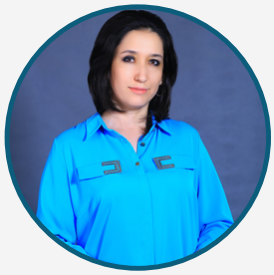

Dr. Umida Mirsaidova and
Prof. Zamira Khalimova1,2

Republican Specialized Scientific and Practical Medical Center of Endocrinology, Tashkent, Uzbekistan

Diabetes and Dermatology: The Overlooked Relationship Between Blood Sugar and Skin Health

Abstract:

Introduction

Diabetes Mellitus is known as a long-term illness affecting the well-being of the worldwide population and is among the top 10 causes of adult mortality. In addition to several systemic complications, diabetes can compromise the skin through associations that are not yet fully understood. The goal of this research is to investigate the relationship between diabetes mellitus and various dermatological conditions, including their prevalence, types, and impact on lifestyle, and raise awareness among healthcare professionals and the community about the link between diabetes and skin disorders by promoting education on preventive measures.

Methodology:

This study conducted a systematic review of more than 80 existing literatures to analyze the association between diabetes mellitus and dermatological disorders. A clinical examination was also completed on Uzbek population's diabetic patients possessing skin diseases. The extracted data was synthesized to establish a comprehensive understanding of the subject.

Result:

The findings indicated that poor glycemic control is linked to an increase in diabetic skin lesions such as pruritus, xerosis, diabetic dermopathy, acanthosis nigricans, acrochordon, and insulin-related lipohypertrophy. Skin lesions were found to be relatively common in both Type 1 and Type 2 Diabetes Mellitus, with similar prevalence rates.

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Conclusion:

The cutaneous manifestations play a vital role in early diagnosis and overall prognosis of Diabetes Mellitus. It is essential for healthcare specialists to encourage proper glycemic management and educate patients on the importance of regular dermatological check-ups. Future research should focus on developing innovative strategies for the prevention and management of skin complications associated with diabetes, and longitudinal studies should be conducted to consider ethnicity.

Keywords: diabetes mellitus, diabetes in dermatology, cutaneous manifestations, glycemic control

Biography:

Dr. Umida completed her bachelor's degree at Tashkent Medical Academy in Uzbekistan and went on to earn her master's degree in Endocrinology in 2010. Following her studies, she joined the research group led by Prof. Zamira at the Republican Specialized Scientific and Practical Medical Center of Endocrinology in Uzbekistan. In 2021, she received her Ph.D. from the same institution. Dr. Umida has published over 30 research articles in renowned journals.

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INTERNATIONAL SUMMIT ON DIABETES, ENDOCRINOLOGY, AND METABOLIC DISORDERS

Ms. Madinabonu Mirsaidova1 and Prof. Dr. Riddhi Chawla2

1Dental school, Central Asian University, Tashkent, Uzbekistan
2Dental school, Central Asian University, Tashkent, Uzbekistan

Diabetes Through the Lens of Oral Health: A Comprehensive Exploration

Abstract:

Introduction

Diabetes, defined as a chronic condition marked by high sugar levels, is increasingly prevalent globally leading to a rise in associated complications. Among these, oral health issues in diabetic patients are particularly significant, highlighting the need to address the often-overlooked aspect of oral care in diabetes management. This study aims to investigate the evidence linking oral diseases with diabetes, emphasizing the need for transdisciplinary collaboration to enhance patient outcomes.

Methodology

The study performed a systematic review of approximately 50 existing literature sources and intraoral examination of diabetic patients to explore the relationship between diabetes and oral health. Utilizing databases such as PubMed, Google Scholar, Scopus, and other relevant academic journals, the research aimed to identify articles discussing the correlations between these domains. The data obtained were subsequently synthesized to offer a thorough insight into the topic.

Results

Data demonstrate that several oral health complications are associated with diabetes. Periodontal changes often serve as the first clinical manifestation of the disease and have a bidirectional relationship with diabetes depicting that each can affect the other. Furthermore, as age and blood sugar levels increase, diabetic patients experience more dental caries. Additionally, burning mouth syndrome in diabetic neuropathy worsens with poor metabolic control, leading to hyposalivation and severe oral health issues. Moreover, long-term poorly controlled diabetes heightens the risk of oral candidiasis.

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Conclusion:

The burden alleviation of diabetes requires collective efforts from all societal sectors. Clinicians must actively participate in screening, early detection, prevention strategies, self-management counseling. Individualized prevention strategies, including regular dental visits, oral education, and dietary assessments, should be designed to maintain oral health and inhibit dental caries and periodontal disease. Increased awareness about the implications of diabetes on oral health is necessary to improve overall quality of life and address untreated morbidity in the community.

Keywords: diabetes, oral complications, early diagnosis

Biography:

Madinabonu is a junior student at the School of Dentistry, Central Asian University in Tashkent, Uzbekistan. Her keen interest in various academic aspects have earned her the prestigious toppers award. In addition, under the guidance of Prof. Riddhi Chawla, she has published an article in a Scopus-Indexed journal. Engaging actively in student council activities, she showcases remarkable leadership skills. Beyond her studies, she passionately volunteers in various events and contributes her time to charitable work needed for hospitals. Fluent in Uzbek, English, Russian, and Hindi Madinabonu's multilingual proficiency reflects her cultural adaptability and facilitates effective communication across diverse communities.

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Dharambir K. Sanghera[1], Madhusmita Rout[1], and AIDHS/SDS and INDIGENUS Consortium

[1]*Department of Pediatrics, College of Medicine, University of Oklahoma Health Sciences Center, Oklahoma City, OK 73104, USA*

Excess of Rare Non-coding Variants in Diabetic Families with Low Burden of Polygenic Risk

Abstract:

Type 2 diabetes (T2D) etiology is highly complex due to its multiple roots of origin. Polygenic risk scores (PRS) based on genome-wide association studies (GWAS) can only partially explain the T2D risk. Asian Indians have up to six times higher risk of developing T2D than Europeans. However, the underlying causes of this disparity are unknown. Here, we have performed targeted sequencing of ten T2D GWAS/candidate regions using endogamous Punjabi Sikh families and replication studies using unrelated Sikhs and families from three other Indian endogamous ethnic groups (EEGs). We detected several rare and ultra-rare variants (RVs) in KCNJ11-ABCC8 and HNF4A (MODY genes) that cosegregated with late-onset T2D. In addition, we identified RV enrichment in two novel genes, SLC38A11 and ANPEP, associated with T2D. Gene-burden analysis revealed the highest RV burden contributed by HNF4A ($p=0.0003$), followed by KCNJ11/ABCC8 ($p=0.0061$) and SLC38A11 ($p=0.03$). Some RVs detected in Sikhs were also found in Agarwals from Jaipur, both from Northern India. Still, they were monomorphic in the other two EEGs from South India. Despite carrying a high burden of T2D and RVs, most members of Sikh families had a significantly low burden of polygenic risk scores (PRS). Functional studies confirm the regulatory role of an intronic RV in ABCC8, which abolishes binding sites of Nf-kβ and Pax4 transcription factors influencing the regulation of downstream genes. The enrichment of noncoding RVs from multiple MODY and other genes in these families with high disease burden suggests the oligogenic inheritance of T2D. These findings urge deeper evaluations of such families for potential novel therapeutics.

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Keywords: Type 2 Diabetes, Asian Indian Endogamous families, Rare non-coding Variants, MODY Genes, Polygenic Risk Score

Funding:
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Biography:
Dr. Sanghera is a Professor of Pediatrics and the Dr. Altshuler Endowed Chair of Genetics at the University of Oklahoma Health Sciences Center. Her research focuses on the genetic, environmental, and cultural factors affecting diabetes and cardiovascular diseases, as well as health disparities among ethnic groups in the U.S. She teaches two graduate courses in “Pharmacogenetics” and “Cardiovascular Genomics” at the University of Oklahoma Health Sciences Center.

