
# VELLORE ENDOCRINOLOGY INTERNATIONAL CONGRESS 2025

## NAVIGATING THE HETEROGENEITY OF DIABETES ON A GLOBAL BASIS

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**At Bagayam Campus, Christian Medical College Vellore, India**
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# Oral and Poster Abstracts

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## ABSTRACT

### Oral and PosterAbstracts

The following are the oral and poster abstracts submitted by the delegates at the Vellore Endocrinology International Congress 2025. The titles, along with their abstract numbers, are listed below.

25ABS01: Clinical practices in diabetic foot by General Surgeons – A pilot study

**Dr. Venkata Subbarao Gurram**

Assistant Professor, Sri Chamundeshwari Medical College and Hospital

**Title: Clinical practices in diabetic foot by General Surgeons – A pilot study**

**Background:** According to the International Diabetes Federation (IDF), India ranks second globally and first in Southeast Asia with around 74 million people diagnosed with diabetes in 2021, accounting for one in every seven people worldwide. Diabetic foot disease is one of the most serious complications of diabetes mellitus, involving neuropathy, ischemia, and infection. These conditions can lead to ulceration (Diabetic Foot Ulcer – DFU), infection (Diabetic Foot Infection – DFI), and ultimately result in severe morbidity or limb amputation. Most complications are preventable with appropriate measures and can be managed to avoid amputations, even if they occur.

**Objective:** This study aims to evaluate the approach of General Surgeons in the evaluation and management of diabetic foot in their day-to-day clinical practice.

**Methods:** A questionnaire related to the magnitude of the diabetic foot problem and clinical practices in its management was designed as a Google form. The form was shared on social media in June, ensuring that the respondents were not known to the researchers (a double-blinded study). Responses were collected and analyzed.

**Results:** A total of 27 surgeons from various medical institutions, both government and private, across primary, secondary, and tertiary health care levels, responded. The analysis of their responses revealed that while most respondents are aware of the magnitude of the problem, they do not always follow the appropriate protocols for the prevention of diabetic foot and its complications, which may lead to limb loss.

**Conclusion:** There is an urgent need to formulate universal, reproducible, and comparable optimal workflow guidelines for the prevention of diabetic foot and its complications, to reduce the risk of limb loss and improve management practices.

## 25ABS02: GLP1R agonist attenuates HFD-induced insulin resistance by blocking TRIM32-mediated degradation of insulin receptor

**Ms. Shilpa Thakur**

Ph.D. Scholar (5th Year), IIT Mandi

**Title: GLP1R agonist attenuates HFD-induced insulin resistance by blocking TRIM32-mediated degradation of insulin receptor**

**Background:** Obesity-related conditions like NAFLD and Type 2 Diabetes Mellitus (T2DM) are linked to impaired insulin receptor signaling, but the mechanisms behind this relationship remain unclear in diet-induced obesity. This study investigates the role of TRIM32, an E3 ubiquitin ligase, in the degradation of the insulin receptor (INSR) and the development of insulin resistance. It explores the relationship between high-fat diet-induced TRIM32 expression and insulin resistance, focusing on molecular pathways involving SREBP1c, AMPK signaling, and INSR degradation in diet-induced obesity.

**Methods:** Diet-induced obese (DIO) mice were used to study the effects of a high-fat diet on TRIM32 and INSR signaling. TRIM32 knockdown experiments were performed to

assess the impacts on INSR expression and insulin resistance. The effects of PK2 (a GLP1R agonist) on INSR activity and TRIM32 expression were also investigated. Additional studies included RNA sequencing from RCD, HFD, and HFD+PK2 liver samples, as well as liver-specific GLP1R knockdown studies to determine whether PK2's effects on the liver were GLP1R-mediated. Furthermore, two mutants of SREBP1c (Ser 372 S2A & S2D) were constructed to assess their impact on TRIM32 expression.

**Results:** A high-fat diet induced the nuclear translocation of SREBP1c, which increased TRIM32 levels. TRIM32 ubiquitylated INSR, promoting its degradation and causing insulin resistance and hepatic lipid accumulation in DIO mice. Reducing hepatic TRIM32 expression enhanced INSR levels and improved metabolic parameters. PK2 treatment increased INSR activity by lowering TRIM32 expression. Mechanistically, a high-fat diet reduced AMPK signaling, promoting SREBP1c nuclear translocation and TRIM32 upregulation, leading to a decrease in cell surface INSR.

**Conclusion:** This study reveals the critical role of TRIM32 in regulating insulin signaling through INSR degradation in diet-induced obesity. High-fat diet-induced SREBP1c nuclear translocation increases TRIM32 levels, leading to INSR degradation and insulin resistance. Reducing TRIM32 by knockdown or using GLP1R agonists ameliorates these effects. These findings suggest that TRIM32 is a potential therapeutic target for insulin resistance and related metabolic disorders, offering new insights into obesity-induced insulin resistance and possibilities for novel interventions in the treatment of NAFLD and T2DM.

## 25ABS03: Prevalence of Type 2 diabetes mellitus and its correlation with severity in COPD patients in Secondary Care Centre in South Kerala.

**Dr. Joe John**

MD General Medicine Trainee, Pushpagiri Institute of Medical Sciences and Research Centre

**Title: Prevalence of Type 2 Diabetes Mellitus and its Correlation with Severity in COPD Patients in Secondary Care Centre in South Kerala.**

**Background:** Chronic Obstructive Pulmonary Disease (COPD) is projected to become the third leading cause of death by 2030, with its prevalence rising worldwide. COPD is a disease with multisystem involvement, and systemic inflammation plays a significant role in both COPD and diabetes.

**Aim:** The aim of this study was to estimate the prevalence of Type 2 Diabetes Mellitus (T2DM) in COPD patients and determine the effect of T2DM on the severity of COPD.

**Patients and Methods:** A cross-sectional study was conducted at a secondary care center in Kozhencherry from March to April 2024. Convenience sampling was used to select 117 patients attending the hospital for consultation. An interview schedule was prepared, consisting of sociodemographic details, history for diagnosing COPD, and the World Health Organization criteria for diagnosing diabetes.

**Results:** The prevalence of T2DM in COPD patients was found to be 35%. COPD patients with diabetes were more prone to exacerbations. Among COPD patients, 29.1% of smokers had diabetes, while 51.6% of non-smokers had diabetes, highlighting the inflammatory co-link between both diseases.

**Conclusion:** The prevalence of diabetes is high in COPD patients. Therefore, collaboration between endocrinologists and pulmonologists is essential for effective management.

## 25ABS04: Efficacy of the Structured Gait and balance Training Programme Amongst Type II Diabetes Mellitus Patients with Walking Disorders coming to Tertiary Care Hospital: A Randomized Control Trail.

**Dr. Sukhpreet Pabla**

Associate Professor, Pravara Institute of Medical Sciences

**Title: Efficacy of the Structured Gait and Balance Training Programme Amongst Type II Diabetes Mellitus Patients with Walking Disorders coming to Tertiary Care Hospital: A Randomized Control Trial**

**Background:** Peripheral neuropathy is one of the most common complications of diabetic patients, affecting 25–50% of those with type 2 diabetes. Peripheral neuropathy results in altered motor, sensory, vibration, and proprioception functions in large fibers, as well as altered pain, temperature, and autonomic functions in small fibers. It is a leading cause of altered gait and balance in diabetic individuals.

**Methodology:** 100 patients volunteered to participate in a Randomized Control Trial, which was divided into two groups: Experimental (n=50) and Control (n=50). The Experimental Group underwent a structured gait and balance training program, while the Control Group received conventional physiotherapeutic treatment. Each patient underwent a 12-week training program for three sessions per week. Gait and balance, fear of falls, and Postural Sway were measured at baseline, post-intervention, and at 3 months. The association between the duration of onset and study variables was also calculated.

**Results:** - Stride length improved in the experimental group from 122.04±12.55 to 137.80±8.89 after 3 months, while the control group showed a change from 126.32±13.25 to 133.18±15.78. - Step length increased from 59.02±4.95 to 74±5.01 in the experimental group, and from 62.80±6.40 to 68.46±8.47 in the control group. - Step width decreased in the experimental group from 11±1.46 to 9.19±1.09, compared to the control group, where it decreased from 10.63±1.56 to 9.93±1.52. - Cadence increased in the experimental group from 90.62±6.96 to 109.58±5.64, while the control group increased from 93.56±6.26 to 100.92±6.44. - Gait velocity increased in the experimental group from 55.20±9.16 to 74.32±7.90, compared to the control group's increase from 59.06±9.48 to 66.86±11.23. - Balance (POMA) improved significantly in the experimental group from 17.80±1.64 to 24.02±1.92, while in the control group, it improved from 20.82±3.08 to 22.72±3.41. - Fall risk (FES-I) significantly decreased in the experimental group from 52.90±4.71 to 19.88±3.09, while in the control group, it decreased from 36±10.98 to 27.68±10.01. - Postural sway (TUG) decreased from 18.36±4.02 to 10.37±1.74 in the experimental group, while the control group showed a slight improvement from 14.45±4.24 to 13.90±4.45.

By the end of the intervention (at 3 months), a strong association was found between the duration of onset of diabetes and the study variables.

**Conclusion:** Older individuals with diabetes exhibit impaired gait, balance, and slow reactions, leading to a higher risk of falls compared to age-matched controls. However, these variables significantly improved after a structured intervention program. These results demonstrate that structured exercise positively impacts the physiological functions of individuals with Type II Diabetes Mellitus.

## 25ABS05: Efficacy of Basal Bolus Therapy in LADA Patients with Low C-Peptide and GAD-65 Antibody Positive: A Case Series from Mumbai

**Dr. Indhumathi Kuberan**

Consultant Diabetologist, Indu's Diabetic Clinics, Mumbai, Maharashtra

**Title: Efficacy of Basal Bolus Therapy in LADA Patients with Low C-Peptide and GAD-65 Antibody Positive: A Case Series from Mumbai**

**Background:** The 2020 expert consensus by the ADA (American Diabetes Association) and the EASD (European Association for the Study of Diabetes) emphasize a personalized approach to preserve insulin secretion in LADA patients. They recommend monitoring C-peptide levels and adapting treatment strategies based on C-peptide levels. Due to the lack of literature, no specific guidelines exist for the management of LADA. This case series presents 15 unique cases of LADA, their clinical course, and outcomes.

**Methods:** A retrospective cohort study was conducted from 2020 to 2023 among patients presenting with clinical features of LADA, using high doses of premix insulin and oral antidiabetic medications. Parameters such as age, gender, diabetes duration, treatment history, lab results, and associated autoimmune conditions were analyzed. GAD-65 antibody testing confirmed the diagnosis. Treatment involved stopping oral antidiabetic agents and premix insulin, switching to basal-bolus insulin as the sole therapy.

**Case Presentation:** The case series involved 15 patients with a median age of 46.0 years [IQR: 36.0 – 54.0] and a median diabetes duration of 11 years [IQR: 10 – 13]. Upon admission, the patients had elevated HbA1c levels (median 15.0% [IQR: 14.0 – 15.5]) and were on oral antidiabetic agents or premix insulin. One-third (5/15) had associated autoimmune disorders, mostly hyperthyroidism or hypothyroidism. The median C-peptide level was 0.42 ng/ml [IQR: 0.12 – 0.62]. With a clinical suspicion of LADA, 14 out of 15 tested positive for GAD-65 antibodies. Following this, all medications were stopped, and patients were switched to basal-bolus insulin therapy. Post-treatment evaluation showed significant improvements in HbA1c levels (median 8.5% [IQR: 8.1 – 9.2]), with a percentage improvement of 27.9% to 49.0%. Weight gain was observed among patients after basal-bolus insulin treatment.