INTERNATIONAL SUMMIT ON DIABETES, ENDOCRINOLOGY, AND METABOLIC DISORDERS

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Exploring the Severity and Early Onset of Familial Type 1 Diabetes in Romania: Genetic and Microbiota Insights

Abstract:

Background

Type 1 Diabetes Mellitus (T1DM) is a chronic autoimmune disorder characterized by the destruction of insulin-producing beta cells. Familial T1DM (FT1DM) is associated with greater severity and earlier onset, particularly in cases with paternal inheritance. Research Question:To explore the association between specific HLA haplotypes, gut microbiota dysbiosis, and the severity of FT1DM in Romanian children.

Methods

Among 350 adult and pediatric T1DM patients evaluated, three Romanian families with FT1DM were studied between 2019 and 2021. Clinical, biological, and genetic assessments were performed, including high-resolution HLA typing and gut microbiota profiling through 16S rRNA sequencing. Data analysis focused on identifying genetic predispositions and dysbiotic patterns linked to disease onset and progression.

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Results:

Children with FT1DM displayed a severe onset, with a median age of 9 years and frequent diabetic ketoacidosis. Genetic analysis highlighted a strong presence of high-risk HLA haplotypes: DRB103:01-DQA105:01-DQB1\02:01 (DR3-DQ2) and DRB104:01/02/04/05/08-DQA103:01-DQB1\03:02/04 (DR4-DQ8) significantly associated with aggressive glycemic profiles. Notably, the protective allele DPB1*04:01 was exclusively found in sibling FT1DM cases. Gut microbiota analysis revealed marked dysbiosis, characterized by increased Enterobacteriaceae and Candida spp., alongside reduced populations of protective taxa such as Akkermansia muciniphila and Bifidobacterium spp.These microbial imbalances were correlated with heightened inflammation and disrupted gut barrier integrity.

Conclusion:

The first comprehensive evaluation of genetic and microbiota factors in Romanian FT1DM patients. The findings underscore the combined impact of specific HLA haplotypes and gut dysbiosis on the accelerated onset and severity of FT1DM. Early genetic screening and microbiota-targeted interventions may represent effective strategies for delaying disease progression and mitigating complications in high-risk pediatric populations.

Keywords: familial type 1 diabetes; pediatric diabetes; case series; microbiota

Biography:

Amalia Ioana Arhire, MD, PhD, is a specialist in Endocrinology, Diabetes, Nutrition, and Metabolic Diseases, and the visionary co-founder of Kilostop Junior, Romania's first pediatric nutrition and obesity clinic. She earned her PhD in Medicine in 2024 from "Carol Davila" University of Medicine and Pharmacy, with groundbreaking research on the genetic and microbiota determinants of familial Type 1 Diabetes. With over a decade of clinical expertise and a commitment to innovation in pediatric health, Dr. Arhire is dedicated to transforming children's lives through evidence-based interventions and personalized nutrition strategies, with over 20 articles and presentations in pediatric endocrinology and diabetes.

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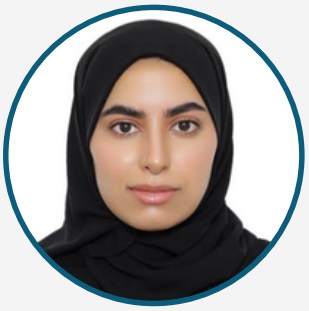

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Assessing the Application and Effectiveness of Human Amniotic Membrane in the Management of Venous and Diabetic Ulcers: A Systematic Review and Meta-Analysis of Randomized Controlled Trials

Abstract:

This study aimed to assess the efficacy of human amniotic membranes (HAM) in treating venous and diabetic ulcers, which often pose challenges in healing. A systematic review and meta-analysis were conducted, evaluating 10 relevant studies involving 633 participants. Findings revealed that HAM treatment significantly accelerated ulcer closure, demonstrating over 90% complete healing compared to standard care. Despite moderate heterogeneity among studies, the results strongly suggested the effectiveness and safety of HAM therapy for venous and diabetic leg ulcers. Further research with larger study cohorts is recommended to bolster the existing evidence supporting HAM in managing these challenging wounds.

Keywords: amniotic membrane; diabetic foot ulcers; human amniotic membrane; leg ulcers; venous; venous ulcers.

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INTERNATIONAL SUMMIT ON DIABETES, ENDOCRINOLOGY, AND METABOLIC DISORDERS

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Immunomodulatory Nanodrugs Targeting TCL1A in Naïve B Cells to treat Type 1 Diabetes

Abstract:

Type 1 diabetes (T1D) arises from autoimmune destruction of pancreatic β-cells, with B cells contributing through antigen presentation and autoantibody production. However, the role of B cell subsets in early disease remains unclear. We performed scRNA-seq and flow cytometry on PBMCs from newly- diagnosed T1D patients, their relatives, and healthy controls. scRNA-seq analysis showed that naïve B cells were expanded in early T1D and exhibited upregulated TCL1A, an AKT coactivator. TCL1A knockdown suppressed AKT2 phosphorylation, reducing B cell proliferation and survival. NOD mice mirrored these findings, with elevated naïve B cells and Tcl1a linked to glucose intolerance. We developed a Tcl1a-targeted siRNA nanodrugs, which could reduce Tcl1a expression and naïve B cell number, protected β-cell mass, and restored glucose tolerance in NOD mice. Our work suggests that TCL1A in naïve B cells plays a key role in T1D pathogenesis and demonstrates the therapeutic potential of precision nanodrugs for early intervention.

Keywords: Type 1 diabetes, Single-cell RNA-sequencing, B cell, TCL1A, Nanodrugs

Biography:

Dr. Zhou completed his doctoral studies at the Graduate University for Advanced Studies (SOKENDAI) and National Institute for Physiological Sciences in Japan. He then did his postdoctoral training at Harvard Medical School Brigham and Women's Hospital and the Broad Institute, where he was appointed as instructor. Dr. Zhou established his independent laboratory at Sun Yat-sen Memorial Hospital, Sun Yat-sen University in China. Dr. Zhou's research focuses on autoimmune disorders and the development of novel therapeutic interventions. He has published over 30 papers in high-impact scientific journals.

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INTERNATIONAL SUMMIT ON DIABETES, ENDOCRINOLOGY, AND METABOLIC DISORDERS

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Microgreens with Iron and Zinc Fortification Ameliorate Oxidative Stress in a Streptozotocin-Nicotinamide Diabetic Model

Abstract

The growing incidence of metabolic disorders such as diabetes and obesity has become a global health concern, necessitating the exploration of dietary interventions with functional and therapeutic benefits. Among these, microgreens have gained significant attention for their rich phytochemical composition and antioxidant properties. Additionally, iron and zinc are critical micronutrients that play a vital role in maintaining metabolic health and mitigating oxidative stress. This study aimed to evaluate the combined therapeutic potential of microgreens and iron and zinc fortification in modulating oxidative stress and metabolic dysfunction in streptozotocin-nicotinamide (STZ-NA)-induced diabetic models.

The research was conducted in three phases. The first phase involved a comprehensive evaluation of the selected microgreens, including cereal grasses (wheat, barley, sorghum), brown and green seaweeds (Sargassum fusiforme, Ulva lactuca), and leafy vegetables (taro Colocasia esculenta L. and kenaf Hibiscus cannabinus L.). These plant sources were analyzed for their proximate composition, phytochemical profile, and in vitro antioxidant properties. The findings revealed a high concentration of bioactive compounds, including phenolics, flavonoids, and carotenoids, contributing to their strong antioxidant activity. Additionally, iron and zinc fortification was integrated into value added products to enhance their micronutrient density. The fortified samples demonstrated improved bioavailability and synergistic effects in antioxidant potential, making them promising candidates for therapeutic applications.