**Conclusion:** LADA's heterogeneous nature presents diagnostic and therapeutic challenges. Early recognition and appropriate management are crucial. The case series highlights the importance of clinical suspicion, autoimmune testing for confirming LADA diagnosis, and β-cell function assessment. The findings suggest that switching completely to basal-bolus insulin therapy, with the cessation of all other oral antidiabetic agents and premix insulin, is an effective strategy in optimizing glycemic control in LADA patients. Clinical trials and prospective cohort studies are necessary to establish the relative efficacy of basal-bolus therapy in LADA.

## 25ABS06: Exploring the burden of Diabetes Distress and its associated factors at a tertiary care hospital

**Dr. Gowri. P**

Diabetologist, Kauvery Hospital, Trichy

**Title: Exploring the burden of Diabetes Distress and its associated factors at a tertiary care hospital**

**Background:** Diabetes Distress (DD) refers to the emotional burden of living with and managing diabetes. It is linked to poor self-care management, suboptimal glycemic control, and an increased risk of complications, ultimately impairing quality of life. This study aims to determine the prevalence of diabetes distress and identify its predisposing factors.

**Methods:** The study was conducted among individuals with Diabetes Mellitus attending a tertiary care hospital in India. The Diabetes Distress Scale-17 (DDS-17) was used to assess distress. Patients were categorized into two groups based on their DDS-17 score: mild or no distress (score <2; control) vs. moderate to high distress (score ≥2; DD). The results were compared, with $P < 0.05$ considered statistically significant.

**Results:** A total of 863 patients with diabetes mellitus participated in the study (~97% of whom had T2DM), with an average age of 56 years and a male-to-female ratio of 1.4. Moderate to high distress was observed in 22% (n=190/863), with emotional burden (EB) being the most prevalent domain (36.2%). A negative correlation was found between age and DDS score (r=-0.2103; $P <0.0001$). Most patients under review (82.7%) reported mild or no distress, in contrast to new patients ($P < 0.0001$). Patients who practiced regular exercise, had no comorbidities, were employed, and had health insurance coverage experienced less distress ($P < 0.05$). A strong positive correlation was observed between the DDS scale and the EB subscale (r=0.8593; P<0.0001), suggesting that higher emotional burden was associated with higher distress scores.

**Conclusion:** Diabetes distress affects approximately one-fifth of the patients in this study, with younger patients experiencing a higher burden. Emotional burden plays a critical

role and needs to be addressed across all subscales to effectively reduce diabetes distress. Patients in follow-up at the hospital appeared to have lower distress levels compared to new patients.

## 25ABS07: A very low carbohydrate diet improved metabolic profile in Congenital Generalised Lipodystrophy Type-4.

**Dr. Sayantan Chakraborty**

DM Endocrinology Registrar, Institute of Post Graduate Medical Education and Research

**Title: A very low carbohydrate diet improved metabolic profile in Congenital Generalised Lipodystrophy Type-4**

**Background:** A 17-year-old girl presented with recurrent episodes of acute pancreatitis, severe hyperglycemia, and hypertriglyceridemia despite being on intensive insulin therapy for 10 years. She had a progeroid appearance, severe acanthosis nigricans, generalized loss of subcutaneous fat, and prominent veins over her extremities. Serum glucose and triglyceride levels remained high despite maximally tolerated doses of metformin, pioglitazone, and fenofibrate.

A detailed dietary recall showed a very high carbohydrate intake (70% of total calorie) with low protein and fat. A shift to a very low carbohydrate (30% of total calorie) and high protein (25% of total calorie) diet resulted in significant improvement in both glucose and lipid profiles. The daily insulin requirement reduced by 50%, and triglyceride levels decreased from 950 mg/dl to 600 mg/dl. Whole exome sequencing confirmed Congenital Generalized Lipodystrophy Type 4.

**Conclusion:** This case illustrates the potential benefits of carbohydrate restriction in improving the glycometabolic profile of patients with congenital generalized lipodystrophy, particularly when they are on a high carbohydrate diet. A carbohydrate restriction strategy may help manage challenging glycemic control and lipid abnormalities in lipodystrophic patients.

## 25ABS08: Overestimating Islet Volume Using IEQ: Could It Influence Clinical Transplantation? A Serial Section Study

**Dr. Praveen Kumar R**

Assistant Professor, All India Institute of Medical Sciences, Bhubaneswar

**Title: Overestimating Islet Volume Using IEQ: Could It Influence Clinical Transplantation? A Serial Section Study**

**Background:** Islet equivalent (IEQ) calculations, which assume that all islets are spherical, have led to significant miscalculations of islet volume in studies and clinical settings. This overestimation could affect the evaluation of transplant success and post-transplant care. The study aimed to compare the actual volume of islets with the IEQ derived from

diameter measurements used in transplantation.

**Methods:** The study used pancreatic tissue from six human donors. Islets were identified and their actual diameter and volume were measured using serial sections. The actual diameter was calculated as the maximum average diameter from the sections, and volume was determined by summing islet areas and applying corrections for section thickness and interval. The calculated IEQ based on diameter was compared with the actual islet volume.

**Results:** The IEQ measured using diameter (57.72 IEQ) was significantly overestimated compared to the volume-based IEQ (30.79 IEQ), with an overestimation of 87.51%. A large portion of this overestimation was contributed by larger islets, with a 111.7% overestimation for islets with an index ≥1.

**Conclusions:** To improve transplantation accuracy, it is essential to use more accurate size calculations instead of relying solely on islet diameter. The overestimation of islet volume, particularly for larger islets, increases the risk of unfavorable transplantation outcomes. Hence, IEQ should be adjusted for islet volume overestimation when the islet index is ≥ 1, to optimize clinical transplantation strategies.

## 25ABS09: TELE-CONSULTATION VERSUS OUTPATIENT DEPARTMENT CARE FOR CONTROL OF HYPERTENSION AND DIABETES MELLITUS: FEASIBILITY STUDY

**Ms. Dibasa Adhikari**

Resident Doctor, BP Koirala Institute of Health Sciences, Dharan

**Title: Tele-consultation versus Outpatient Department Care for Control of Hypertension and Diabetes Mellitus: Feasibility Study**

**Background:** Managing chronic conditions like hypertension and diabetes mellitus requires frequent monitoring and medical consultations. Traditional outpatient department (OPD) care, while effective, can be resource-intensive for both patients and healthcare systems. Tele-consultation offers an alternative, providing convenient care without the need for travel. This study compares the effectiveness of telemedicine follow-up with OPD follow-up for managing hypertension and type 2 diabetes.