In the second phase, in vivo experiments were conducted using male Wistar rats, divided into obesogenic (high-fat diet-induced) and diabetogenic (NA-STZ-induced) groups. Over a nine-week period, dietary supplementation with microgreens and fortified formulations was administered, and its impact on serum and hepatic biomarkers was assessed. The results indicated a significant reduction in hyperglycemia, dyslipidemia, and oxidative stress markers in the treated groups. The most pronounced effects were observed in groups supplemented with S. fusiforme and U. lactuca combined with iron and zinc fortification.

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Notably, these interventions enhanced insulin sensitivity, reduced hepatic lipid accumulation, and improved antioxidant enzyme activity. Histopathological examinations further confirmed the protective role of microgreens and mineral fortification, demonstrating tissue restoration and reduced inflammation in pancreatic and hepatic cells.

The final phase focused on the development of functional food products by incorporating microgreens and fortified ingredients. Various formulations, including fortified biscuits, energy bars, and mixes, were designed to provide enhanced nutritional and antioxidative benefits. Sensory evaluations indicated high acceptability, with formulations enriched with microgreens and fortified with iron and zinc exhibiting improved taste, texture, and shelf stability. Physicochemical assessments revealed increased protein, fibre, and micronutrient content, making these products suitable for long-term dietary inclusion. In conclusion, this study underscores the potential of microgreens and iron and zinc fortification as natural, functional interventions for managing diabetes and oxidative stress. Their combined impact on metabolic health highlights their role as promising nutraceuticals in addressing chronic diseases through sustainable dietary solutions.

Keywords: Microgreens, Iron, Zinc,Fortification, Oxidative Stress, Streptozotocin, Nicotinamide, Diabetes Mellitus

Biography: Dr. Komal Chauhan is a distinguished academician and researcher in the field of Food Science and Nutrition. She holds a Ph.D. in Food Science and Nutrition from Banasthali University, Rajasthan, and has consistently demonstrated academic excellence as a scholarship holder and Gold Medallist at the Master's level.

Her diverse upbringing across various regions of India has enriched her academic and professional outlook, shaping her into a versatile and dynamic educator. Dr. Chauhan began her teaching career at S.D. College, Ambala Cantt, followed by a tenure at Banasthali University. Currently, she serves as the Dean of Research and Outreach at NIFTEM, where she also leads the Centre for Food Research Analysis and the Centre of Excellence for Food Fortification, in addition to her role as Professor in the Department of Food Science and Technology.

With over two decades of teaching and research experience, Dr. Chauhan has made significant contributions in the areas of Nutraceuticals and Functional Foods, Nutritional Biochemistry, Malnutrition, and Non-Communicable Diseases including diabetes, cardiovascular diseases, and obesity. She has actively collaborated on numerous projects funded by prestigious organizations such as UNICEF, UGC, DST, SERB, FSSAI, and various state and central government agencies including the Ministry of Tribal Affairs (MP), Department of Women and Child Development (Kerala), and the Department of Sports and Youth Affairs (Kerala).

Dr. Chauhan has edited three books and authored several book chapters. She has also published and presented extensively in national and international journals and conferences. Her strong industry linkages and focus on applied research have resulted in the transfer of more than 30 food technologies, underscoring her commitment to innovation and public health impact.

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INTERNATIONAL SUMMIT ON DIABETES, ENDOCRINOLOGY, AND METABOLIC DISORDERS

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Multiomics Research on Anti-diabetic Effects of Acylated and Non-acylated Anthocyanins

Abstract

Anthocyanins have been shown to possess anti-diabetic properties. Anthocyanins from different sources vary in both the structural features of aglycons and sugar moieties, but also in the presence of acyl groups. Acylated anthocyanins are known to have higher stability compared to their nonacylated counterparts. Research data is scanty comparing the metabolic impacts of these two types of anthocyanins. To fill the knowledge gap, two clinical intervention studies were carried out to study the effects of acylated anthocyanins of purple potatoes and non-acylated anthocyanins of bilberries on postprandial glycemic responses in healthy male volunteers. Purple potatoes and anthocyanin extracts from purple potatoes decreased the postprandial glycemic response after a heavy carbohydrate meal. To further explore the mechanism in the metabolic pathways, an eight-week preclinical feeding trial was performed to study impact of these two types of anthocyanins on the metabolomics profiles as well as gut microbiota of obese diabetic Zucker rats. Treatment with acylated anthocyanins or non-acylated anthocyanins decreased levels of branch chain amino acids (BCAAs) and improved lipid profiles. Acylated anthocyanins increased glutamine/glutamate ratio in plasma, suggesting improved insulin secretion and insulin sensitivity.

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Acylated anthocyanins decreased levels of lactate, serine, threonine, and glycine, which might be associated with improved oxidative status and shift in energy production from glycolysis and TCA cycle towards lipid catabolism. Our data demonstrated that acylated anthocyanins reversed most of the altered levels of metabolites in diabetic rats towards the normal state by modifying insulin sensitivity and secretion, oxidative stress, energy production, and lipid profiles. Furthermore, the two types of anthocyanins showed differential impacts on the hepatic transcriptomics, gut metabolomics profile, and gut microbiota of diabetic rats, which likely contributed the observed metabolic outcomes.

Keywords: Acylated anthocyanins, non-acylated anthocyanins, anti-diabetic effects, multi-omics research

Biography

Professor Baoru Yang is the Director of Food Sciences and the Vice Dean of the Faculty of Technology, University of Turku. She is a member of the Finnish Academy of Science and Letters. Professor Yang's research is in the field of Food Chemistry and Food Development, with special focus on the composition and health effects of food with special focus on polyphenols and lipids. She has published over 300 peer-reviewed papers.

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INTERNATIONAL SUMMIT ON DIABETES, ENDOCRINOLOGY, AND METABOLIC DISORDERS

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Community-Driven Diabetes Management in a Super-Aged Society: The Challenge of the Uonuma School for Community Health and Social Care

Abstract

Uonuma City, a rural municipality in Niigata Prefecture, Japan, is facing an advanced stage of population aging, with the elderly expected to comprise 41.1% of the population by 2025. In response to this demographic shift, the city launched a series of community-centered health initiatives beginning in 2008, followed by a comprehensive regional healthcare reorganization between 2010 and 2020. As part of this transformation, a 350-bed general hospital was restructured into Koide Hospital, a more agile 134-bed facility serving as the region's core medical institution. Guided by the philosophy that "local residents are an indispensable health resource," Uonuma City established the "Uonuma School for Community Health and Social Care" in 2011. This platform fosters professional collaboration, health literacy, and civic engagement. It serves as a hub for co-creating health strategies and educational programs, particularly for diabetes care. A multidisciplinary diabetes education and empowerment team was organized at Koide Hospital, initially composed of nurses, therapists, pharmacists, dietitians, and laboratory technicians. Over time, it expanded to include general practitioners, public health nurses, fitness instructors, and dentists. These professionals supported patients and families both in clinical settings and the wider community. As a result, the proportion of individuals with HbA1c ≥8% decreased significantly from 2008 to 2010, and this improved glycemic control was maintained through 2020. Community activities such as health clubs, public lectures, and interactive learning also contributed to improved outcomes. In the Uonuma Medical Area, the incidence of new dialysis patients with diabetes as the primary underlying condition has shown a reduction of approximately 25% compared to preceding years. This case exemplifies how community-led initiatives, combined with interprofessional education, collaborative practice and participation of community residents can support sustainable chronic disease management. Uonuma's experience offers a transferable model for other aging communities worldwide.

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Keywords: **IPE, IPCP, municipality government, demographic changes**

Biography

Professor Baoru Yang is the Director of Food Sciences and the Vice Dean of the Faculty of Technology, University of Turku. She is a member of the Finnish Academy of Science and Letters. Professor Yang's research is in the field of Food Chemistry and Food Development, with special focus on the composition and health effects of food with special focus on polyphenols and lipids. She has published over 300 peer-reviewed papers

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INTERNATIONAL SUMMIT ON DIABETES, ENDOCRINOLOGY, AND METABOLIC DISORDERS

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Modulation of linoleic acid metabolism by Camellia Japonica Radix alleviates oxidative stress in metabolic dysfunction-associated steatotic liver disease

Abstract:

Background

The incidence of metabolic dysfunction-associated steatotic liver disease (MASLD) has been escalating annually, establishing itself as a principal etiology of liver disease. Camellia japonica radix (CJR), the root of Camellia japonica L., has emerged as a promising herbal tea substitute for MASLD management, owing to its systemic benefits, absence of side effects, convenient administration, and long-term applicability. However, the mechanisms underlying its therapeutic efficacy in MASLD remain unclear. Thus, our study aims to elucidate its therapeutic mechanisms in MASLD remain unclear to provide evidence supporting its clinical application.

Methods

The therapeutic effects of CJR were evaluated using a water-supplementation model in MASLD mice. Integrated microbiome, transcriptome, proteome, and metabolome analyses were employed to comprehensively explore the mechanisms involved. Fecal microbiota transplantation in antibiotic-treated ABX mice was conducted to confirm the critical role of gut microbiota and its metabolites. Drug-target pull-down assay was performed to identify specific protein targets of small molecule metabolites in vitro. Furthermore, customized medicated feed supplemented with linoleic acid was used to evaluate its dietary intervention potential.

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Results:

CJR extract alleviated hepatic inflammation and steatosis in MASLD model mice, with its pharmacological mechanism associated with gut microbiota, linoleic acid metabolism, and GPX4-mediated ferroptosis. 9(S)-HpODE, emerged as a key metabolite, which could target both KEAP1 and SLC7A11, bidirectionally regulating GPX4-mediated ferroptosis, while acting as a signaling molecule at low doses to induce redox adaptation via oxidative preconditioning, thus ameliorating oxidative stress in MASLD.

Conclusion:

Our findings indicate that both CJR and linoleic acid demonstrate significant potential as dietary interventions for MASLD management, offering promising avenues for future research and clinical application.

Keywords: Camellia japonica radix, Metabolic dysfunction-associated steatotic liver disease, Linoleic acid, Tea substitute, Dietary management

Biography:

Yiyuan Zheng, PhD, serves as an associate researcher and associate professor at Shanghai Municipal Hospital of Traditional Chinese Medicine. The primary research focus is centered on the integrative application of suitable traditional Chinese medicine techniques, including herbal tea formulations, aromatherapy, and acupoint embedding, aimed at the prevention and treatment of chronic metabolic diseases such as fatty liver and obesity. A particular emphasis is placed on the clinical and foundational research concerning the efficacy of traditional Chinese herbal tea in addressing metabolic dysfunction-related fatty liver disease.

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Magnesium's Impact on Insulin Resistance and Glycemic Control in Type 2 Diabetes

Abstract:

The escalating global health burden of Type 2 diabetes mellitus (T2DM) underscores the importance of understanding contributing factors and effective management strategies. Given the established crucial role of magnesium (Mg) in various physiological processes and the observed prevalence of hypomagnesemia in T2DM patients, a study was conducted involving 300 individuals with diabetes and 100 non-diabetic controls aged 31 to 55 years. This research aimed to ascertain the occurrence of low magnesium levels in T2DM and explore its relationship with both blood sugar control and the development of complications within rural and urban populations. Fasting blood glucose, post-prandial blood glucose, and magnesium levels were measured using an automated analyzer, while HbA1c was assessed via a Bio-Rad D10. Insulin levels were determined using chemiluminescence, and insulin resistance was estimated using the HOMA-IR index. The findings revealed significantly lower magnesium levels in the diabetic group (1.34±0.29) compared to the control group (2.17±1.87, $p<0.0001$).

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Furthermore, within the diabetic cohort, those with hypomagnesemia exhibited significantly higher levels of fasting blood glucose (267.67±89.78 mg/dL vs. 167.87±76.87 mg/dL, p<0.0001), post-prandial blood glucose (376.87±112.87 mg/dL vs. 287.90±99.98 mg/dL, p<0.0001), HbA1c (9.54±2.6 % vs. 7.23±1.8 %, p<0.0001), Insulin (17.21±8.98 IU/mL vs. 14.87±5.98 IU/mL, p=0.039), and HOMA-IR (7.32±3.67 vs. 6.13±0.99, p=0.012) compared to those with normal magnesium levels. Correlation analysis demonstrated a significant negative association between magnesium levels and fasting blood glucose (r=-0.465; p<0.0001), post-prandial blood glucose (r=-0.596; p<0.0001), HbA1c (r=-0.765; p<0.0001), insulin (r=-0.454; p<0.0001), and HOMA-IR (r=-0.325; p<0.0001). In conclusion, this study underscores the importance of monitoring serum magnesium levels in individuals with T2DM as a crucial step towards managing hypomagnesemia, potentially reducing the risk of associated complications, and ultimately improving patient care.

Keywords: Hypomagnesemia, T2DM, Glycemic Control, HOMA-IR,Glucose Metabolism

Biography:

My academic foundation rests upon an MBBS from Subharti Medical College, Meerut, and an MD in Biochemistry from Uttar Pradesh University of Medical Sciences, Saifai, Etawah. My dedication to research is reflected in my publications across esteemed national and international journals.My expertise extends beyond core biochemistry, encompassing certifications in Diabetes mellitus (CCEBDM) and Hypertension (CCPMH) from the Public Health Foundation of India, New Delhi. A pivotal Experimental Biotechnology course from NPTEL has further enriched my scientific perspective.

INTERNATIONAL SUMMIT ON DIABETES, ENDOCRINOLOGY, AND METABOLIC DISORDERS

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Nephroprotective potential of Polyalthia longifolia roots against vancomycin-induced renal toxicity in experimental animals

Abstract:

This study investigated the possible nephroprotective effects of an ethanolic root extract of Polyalthia Longifolia (PL) on vancomycin-induced nephrotoxicity using curative and protective models. Vancomycin (150 mg/kg, intravenously) was administered to healthy Wistar albino rats in the curative model before the start of treatment, whereas the protective group received vancomycin after the 10-day treatment procedure. Animals were divided into six groups for both models: groups III, IV, V, and VI were kept as toxic control, standard (selenium, 6 mg/kg), LDPL (low dose of PL 200 mg/kg), HDPL (high dose of PL 400 mg/kg), and HDPL + selenium (interactive) groups, respectively. Renal biomarkers (uric acid, creatinine, blood urea nitrogen (BUN), and serum proteins) and blood electrolyte levels were measured in all tested groups. Compared to the vancomycin group, HDPL showed significantly ($p < 0.01$) greater effectiveness in lowering BUN, potassium, and calcium levels. Additionally, in the curative model, there was a significant ($p < 0.05$) decrease in the blood levels of uric acid, creatinine, BUN, potassium, and calcium in animals that received the combination of selenium and HDPL. Neither LDPL nor HDPL showed any distinguishable effects in the protective model. However, groups that received HDPL with selenium provided detectable protection by significantly lowering their levels of uric acid, BUN, serum potassium, and total serum protein in comparison to the vancomycin control group. These findings indicate that, whether administered before or after renal damage is induced, the Polyalthia longifolia root extract provided only modest protection to nephrons, which require selenium support to prevent vancomycin-induced kidney damage.