**Methodology:** A hospital-based, open-label comparative study was conducted with 368 participants, with 184 individuals in each arm: telemedicine and OPD. Participants were followed up for 3 months. Key metrics for controlling diabetes and hypertension, including fasting blood sugar, postprandial blood sugar, HbA1c levels, and blood pressure, were measured at baseline and at 3 months. Changes were analyzed using an intention-to-treat protocol, with primary outcomes being improvements in these health indicators.

**Results:** Telemedicine follow-up resulted in more significant improvements in glycemic control and blood pressure compared to OPD care. In the telemedicine group, fasting blood sugar decreased by 30.86 mg/dl (20.03%), while the OPD group showed a reduction of 16.77 mg/dl (11.18%) ($p \leq 0.001$). Postprandial blood sugar decreased by 37.82 mg/dl (16.32%) in the telemedicine group versus 23.03 mg/dl (9.55%) in the OPD group ($p \leq 0.001$). HbA1c levels dropped by 0.9% (11.13%) with telemedicine versus 0.39% (5.03%) in the OPD group ($p \leq 0.001$). Blood pressure reductions were also greater in the telemedicine group, with systolic pressure decreasing by 11.18 mmHg and diastolic pressure by 5.69 mmHg, compared to 5.78 mmHg and 1.93 mmHg, respectively, in the OPD group. The dropout rate was higher in the telemedicine group (27.71% vs. 22.28%).

**Conclusion:** Telemedicine follow-up demonstrated superior short-term outcomes in managing hypertension and diabetes compared to traditional OPD care. While dropout rates were higher with telemedicine, the approach significantly improved blood pressure and glycemic control. Long-term studies are recommended to assess sustainability and adoption.

## 25ABS010: False positive breathalyser test

**Dr. T George Koshy**

Associate Professor, Department of General Medicine, Malankara Orthodox Syrian Church Medical College, Ernakulam

**Title: False Positive Breathalyzer Test**

Authors: Dr. T George Koshy

**Background:** This case presentation describes a 53-year-old diabetic male who tested positive on a breathalyzer test despite denying alcohol consumption for four days. The case highlights the physiological and biochemical factors that can lead to false-positive breathalyzer results, particularly in diabetics using SGLT2 inhibitors and following a ketogenic diet.

**Case Presentation:** The patient, an IT professional, underwent a routine breathalyzer test, yielding a positive result. Laboratory investigations confirmed the absence of alcohol intoxication (<3 mg/dL). Further evaluation revealed elevated urine ketones (2+) and subsequent diagnosis of euglycemic diabetic ketoacidosis (EDKA), likely induced by SGLT2 inhibitor therapy (Empagliflozin) and a ketogenic diet. Despite counseling, the patient initially resisted discontinuing the drug and hydration therapy, complicating management.

**Investigations and Findings:** Key findings included urine acetone positivity, serum ketone elevation, and near-normal blood glucose levels. These findings underscored the need to distinguish metabolic ketoacidosis from alcohol-induced states.

**Management and Outcome:** Treatment recommendations focused on discontinuing the offending drug, initiating hydration, and closely monitoring ketone levels. The patient ultimately admitted to restarting the SGLT2 inhibitor under advice from external sources, emphasizing the challenges of patient compliance.

**Conclusions:** This case highlights the potential for false-positive breathalyzer results due to ketosis and diabetic ketoacidosis. It underscores the importance of considering metabolic causes in similar scenarios, particularly in diabetic patients using SGLT2 inhibitors. Clinicians must recognize and manage EDKA promptly through hydration and discontinuation of the causative agent.

**Key Takeaways:**

False-positive breathalyzer tests can occur due to ketosis or medications.

Euglycemic ketoacidosis is a recognized complication of SGLT2 inhibitors.

Proper evaluation includes blood glucose, serum bicarbonate, and ketone levels.

Management requires aggressive hydration and stopping the causative drug.

## 25ABS011: Evaluation of routine serum biochemical parameters and inflammatory markers in apparently healthy stone quarry workers of Chamarajanagar.

**Dr. Chandrika N**

Associate Professor, Department of Biochemistry, Chamarajanagar Institute of Medical Sciences, Chamarajanagar

**Title: Evaluation of Routine Serum Biochemical Parameters and Inflammatory Markers in Apparently Healthy Stone Quarry Workers of Chamarajanagar**

Authors: Dr. Tanu, Dr. Chandrika N

**Background:** India is a major reserve of dimension stones in the world. Stone dusts which arise during quarrying of these dimension stones typically consist of silicate particles, iron, lead, and other trace metal ores. Chronic exposure to silica dust is associated with pulmonary fibrosis, interstitial lung disease, and lung cancer. In the initial stages, silica dust inhalation is known to elicit an inflammatory response.

**Aims and Objectives:** The objective of the study is to estimate and compare the levels of routine biochemical parameters, acute phase reactants, and inflammatory markers in stone quarry workers with non-exposed individuals.

**Materials and Methods:** This prospective cross-sectional study was conducted in the Clinical Biochemistry Laboratory, Teaching Hospital of our Institute. The Institutional Ethics Committee approval and written informed consent from forty apparently healthy stone quarry workers (Case group) and forty age-matched non-dust exposed healthy individuals (Control group) were obtained. General physical examination recording vital and anthropometric parameters was done. A 5ml blood sample was drawn under all aseptic precautions from all the eighty participants, and biochemical investigations including blood glucose, renal and liver function tests, ferritin, and Interleukin-6 were assayed.

**Results:** The mean ± SD of pulse rate, systolic blood pressure, blood urea ($p=0.0018$), and serum creatinine ($p=0.0018$) was significantly higher in the stone quarry workers group compared to the controls. Serum uric acid levels were significantly lower in quarry workers than in non-exposed controls ($p = 0.0014$). There was a positive correlation between years of exposure to dust with serum ferritin levels among stone quarry workers who had been working in quarries between 6 and 10 years ($r=0.4853$; $p = 0.0484$).