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Keywords: antioxidants, antibiotics, biomarkers, vancomycin, kidney disease, treatment, Polyalthia longifolia, nephrotoxicity

Biography:

My academic foundation rests upon an MBBS from Subharti Medical College, Meerut, and an MD in Biochemistry from Uttar Pradesh University of Medical Sciences, Saifai, Etawah. My dedication to research is reflected in my publications across esteemed national and international journals.My expertise extends beyond core biochemistry, encompassing certifications in Diabetes mellitus (CCEBDM) and Hypertension (CCPMH) from the Public Health Foundation of India, New Delhi. A pivotal Experimental Biotechnology course from NPTEL has further enriched my scientific perspective.

INTERNATIONAL SUMMIT ON DIABETES, ENDOCRINOLOGY, AND METABOLIC DISORDERS

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The use of angiotensin-converting enzyme inhibitors in hospitalized patients with COVID-19 is associated with a lower risk of mortality

Abstract:

The effect of renin-angiotensin-aldosterone system (RAAS) inhibitors in combination with COVID- 19 and diabetes mellitus (DM) remains controversial. We assessed the risk of death in COVID-19 inpatients based on the presence or absence of DM, arterial hypertension (AH) and the use of RAAS inhibitors in two centers. Center 1: the results of treatment of all adult PCR-confirmed COVID-19 inpatients in 2021, n = 1097, are presented. The presence of DM at the time of admission and the category of antihypertensive drugs during hospital stay were noted. Leaving the hospital due to recovery or death was considered as a treatment outcome. Multivariable logistic regression analysis was used to assess the risk of death. Patients with COVID-19 without AH were considered the reference group. DM was known in 150 of 1,097 patients with COVID-19 (13.7%). Mortality among DM inpatients was higher: 20.0% vs. 12.4% respectively (p=0.014). We found a reduction in the risk of death for COVID-19 inpatients without DM, who received RAAS inhibitors compared with the corresponding risk of normotensive inpatients, who did not receive antihypertensives: OR 0.22 (95% CI 0.07–0.72) adjusted for age, gender and glycemia.

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Center 2: the relationship between the use of angiotensin-converting enzyme inhibitors (ACEIs) and angiotensin II receptor blockers (ARBs), DM history and the risk of death in patients with COVID-19 was assessed in 2021: the records of 153 COVID-19 inpatients admitted in 2021 were reviewed. In DM patients (n=28) mortality was 53.6% vs. 12.8% without DM (n=125), $p < 0.001$. After adjusting for age, minimal O2 saturation and treatment the DM-associated OR was 8.25 (1.92–35.42). The ACEIs-associated OR was 0.10 (0.02–0.69). The use of ACEIs in the treatment of COVID-19 inpatients is associated with a lower risk of mortality compared to those not using hypotensive treatment, regardless of the presence of DM.

Keywords: angiotensin-converting enzyme inhibitors, angiotensin II receptor blockers (ARBs), COVID-19, hospital treatment, diabetes mellitus, mortality

Biography

Resident Institute Endocrinology & Metabolism, Kiev, Ukraine, 1980—1985, physician (Endocrinology) since 1983, researcher, 1985—1991, diabetes mellitus epidemiology laboratory, since 2004; professor assistant Donetsk National Medical University, 1991—2004; clinical consultant University Clinic, 1991—2004; Associate Professor (1999), Doctor of Medical Sciences (2009), full Professor (2021), professor (2020 – now) Department of Endocrinology Shupyk National Healthcare University of Ukraine. Member of Ukrainian association of endocrinologists, European Association for the Study and Primary Care Diabetes Europe www.pcdeurope.org, European Diabetes Epidemiology Group (EDEG), SigmaXi member (since 2024).

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Expression of the IL-1β and CX3CR1 pancreatic β-cells of mice fed with a high-fat/high-sucrose diet

Abstract

Background/Objectives

Increased circulatory glucose and free fatty acids lead to glucolipotoxicity, which triggers inflammation, affecting the endocrine pancreatic β-cells. We investigated the comparative effects of a fish-oil-based-high-fat, high-sucrose-diet (Fish-HFHSD) versus a cocoa-butter-based-high-fat, high-sucrose-diet (Cocoa-HFHSD) on the expression of the inflammatory cytokine interleukin (IL)-1β and fractalkine receptor (CX3CR1) in mouse β-cells.

Methods

C57BL/6 male mice (n=18) were randomly assigned to three dietary interventions, including Chow, Fish-HFHSD, and Cocoa-HFHSD, for 22-weeks.Pancreatic tissues were collected for immunohistochemistry to quantify insulin-, IL-1β-, and CX3CR1-positive-areas.

Results

The immunostaining intensity of insulin in β-cells was significantly higher (P=0.0008) in mice fed with either Fish-HFHSD (180±10px GV) or Chow (173±6px GV) compared to those fed with Cocoa-HFHSD (118±12px GV).Conversely, the immunostaining intensity of IL-1β was significantly higher (P=0.0004) in mice fed with Cocoa-HFHSD (237±12px GV) compared to those fed with Fish-HFHSD (145±13px GV) or Chow (180±10px GV).

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As expected, the IL-1β:insulin ratio was significantly lower (P<0.0001) in Fish-HFHSD (0.80±0.04) and Chow (0.82±0.06) fed mice compared to that (2.11±0.22) in Cocoa-HFHSD fed mice. Unlike IL-1β, CX3CR1 immunostaining intensity was significantly higher (P<0.0001) in mice fed with either Fish-HFHSD (214±10px GV) or Chow (209±9px GV) compared to those fed with Cocoa-HFHSD (111±12px GV). In addition, the CX3CR1:insulin ratio was significantly higher (P<0.0001) in Fish-HFHSD (1.17±0.02) and Chow (1.2±0.02) fed mice compared to that (0.98±0.01) in Cocoa-HFHSD fed mice.

Conclusions

In contrast to Fish-HFHSD feeding, Cocoa-HFHSD feeding induces a metabolic insult in mice that results in increased IL-1β expression and reduced insulin and CX3CR1 expression in pancreatic β-cells.

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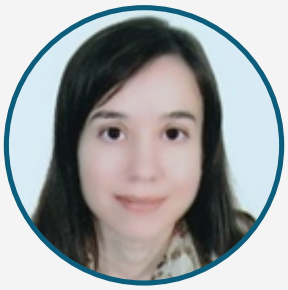

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Brachyury iselevated in the adipose tissue of individuals with overweight or obesity

Abstract:

Overweight and obesity are well-established risk factors for cancer. The embryonic developmental gene brachyury is typically absent in non-neoplastic tissues but expressed in malignant tumors, particularly epithelial malignancies. Brachyury regulates genes involved in the cell cycle, extracellular matrix remodeling, growth factor production, and cytokine signaling. Its overexpression promotes epithelial-to-mesenchymal transition (EMT) and tumor metastasis. Adipocytes have been implicated in EMT processes, and emerging evidence suggests that metastatic cancer cells can differentiate into adipocytes, potentially altering classical EMT pathways. Obesity is characterized by pathological expansion of white adipose tissue (AT), prompting the question of whether brachyury is overexpressed in obese AT and contributes to adipose-derived stem cell differentiation into preadipocytes, as well as to preadipocyte proliferation and maturation. In this study, we investigated brachyury expression in human subcutaneous abdominal AT and assessed whether its levels are elevated in overweight and obese individuals compared to normal-weight controls. A total of 108 adults with varying body mass indexes (BMI) and glycemic statuses were included. Anthropometric and biochemical parameters were evaluated, and brachyury expression was quantified in subcutaneous abdominal AT. Brachyury mRNA expression was significantly higher in overweight ($P = 0.0098$) and obese ($P = 0.026$) individuals compared to normal-weight controls. Among overweight participants, those with diabetes exhibited higher brachyury expression than those with prediabetes ($P = 0.0135$). Interestingly, overweight individuals with diabeteshad greater brachyuryexpression than obese individuals with diabetes ($P = 0.0084$). Confocal microscopy confirmed that brachyury protein levels increased with adiposity. We propose an obesity-associated model in which the reactivation of embryonic developmental programs in adipose tissue promotes preadipocyte proliferation and cancer-like cellular behaviors.

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Keywords: Obesity, brachyury, adipose tissue, diabetes

Biography

I have a background in human cellular immunology, with expertise in characterizing cellular immune responses across both experimental and clinical settings, particularly in allergic, infectious, and metabolic diseases. My current research focuses on elucidating the underlying mechanisms of autoimmune type 1 diabetes and developing strategies for its prevention.

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Clinical Evidence Regarding Spermidine–Hyaluronate Gel as a Novel Therapeutic Strategy in Vestibulodynia Management

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Abstract:

Research Question:
To evaluate the clinical evidence regarding the use of spermidine-hyaluronate gel as a novel treatment strategy for female vulvar health, focusing on vestibulodynia.

Background:
Vestibulodynia encompasses 80% of vulvodynia cases. It is characterized by thinning of the vestibular mucosa and a significant increase both in hyperactive local mast cells and in inflammatory molecules (cytochines, TNFalpha and Nerve Growth Factor (NGF)). This leads to inflammation and proliferation of pain fibers, contributing to vestibular hyperalgesia. When these fibers cross the basal membrane, along the tunnels escavated by tryptase and eparanase enzymes, produced by mast cells, they infiltrate the vestibular mucosa. This causes the shift from touch to burning pain, typical of vestibular allodynia. Further pain is caused by vestibular micro-abrasions during intercourse, when pelvic floor hyperactivity is present and pain causes a reflex block of vaginal lubrication. Spermidine, an endogenous polyamine, plays a crucial role in cellular maintenance, including regulating the cytoskeleton and cell resistance to microtrauma, local inflammation, and stability. Recent studies have highlighted spermidine's anti-inflammatory, anti-aging, and neuroprotective effects.

Purpose:
To assess the effectiveness of spermidine as a safe and novel therapeutic option for vulvar health, particularly in treating vestibulodynia and vulvodynia.

Methods:
A cohort of 154 women with vestibulodynia (VBD) received applications of the spermidine-hyaluronate complex for two months (4 + 4 weeks) in a multicentre prospective observational trial. Symptom evaluation included pain, dyspareunia, vestibular trophism, vulvoscopy, and pelvic floor hypertonicity.

Results:
Significant improvements were observed in all evaluated parameters. Pain and dyspareunia decreased by 46.5% and 33.5%, respectively, with improvements in other measures ($p < 0.0001$).

Conclusions:
The spermidine-hyaluronate complex effectively alleviates pain, dyspareunia, and vestibular hypersensitivity in VBD patients.

Keywords: spermidine hyaluronate; vestibulodynia; vulvodynia; dyspareunia

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Biography

Alessandra Graziottin, MD, SOGC (Hon), specialist in Gynecology-Obstetrics, Oncology, and Medical Sexology, is Director of the Center for Gynecology and Medical Sexology at San Raffaele Resnati Hospital, Milan. She is President and Founder of the Alessandra Graziottin Foundation for the Care of Women's Pain, NPO. She is consultant Professor at the University of Verona and professor at the Master of Sexual Medicine at University of Milano-Bicocca. She has authored over 490 scientific works and has given over 1900 invited lectures in national, international and world congresses. Her leading areas of expertise include menopause, chronic pain, and sexual medicine.

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Menopausal Symptoms and Utian Quality of Life Scale Following a Breast Cancer Diagnosis and Its Impact on Endocrine Adherence

Abstract:

Introduction:

Standard treatment for oestrogen-positive breast cancers involves a minimum of five years of adjuvant endocrine treatment with a significant improvement in survival. However, the side effects of endocrine treatments are often underestimated. We aimed to identify the frequency of side effects, adherence to treatment, and impact on the quality of life of breast cancer survivors.

Methods:

All patients attending holistic needs assessment and health and wellbeing events with a clinical nurse specialist between March and October 2023 were given a menopause symptom proforma and Utian menopausal quality of life scale questionnaire.

Results:

A total of 99/150 (66%) patients attending a health needs assessment with a clinical nurse specialist following a diagnosis of breast cancer returned forms. The mean age of respondents was 56.7 years, with a mean 2.5-year duration since diagnosis. Thirty-seven percent of respondents were premenopausal at diagnosis, and 63% were postmenopausal. Five percent stopped treatment early due to menopausal symptoms, and 2.2% changed endocrine treatment. Overall, the mean menopausal quality of life score was -0.454 (p=0.0052). Within the premenopausal cohort, 84% reported hot flushes, 81% a low-sex drive, 73% night sweats, 89% memory problems, 89% fatigue, and 76% joint aches. This group scored -0.20 SD on the quality of life scale. The postmenopausal group reported a 71% incidence of hot flushes, 79% both poor sleep and joint pain, 60% breast pain, and 86% fatigue. They demonstrated a mean of -0.58 SD on the quality of life scale. The failure to adhere to endocrine treatment was reported by 6% of respondents, who cited side effects as the reason for non-compliance.

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Conclusion:

In conclusion, there is a significant increase in menopausal symptoms following treatment for breast cancer, which is negatively impacting well-being, quality of life, and endocrine adherence.

Keywords: Menopause, Breast cancer, oestrogen

Biography:

Ms Lará Armstrong MBChB MRCS MSc (MedEd) PGCert is a Breast Surgery Specialty Doctor, based in Northern Ireland. She has a strong clinical background and a keen interest in medical education, holding a Masters in Medical Education. Actively involved in teaching at undergraduate and postgraduate levels, she is passionate about enhancing surgical training. Ms Armstrong also has a growing interest in endocrine treatments in breast cancer and their systemic effects, aiming to improve patient outcomes through both clinical practice and research. Her work bridges education and innovation in breast surgical care

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Thyroid Hormone Resistance With a Novel Mutation

Abstract:

Syndrome of thyroid hormone resistance (THR) is a rare inherited condition characterized by a reduced responsiveness of the tissues to thyroid hormone. The syndrome is caused primarily by mutations in the thyroid hormone receptor beta (THRB) gene, leading to impaired hormone receptor function. It is a diagnosis of exclusion and often leads to delays in establishing the diagnosis. Management is usually conservative, as over-treating can be unnecessary and potentially detrimental. Our case report aims to highlight the changes in thyroid function tests and the subtle presenting symptoms of this disease so that clinicians are more mindful of this rare condition. It brings to attention the importance of follow-up to monitor the lab values and reach an accurate diagnosis. We also report a novel mutation identified in the THRB gene.