**Conclusion:** The present study recommends periodic screening of stone quarry workers, as inflammatory responses set in well before the surfacing of the clinical manifestations in these individuals.

**Note:** This study was selected for the ICMR STS-2023 program.

## 25ABS012: ChREBP modulates systemic insulin sensitivity independent of hepatic lipid metabolism axis

**Mr. Aniket Sen**

PhD Scholar, IIT Mandi, Himachal Pradesh, India

**Title: ChREBP Modulates Systemic Insulin Sensitivity Independent of Hepatic Lipid Metabolism Axis**

The relation between hepatic ChREBP level and insulin sensitivity remains equivocal. We show that ChREBP depletion in adult mice improved insulin sensitivity in high-fat and sucrose-fed (HFSD) mice. Here, we identified that transcriptional induction of hepatic Phosphatase and Tensin homolog (PTEN) is driven by ChREBP. Mechanistically, two critical stimuli are elicited in the hepatic ChREBP knockdown condition, and for one stimulus, the PTEN level is reduced to promote hepatic insulin sensitivity. The second stimulus, where reduced hepatic PTEN leads to enhanced release of FGF21, in turn, spreads systemic insulin sensitivity and adipocyte hyperplasia, involving Liver-adipose tissue crosstalk. These findings not only identify hepatic ChREBP as a critical systemic insulin signaling modulator but also hint that ChREBP cytosolic sequestration or downregulation can lead to protection against insulin resistance. Pondering this, we use molecular dynamics simulation analysis to find a small molecule that sequesters ChREBP in the cytosol. We further report that Quercetin treatment can sequester ChREBP in the cytosol and abrogate HFSD-mediated ChREBP nuclear translocation, and this, in turn, mimics the insulin-sensitizing abilities of the hepatic ChREBP knockdown condition. Overall, our study suggests that liver-selective downregulation of ChREBP serves as a safeguard against “hepatic insulin resistance” that frequently develops early in the pathogenesis of NAFLD and T2DM upon high fat and carbohydrate stimulus, which can otherwise lead to systemic insulin resistance and hyperglycaemia (accompanied with enhanced gluconeogenesis) and promote the pathogenesis of NAFLD and T2DM.

## 25ABS013: Integrative Analysis of Gene Expression and SHAP Models Reveals Novel Biomarkers for Diabetic Kidney Disease

**Mr. Soumik Das**

Research Scholar (Post MSc) doing PhD, Vellore Institute of Technology

**Title: Integrative Analysis of Gene Expression and SHAP Models Reveals Novel Biomarkers for Diabetic Kidney Disease**

Diabetic Kidney Disease (DKD), a prevalent complication of diabetes, progresses due to genetic and environmental factors, leading to chronic kidney disease and end-stage renal disease. Existing diagnostic methods like GFR and albumin-to-creatinine ratios often fail to identify high-risk individuals early. Advances in bioinformatics, Next-Generation Sequencing (NGS), and Machine Learning (ML) provide opportunities to uncover novel genetic markers and enhance early diagnosis.

This study utilized datasets from the Gene Expression Omnibus (GEO) database, including GSE96804, GSE111154, GSE50892, GSE30528, and GSE30122, to analyze gene expression in DKD. Differentially expressed genes (DEGs) were identified using ImaGEO tools and functional enrichment analysis through STRING, DAVID, and Metascape. The SHAP (Shapley Additive Explanations) model integrated ML to determine gene biomarkers. SNP analysis and protein-protein interaction (PPI) networks were also examined to elucidate functional relationships.

A meta-analysis identified 6,287 DEGs, with 2,999 genes consistent across datasets. UBB, SKP1, and NPR2 emerged as key upregulated genes, while CD180 and OSBPL7 were significantly down regulated. PPI networks highlighted hub genes like UBB and SKP1, linked to inflammatory and metabolic pathways. SHAP analysis pinpointed FYN as a critical biomarker with high predictive significance for DKD. Chromosomal analysis revealed SNP concentrations in regions associated with renal and metabolic disorders, strengthening the genetic link to DKD.

The study demonstrates the utility of integrating bioinformatics with ML models for identifying novel DKD biomarkers. Key genes like FYN, UBB, and ANXA2 present therapeutic targets for early diagnosis and treatment. This approach underscores the importance of computational tools in enhancing our understanding of DKD pathogenesis and translating findings into personalized medicine.

## 25ABS014: Urinary MicroRNA in Biopsy confirmed subjects with Renal Involvement in Diabetes

**Dr. Subhankar Roy**

DM Endocrinology Trainee, Institute of Post Graduate Medical Education & Research, Kolkata

**Title: Urinary MicroRNA in Biopsy Confirmed Subjects with Renal Involvement in Diabetes**

Renal involvement in T2DM can be due to diabetes per se (Diabetic Kidney Disease-DKD) or causes other than diabetes (Non-diabetic kidney disease- NDKD). Currently, available clinical, biochemical, and radiological markers fail to differentiate the two accurately, and renal biopsy remains the gold standard for diagnosis. MicroRNAs (miRNAs), small non-coding RNAs that regulate gene expression, have been implicated in various biological diseases. In animal models with diabetes and kidney disease, it is observed that several miRNAs are deregulated. However, it remains unexplored in humans with biopsy-proven kidney disease with T2DM.

Objective: To determine the expression of miRNAs from the urine of patients with T2DM with Renal involvement.

Methods: We recruited T2DM patients with renal involvement (eGFR 30-60ml/min/m2 and/or ACR>300mg/g) classified as DKD or NDKD (on biopsy). Patients with T2DM without kidney disease (Diabetic Control) and patients without diabetes and kidney disease (Health Control) were taken as control. MicroRNAs were selected through sequencing from a discovery cohort and bio-informatics search. The second morning urine sample in a fasting state was collected for analysis. Total RNA was isolated from urine by a commercially available kit. Concentration and purity of RNA were determined by spectrophotometer. Differential expression of microRNAs was determined by Quantitative Real-time PCR with respect to internal control.