Keywords: hyperthyroidism, thyroid disorder, thyroid function test, thyroid hormone receptor mutation, thyroid, nodule size, thyroid-stimulating hormone (TSH)

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Liposome-Encapsulated Flavonoids as a Novel Approach to Target Hepatic Insulin Resistance and Inflammation in Type 2 Diabetes

Abstract:
Hepatic insulin resistance is a key feature of type 2 diabetes mellitus, closely associated with oxidative stress and inflammation. Despite its significance, there is a lack of therapies specifically targeting hepatic dysfunction. Flavonoids have shown promise for their antidiabetic properties; however, their clinical application is limited due to challenges related to bioavailability and metabolism. This study investigated the effects of four flavonoids (kaempferol, quercetin, kaempferol-7-O-glucoside, and quercetin-7-O-glucoside) in a HepG2 cell model of hepatic insulin resistance. Among them, quercetin was identified as the most promising compound and was subsequently encapsulated in liposomes (mean size 0.12 μm, encapsulation efficiency 93%) to enhance its therapeutic potential. Quercetin liposomes showed superior efficacy in improving insulin resistance by modulating Akt expression, reducing inflammation via NF-κB, and regulating PGE2 and COX-2 expression. Furthermore, they outperformed free quercetin in decreasing the production of reactive pro-oxidant species. These findings suggest that quercetin liposomes could serve as a novel therapeutic strategy for diabetes, effectively addressing both hepatic insulin resistance and inflammation.

Acknowledgements
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Cannabinoid hyperemesis syndrome in pregnancy: a case series and review

Abstract:

Background:

Cannabinoid hyperemesis syndrome (CHS) is a syndrome of cyclic nausea and vomiting in the setting of chronic cannabis use. To date, only 11 cases of CHS in pregnancy have been reported.

Case presentation:

We describe two cases of uncontrolled vomiting in pregnancy due to CHS. Case 1 represents a 30-year-old Caucasian woman presenting in the 5th week of gestation with nausea, vomiting and abdominal pain intermittently of 1 week duration. Physical work-up was normal, and symptoms resolved with supportive treatment within 3 days, only to occur again at the 14th week of gestation, and again at the 30th week of gestation. Link between symptom relief and hot bathing led to suspicion for CHS, confirmed with positive cannabis urine toxicology screening. Nausea, vomiting and pain subsided with cannabis cessation, and baby was born healthy at 38+5 weeks gestation. Case 2 describes a 28-year-old Caucasian woman presenting in the 16th week of gestation with nausea, vomiting and abdominal pain. Physical examination was normal, and symptoms self-resolved. Two weeks later, in the 18th week of gestation, the patient re-presented to the emergency room with sudden re-occurrence of nausea, vomiting and abdominal pain. Once again, a link between symptom relief and hot bathing was noted on admission. The patient was educated on possible links of chronic cannabis use with CHS symptoms and subsequently relayed extensive (>14 years) cannabis use history. Symptoms resolved with cannabis cessation. Baby was born at 37 weeks gestation, with low birth weight of 2180 g requiring 5 days neonatal intensive care unit (NICU) treatment. Regular follow-up up to 5 months post-partum confirmed no CHS relapse with cannabis cessation.

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Conclusion:

CHS in pregnancy is likely under-reported, reflective possibly of limited physician and patient awareness of this condition, as well as patient concealment of cannabis use in pregnancy. In cases of severe, cyclic nausea and vomiting in pregnancy unresponsive to typical anti-emetic treatment, comprehensive social history including cannabis use should be sought, and associated hot bathing for symptomatic relief out-ruled.

Keywords: Cannabis, hyperemesis gravidarum, cyclic vomiting, hot water bathing, Pregnancy

Biography:

Dr Sarah Hanley is a Consultant General Adult Psychiatrist, and Consultant Perinatal Psychiatrist currently working in Galway University Hospital, Ireland. Dr Hanley has a masters in Psychoanalytic Psychotherapy from Trinity College Dublin, and a diploma in Neurodiversity from University College Dublin, and diploma in Mindfulness from University College Cork. Specialist areas of interest included ADHD and ASD in peripartum, as well as medical psychotherapy. Dr Hanley is a trained in Mentalization-Based Treatment therapist.

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Diogo B. Peruchetti (Presenting Mariana Rodrigues Campos, Laura Barroso Ferreira Oliveira, Diogo B. Peruchetti)

Department of Physiology and Biophysics, Institute of Biological Sciences, Federal University of Minas Gerais, Belo Horizonte, Minas Gerais, Brazil

Balancing the Renin-Angiotensin System: A Strategy to Prevent Tubular Injury in Early Diabetic Kidney Disease

Abstract:

Diabetic Kidney Disease (DKD) is a life-threatening, progressive chronic kidney disease associated with higher rates of mortality and morbidity worldwide. DKD is a major risk factor for kidney disease progression and complete organ failure. In the early stages of DKD, the development of tubulointerstitial injury and proteinuria occurs, mainly associated with dysfunction in tubular protein reabsorption. However, the molecular mechanisms underlying these processes are still poorly understood. One possibility is the involvement of components of the Renin-Angiotensin System (RAS). Interestingly, increased levels of angiotensin II (Ang II), an octapeptide from the classical RAS, and reduced levels of angiotensin-(1-7) [Ang-(1-7)], a heptapeptide from the alternative RAS, have been observed in kidney tissues in various kidney diseases. In addition, angiotensin receptor blockers (ARBs), inhibitors of the classical RAS, have been extensively used due to their anti-proteinuric effects and their ability to improve outcomes in patients with CKD. However, it remains unclear how the interaction between these peptide pathways occurs in early DKD. Herein, we discuss how RAS peptides modulate tubular protein reabsorption dysfunction and the development of tubulointerstitial injury in early DKD. Our findings show that blocking the effects of Ang II using ARBs or increasing systemic Ang-(1-7) levels—through both pharmacological means (using an oral formulation containing Ang-(1-7) included in hydroxypropyl-β-cyclodextrin) and genetic tools (the L-3292 transgenic rat strain)—leads to amelioration of tubular proteinuria and tubular injury in animal models of DKD. These results suggest that the imbalance between the classical and alternative arms of RAS could be a key mediating mechanism. Overall, these findings expand our understanding of the involvement of RAS components in the development of tubular injuries, opening new therapeutic strategies to prevent or at least slow the progression of DKD.

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Keywords: diabetic kidney disease, renin-angiotensin system, tubular protein reabsorption, tubulointerstitial injury, angiotensin II, angiotensin-(1-7)

Biography

Dr. Diogo B. Peruchetti is a pharmacist having master (2011) and PhD (2015) degrees in physiology at Carlos Chagas Filho Biohysics Insitute from Federal University of Rio de Janeiro (UFRJ, Brazil). He also trained at Department of Physiology / School of Medicine from Johns Hopkins University (USA, 2011-2013) and a post-doc fellow in renal physiology at UFRJ (2015-2022). Nowadays, Dr. Peruchetti is associate professor at Department of Physiology and Biophysics-Insitute of Biological Science from Federal Universtity of Minas Gerais (UFMG, 2022-) and leader of ReMPhy - Renal Molecular Physiology Research Group.

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Bellamkonda K. Kishore, M.D., Ph.D., MBA

University of Utah Health & ePurines, Inc., Salt Lake City, Utah, USA

Lean Diabetes: An Emerging Challenge for Physicians

Abstract: Overweight and obesity are established risk factors for type 2 diabetes mellitus (T2DM). However, a significant proportion (11-25%) of diabetic patients are normal or underweight as determined by their BMI, leading to the term Lean Diabetes (LD). Also known as, Malnutrition-related Diabetes, Tropical Diabetes, and other names, LD does not meet the classical ADA/WHO classification of T2DM and is more like a hybrid of T1DM and T2DM. Epidemiologically, LD is predominantly seen in men of Asian or African ancestry of lower or middle socioeconomic status, with history of childhood malnutrition. The prevalence of LD is rising rapidly in the United States. Over a five-year period (2015-2020), there was a 17.8% increase in LD in adults as compared to 2.1% increase in diabetes among people with overweight or obesity. Central to the susceptibility to LD are evolutionary origin of smaller body structure with low lean mass, and the thin-fat babies born with low lean body mass and relatively higher percentage of body fat.