Results: 78 subjects with T2DM & kidney disease were recruited amongst whom 44 subjects had DKD, 30 subjects had NDKD and 4 subjects had mixed disease on histopathology. RPS III was the commonest histopathological classification among DKD patients. FSGS & IgA Nephropathy was predominant amongst NDKD. A total of 28 microRNAs were found to be deregulated in the DKD group compared to Diabetic Control in the discovery cohort. Amongst them, miR-200c-3p was significantly upregulated in DKD compared to NDKD & diabetic control in the validation phase.

Conclusion: miR-200c-3p was found to be upregulated in Diabetic Kidney Disease.

## 25ABS015: Unravelling the Link between Pain Pressure Threshold and Body Composition in Young Adults: A Cross-Sectional Study

**Dr. Jyothis G Saji**

Junior Resident, Jubilee Mission Medical College, Kerala

**Title: Unravelling the Link between Pain Pressure Threshold and Body Composition in Young Adults: A Cross-Sectional Study**

Pain pressure threshold (PPT) is a reliable indicator of pain sensitivity, influenced by various factors, including body composition. While mechanical stimuli are commonly used to assess PPT, few studies have utilized electrical stimuli, which offer increased precision and reproducibility. This study aims to investigate the correlation between PPT and body composition parameters in healthy young adults aged 18–25 years.

Methods: A cross-sectional study was conducted at a tertiary care centre in Central Kerala with 76 healthy participants (39 males and 37 females). Body composition parameters, including body mass index (BMI), body fat percentage, and muscle mass, were measured using the TANITA BC-601FS body composition monitor. PPT was assessed at four bilateral body sites using the SENTWIN Digital Algometer with Electrode. Pearson's correlation coefficient was used to evaluate relationships between body composition and PPT, and comparisons between sexes and body composition categories were made using t-tests and ANOVA.

Results: Significant sex-based differences were observed in body fat percentage and muscle mass (p 0.05) or body fat percentage groups (p > 0.05), though a borderline trend was observed in females with lower body fat percentages (p = 0.056).

Conclusion: No significant correlation was found between body composition and PPT in healthy young adults using electrical stimuli. These findings suggest that BMI and body fat percentage may not be strong predictors of pain sensitivity in this demographic. Further research is needed to explore other factors influencing pain perception.

## 25ABS016: Case of Sheehan syndrome: Charting the unpredictable course of hypopituitarism

**Dr. Karthikeyan S**

MD General Medicine Trainee, Mahatma Gandhi Medical College and Research Institute, Pondicherry

**Title: Case of Sheehan Syndrome: Charting the Unpredictable Course of Hypopituitarism**

Background: Sheehan syndrome (Postpartum pituitary necrosis) is a complex, often misunderstood condition with subtle and varied symptoms. Its slow progression can lead to delayed diagnosis, with some women waiting up to a decade or more for accurate diagnosis and treatment.

Case Report: This is a 55-year-old female, with no known comorbidities, presented with facial puffiness, pedal edema, and profound fatigue persisting for two years. Her menstrual history revealed significant events: Menarche at age 14 (year 1988), Married at 17 years (year 1991), Four pregnancies — First two were uneventful (year 1993 and 1995); The third pregnancy tragically ended in stillbirth and postpartum hemorrhage. Immediately, within 4 months after delivery, she conceived for the 4th time, which was uneventful, and the baby was born healthy. However, in her postnatal period, she experienced lack of breast milk production and a progressive decline in menstrual cycles, eventually leading to complete amenorrhea over three years. Laboratory investigations (done in March 2024) revealed low TSH and low FT4. Hormonal assays showed low levels of luteinizing hormone, follicle-stimulating hormone, and prolactin. Cortisol levels were diminished, and ACTH was below the normal range. ACTH stimulation test showed diminished cortisol response. MRI brain revealed a partial empty sella.

Discussion: Sheehan syndrome, caused by pituitary ischemia after postpartum hemorrhage, leads to hypopituitarism. This patient's presentation, hormonal deficiencies, and MRI brain findings confirmed the diagnosis. Delayed diagnosis is common due to nonspecific symptoms. Early hormonal testing and MRI brain are essential for prompt diagnosis.

Conclusion: This case highlights the importance of thorough hormonal assessment in patients presenting with nonspecific symptoms and significant menstrual and obstetric history. Differential diagnosis should focus on potential pituitary insufficiencies.

## 25ABS017: Metabolic Dysfunction - Associated Fatty Liver Disease (MAFLD), and Lipid-based Insulin Resistance markers in Hepatitis C Virus Infection (HCV)

**Dr. Jagadish Ramasamy**

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**Title: Metabolic Dysfunction-Associated Fatty Liver Disease (MAFLD), and Lipid-based Insulin Resistance Markers in Hepatitis C Virus Infection (HCV)**

Aim: Hepatitis C Virus infection promotes insulin resistance (IR) and metabolic dysfunction associated with fatty liver disease (MAFLD). HCV per se leads to impairment in host lipid metabolism and causes a deranged lipid profile. This study aims to analyze the prevalence of MAFLD and determine the levels of lipid profile parameters, surrogate markers of IR, liver fibrosis, and steatosis (FibroScan) in patients with HCV.

Methods: This study used data from the Centers for Disease Control – National Health and Nutritional Examination Survey (CDC-NHANES) 2017-2020. Those who tested positive on HCV RNA PCR were cases (n=89), and those who tested negative were controls (n=89). The participants in both groups were age and gender-matched based on propensity score. Homeostatic model assessment of insulin resistance (HOMA-IR), beta cell function (HOMA-B), and lipid profile-based IR markers such as visceral adiposity index (VAI), lipid accumulation product (LAP), triglyceride glucose index (TyG) were calculated using standard formulae.

Results: HCV patients had improved lipid profiles, i.e., significantly lower levels of serum triglycerides, total cholesterol, and low-density lipoprotein cholesterol. The proportion of MAFLD and metabolic syndrome were not different between both groups. FibroScan showed less steatosis, but increased fibrosis in the HCV group. HOMA-IR and HOMA-B were similar, but the lipid-based IR markers such as VAI, LAP, and TyG index were significantly lower in the HCV group.