Maternal nutrition during pregnancy has a significant role in the birth of thin-fat babies. Recent studies brought out molecular evidence for maternal factors programming fetal cardiometabolic development. Clinically, LD has an early age of onset, severe hyperglycemia with absence of ketosis on withdrawal of insulin and has higher combined cardiovascular and non-cardiovascular mortality rate as compared to obese diabetics. LD patients also have higher prevalence of microvascular complications of diabetes. Currently, there are no specific guidelines for the clinical management of LD. Therapeutic strategies should aim to increase insulin secretion and decrease insulin resistance. To achieve this goal, a combination of GLP-1 receptor agonist (to increase insulin secretion) and a glitazone (to decrease insulin resistance) appears to hold promise. Thus, the problem of LD is huge and so it needs global response.

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Keywords: Lean Diabetes, Atypical Diabetes, Tropical Diabetes, Obesity, Maternal Nutrition, Fetal Programming

Biography:

Prof. Bellamkonda Kishore, MD, PhD, MBA, is an academician and innovator, and has recently turned to entrepreneurship. His research focuses on purinergic signaling as it relates to obesity and metabolic syndrome, and diseases of the kidney. He developed and patented innovative therapies and launched a startup to commercialize them. Currently, he is the President, CEO & CSO of ePurines, Inc., while continuing as an Adjunct Professor of Internal Medicine at the University of Utah Health in Salt Lake City, Utah. In recognition of his innovative work, Dr. Kishore was inducted as a Senior Member of the National Academy of Inventors.

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Clinical Applications of Monitoring Unmethylated Insulin cfDNA Associated with Beta-Cell Death for Diabetes and Metabolic Diseases

Abstract:

Metabolic disorders, including Type 1 and Type 2 Diabetes, are significant global health challenges. The CDC estimates that 37.3 million Americans have diabetes, and another 96 million adults are diagnosed with prediabetes each year. Among individuals in Stage 2 diabetes, 75% will progress to full-blown diabetes within five years, highlighting the urgent need for early-stage monitoring tools. Current diagnostics rely on indirect markers, such as blood glucose and insulin levels, which do not capture real-time cellular damage. By the time of diagnosis, up to 60% of beta cell function may already be lost.

Our proprietary ßeta Test™ uses droplet digital PCR (ddPCR) technology to directly measure beta cell function by detecting unmethylated insulin cfDNA released when beta cells break down. This process can identify metabolic changes up to 625 days earlier than current methods, offering a critical advantage in early detection and prevention. Research shows that insulin cfDNA levels correlate with early-stage beta-cell stress in prediabetes and metabolic syndrome, autoimmune destruction in Type 1 Diabetes, and progressive beta-cell loss in Type 2 Diabetes. This technology also helps track treatment responses, including therapies like GLP-1 receptor agonists and immunotherapies.

Early intervention based on this technology can reduce beta-cell stress, improve metabolic flexibility, and delay or prevent disease progression. It enables early identification of high-risk patients, therapeutic efficacy monitoring, and personalized diabetes management. By integrating INS cfDNA testing into clinical practice, providers can enhance detection, optimize treatments, and ultimately reduce complications, providing a new non-invasive approach to metabolic disease management.

Keywords: diabetes, beta-cell, diagnostic, early detection, cfDNA, liquid biopsy

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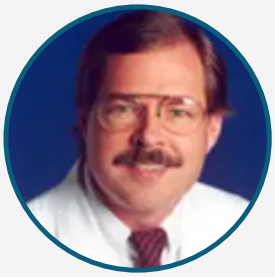

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INTERNATIONAL SUMMIT ON DIABETES, ENDOCRINOLOGY, AND METABOLIC DISORDERS

Abstract: Beyond the direct benefit that a transplanted organ provides to an individual recipient, the study of the transplant process has the potential to create a better understanding of the pathogenesis, etiology, progression and possible therapy for recurrence of disease after transplantation while at the same time providing insight into the original disease.

Specific examples of this include:
1) recurrence of focal segmental glomerulosclerosis (FSGS) after kidney transplantation,
2) recurrent autoimmunity after pancreas transplantation, and
3) recurrence of disease after orthotopic liver transplantation (OLT) for cirrhosis related to progressive steatosis secondary to jejuno-ileal bypass (JIB) surgery.

Furthermore, recurrence of autoimmunity after pancreas transplantation can also recur in the second pancreas transplant. Our team has been studying these phenomena and their immunologic underpinnings, and we suggest that expanding the concept to other pathologic processes and/or transplanted organs that harbor the risk for recurrent disease may provide novel insight into the pathogenesis of a host of other disease processes that lead to organ failure.

Keywords: kidney transplant, pancreas transplant, liver transplant, recurrent disease, cytokines

Biography:
George Burke, M.D.: Academic Role: Professor of Surgery, Division of Kidney and Pancreas Transplantation, The Joshua Miller M.D. Chair in Transplant Surgery at the Miami Transplant Institute. His research interests include recurrence of disease after kidney transplantation (recurrent Focal Segmental Glomerulosclerosis - FSGS) or kidney-pancreas transplantation (Type 1 Diabetes Recurrence - T1DR). Funding: Dr. Burke is funded by the John C. Hench Foundation (T1DR) and the Chernowitz Foundation (FSGS) Chernowitz Foundation (FSGS). Training Experience: He has dedicated over 37 years to patient care, research and teaching, including the education of undergraduates, medical students, residents and over 100 transplant surgical fellows.

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INTERNATIONAL SUMMIT ON DIABETES, ENDOCRINOLOGY, AND METABOLIC DISORDERS

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Efsubaglutide-alfa Ameliorates MASH by Modulating Hepatic Lipid Metabolism and Energy Homeostasis in Rodent and Primate Models

Abstract:

Glucagon-like peptide-1 receptor agonists (GLP-1 RAs) have emerged as promising therapies for metabolic dysfunction-associated steatohepatitis (MASH) due to their glucose-lipid regulatory effects. Supaglutide, a novel long-acting GLP-1 RA, has demonstrated potent metabolic benefits in type 2 diabetes and obesity models. This study evaluates its efficacy in preclinical MASH models, including spontaneously developed MASH in rhesus monkeys, high-fat diet (HFD)-induced obesity in mice, and chemically induced MASH in mice. In rhesus monkeys with biopsy-confirmed MASH, weekly subcutaneous injections of Supaglutide (50 μg/kg or 150 μg/kg) for 12 weeks significantly reduced hepatic fat accumulation, with a 40% reduction in MRI-proton density fat fraction (MRI-PDFF, $p<0.001$) and improved histological steatosis without worsening fibrosis. In HFD-fed obese mice, Supaglutide (300 μg/kg, biweekly) reduced body weight, improved glucose homeostasis, and upregulated Ucp1 expression, indicating enhanced energy expenditure. In chemically induced MASH mice, Supaglutide significantly reduced hepatic triglyceride and cholesterol levels, decreased serum alanine aminotransferase (ALT) and aspartate transaminase (AST), and improved nonalcoholic fatty liver disease activity scores. These findings suggest that Supaglutide exerts therapeutic effects on MASH by regulating hepatic lipid metabolism, enhancing insulin sensitivity, and promoting energy homeostasis. The consistent metabolic and hepatic improvements observed across species highlight its potential as a novel treatment for MASH and related metabolic disorders.

Keywords: Efsubaglutide-alfa, GLP-1RAs, MASH, Energy homeostasis

Biography:

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