Conclusion: The levels of lipid-based IR markers were significantly lower in the HCV group with a similar proportion of metabolic syndrome and MAFLD compared to controls. Hypolipidemia observed in the HCV group may be the cause of these findings.

## 25ABS018: Outer Membrane Vesicles Derived from Hybrid Exosome-like Nanoparticles modulate Gut Microbiota to Ameliorate Type 2 Diabetes through the Gut-Brain Axis

**Ms. Prateeksha Veena**

Research Scholar (Post MSc) doing PhD, National Agri-Food Biotechnology Institute

**Title: Outer Membrane Vesicles Derived from Hybrid Exosome-like Nanoparticles Modulate Gut Microbiota to Ameliorate Type 2 Diabetes through the Gut-Brain Axis**

Type 2 diabetes (T2DM) is a chronic metabolic condition marked by insulin resistance and disturbed glucose homeostasis. Recent research has shown that the gut microbiota plays an important role in the pathogenesis of T2DM, regulating metabolic and immunological activities via the gut-brain axis. In this study, we are investigating the possible therapeutic effects of outer membrane vesicles (OMVs) formed from hybrid exosomes, which are intended to alter gut microbiota and restore metabolic balance in T2DM.

Our findings show that OMVs generated by these hybrid exosomes can interact with gut bacteria, boosting the formation of beneficial microbiota and reducing harmful bacteria associated with T2DM. Furthermore, these vesicles improve communication between the gut and the brain, resulting in increased insulin sensitivity and glucose metabolism. In a T2DM mouse model, OMV-mediated modification of gut microbiota reversed insulin resistance and reduced hyperglycemia.

These findings highlight the future potential of hybrid exosomes as a novel, non-invasive treatment method to restore gut-brain axis function and correct the metabolic dysfunction underlying Type 2 diabetes.

## 25ABS019: MicroRNAs Dependent G-ELNs Based Intervention Improves Glucose and Fatty Acid Metabolism while Protecting Pancreatic β-Cells in Type 2 Diabetic Mice.

**Ms. Geetika Bajaj**

Research Scholar (Post MSc) doing PhD, National Agri-Food Biotechnology Institute

**Title: MicroRNAs Dependent G-ELNs Based Intervention Improves Glucose and Fatty Acid Metabolism while Protecting Pancreatic β-Cells in Type 2 Diabetic Mice**

A metabolic disorder such as Type 2 diabetes mellitus (T2DM) imposes a significant global health burden. Plant-derived exosome like nanoparticles (P-ELNs) have emerged as a promising therapeutic alternate for various diseases. Present data demonstrates that treatment with Ginger-derived exosome like nanoparticles (G-ELNs) enhances insulin-dependent glucose uptake, downregulates gluconeogenesis, and reduces oxidative stress in insulin-resistant HepG2 cells. Furthermore, oral administration of G-ELNs in T2DM mice decreases fasting blood glucose levels and improves glucose tolerance as effectively as metformin. These improvements are attributed to the enhanced phosphorylation of Akt-2 at serine 474, which consequently leads to increased hepatic insulin sensitivity, improvement in glucose homeostasis, and decreased ectopic fat deposition. Oral administration of G-ELNs also exerts a protective effect on STZ-induced pancreatic β-cells damage, contributing to systemic amelioration of T2DM.

Further, as per computational tools, miRNAs present in G-ELNs modulate the PI3K/Akt-2 pathway and exhibit strong interactions with various target mRNAs responsible for hepatic gluconeogenesis, ectopic fat deposition, and oxidative stress. Furthermore, synthetic mimic of G-ELNs miRNA effectively downregulates its target mRNA in insulin-resistant HepG2 cells. Overall, the results indicate that the miRNAs present in G-ELNs target hepatic metabolism, thus exerting therapeutic effects in T2DM.

## 25ABS020: In search of monogenic diabetes: Genotypic and phenotypical analysis of antibody negative young onset diabetes

**Dr. Biswajit Payra**

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**Title: In search of monogenic diabetes: Genotypic and phenotypical analysis of antibody-negative young onset diabetes**

Maturity onset of diabetes in the young (MODY) is still underdiagnosed due to lack of awareness and excessive cost of the diagnostic test. It is recommended to confirm the diagnosis of MODY, among young patients with atypical diabetic features.

Objectives:
• To determine the genetic spectrum of the disease.
• To evaluate the clinical and biochemical profile of MODY.

Methods:
We conducted an observational, cross-sectional study in patients with onset of diabetes before 35 years of age, negative pancreatic autoantibodies, no history of diabetic ketoacidosis, and a family history of diabetes. Clinical data, biochemical tests, body composition analysis (by DXA scan), and genetic tests (Whole Exome Sequencing & Mitochondrial Gene Analysis) were performed in all subjects.

Results:
We recruited 32 subjects with a mean age of 23.09 years and mean duration of diabetes of 5.62 years. The findings include:
• Prevalence of MODY was 28.1% (n=9).
• Among MODY, the most prevalent were MODY 4 (PDX1; 22%) and MODY 9 (PAX4; 22%).
• We also found a single case each of MODY 2 (GCK), MODY 3 (HNF1A), MODY 6 (NEUROD1), MODY 12 (KCNJ11), and MODY 13 (ABCC8).
• Among those without MODY gene, we found a prevalence of type 2 diabetes-associated mutations in 47% (n=11 of 23).
• HOMA-IR and android to gynoid fat ratio were significantly higher in the group without MODY compared to the group with MODY.

Conclusion:
Higher frequencies of MODY gene mutations are detected in the younger diabetes population. Genotypes of MODY are different in our eastern Indian population.

## 25ABS021: High glucose-induced Protein arginine N-methyltransferase 4 expression contributes to skeletal muscle atrophy in L6 myotubes

**Mr. Pawan Kumar**

Research Scholar (Post MSc), CSIR CDRI

**Title: High glucose-induced Protein arginine N-methyltransferase 4 expression contributes to skeletal muscle atrophy in L6 myotubes**

Diabetes mellitus is a complex metabolic disorder marked by insulin resistance, chronic hyperglycemia, and low-grade systemic inflammation, which contribute to numerous complications, including microvascular and macrovascular damage, as well as locomotor dysfunctions. One of the most debilitating consequences of diabetes is skeletal muscle atrophy, characterized by a decline in muscle mass and function, leading to significant reductions in quality of life. While skeletal muscle atrophy can result from various factors such as disuse, aging, and metabolic diseases like diabetes, the underlying mechanisms, particularly in the context of diabetes, remain poorly defined.

Several pathways, including IGF1-Akt, inflammation, and TGFβ/BMP-Smad, have been implicated in muscle protein degradation, yet the exact role of these pathways in diabetic muscle atrophy is not fully understood.

Protein arginine N-methyltransferase 4 (PRMT4), an enzyme involved in regulating cellular processes such as muscle development, regeneration, metabolism and plays a key role in modulating skeletal muscle plasticity. However, its involvement in skeletal muscle atrophy under diabetic conditions has not been thoroughly investigated. In this study, we

explore the role of PRMT4 in hyperglycemia-induced muscle atrophy. Exposure to high glucose significantly upregulated PRMT4 expression in L6 myotubes, coinciding with the onset of atrophic features. Pharmacological inhibition or siRNA-mediated silencing of PRMT4 reduced the expression of key atrophy markers, Atrogin-1 and MuRF1, and attenuated the muscle wasting phenotype. We further demonstrate that high glucose-induced activation of PRMT4 led to increased levels of asymmetric dimethylarginine (ADMA), which disrupted insulin signaling in L6 myotubes. Notably, our findings indicate that PRMT4 promotes skeletal muscle atrophy via activation of the ubiquitin-proteasome pathway, without substantially affecting autophagy. These results suggest that PRMT4 plays a critical role in mediating hyperglycemia-induced skeletal muscle atrophy and may serve as a potential therapeutic target for alleviating muscle wasting in diabetic patients.

## 25ABS022: Targeting NOD2 signaling for the management of skeletal muscle atrophy by small molecules

**Ms. Nikita Chhikara**

Research Scholar (Post MSc), CSIR-CDRI

**Title: Targeting NOD2 signaling for the management of skeletal muscle atrophy by small molecules**

Skeletal muscle atrophy is the loss of muscle mass and function as a result of injury, lack of use, or disease. The pathophysiology of skeletal muscle atrophy is closely associated with inflammation, oxidative stress, insulin resistance, and mitochondrial dysfunction. NOD2 is an intracellular pattern recognition receptor and its activation has been shown to play a dominant role in the induction of pro-inflammatory response and insulin resistance, associated with ROS generation in skeletal muscle. Given the crucial role of inflammation in skeletal muscle atrophy and the contribution of NOD2-mediated signaling to skeletal muscle inflammatory response, it is appreciable to understand the role of NOD2 in the development/progression of skeletal muscle atrophy, and targeting NOD2 might be a therapeutic strategy for the management of skeletal muscle atrophy.

Here, we screened several small molecules for inhibition of NOD2-mediated inflammatory response using the HEK-Blue mNOD2 cell system, and identified S023-0071 (synthetic compound belonging to the isoxazole-dihydropyrimidinone class) with inhibitory potential against NOD2. This compound inhibited MDP-induced NF-kB activation characterized by diminished SEAP production in HEK-Blue mNOD2 cells. Also, S023-0071 suppressed the mRNA expression level of IL-8 and TNF-α and degradation of IκBα in MDP-stimulated HEK-Blue mNOD2 cells. S023-0071 also diminished the expression of key atrophy markers (Atrogin1, MuRF1, and MUSA1) in palmitate-treated L6 myotubes, with improvement in the myotubes area and diameter compared to palmitate in morphometric analysis. It also suppressed mRNA expression and protein levels of inflammatory markers in L6 myotubes.

Our study shows the potential of S023-0071 to revert inflammation-induced skeletal muscle atrophy and can act as a potential candidate for the management of skeletal muscle atrophy.

## 25ABS023: Evaluation of Antiglycation-Driven Nephroprotection by a Bioflavonoid Mixture for the Management of Diabetic Nephropathy

**Mr. Rahul Baghel**

Research Scholar (Post MSc), CSIR CDRI

**Title: Evaluation of Antiglycation-Driven Nephroprotection by a Bioflavonoid Mixture for the Management of Diabetic Nephropathy**

Diabetic nephropathy (DN) is a leading microvascular complication of diabetes, contributing significantly to morbidity, mortality, and end-stage renal disease (ESRD). It is marked by loss of the filtration barrier (podocyte effacement), thickening of the glomerular basement membrane, and accumulation of mesangial matrix, glomerulosclerosis, and tubulointerstitial fibrosis. These structural changes manifest as functional alterations, including albuminuria, proteinuria, a decline in GFR, and overall loss of renal functions. A primary driver of DN is the non-enzymatic glycation of proteins, where reducing sugars irreversibly bind to protein amino groups, forming advanced glycation end products (AGEs). AGEs disrupt protein structure, impair biological function, and activate receptor-mediated signalling pathways (RAGE), triggering oxidative stress, inflammation, apoptosis, and autophagy. Therefore, interventions targeting AGEs may have therapeutic utility in delaying DN progression.

Bioflavonoids are a class of polyphenolic secondary metabolites naturally found in plants. They are among the most potent polyphenols for inhibiting glycoxidation, a key process in AGEs formation. Bioflavonoids can modulate AGEs production, making them effective in mitigating glycation-related damage. We investigated the effects of a bioflavonoid mixture (Orientin, Iso-Orientin, Vitexin Isovitexin, Genistin) for antiglycation potential. The effect was measured on the glycation of bovine serum albumin (BSA) at the initiation stage (induced by glucose and fructose), at the intermediate stage (induced by methylglyoxal and glyceraldehydes), and at the advanced stage (using preformed AGEs). The bioflavonoid mixture not only inhibited the glycation reaction at initiation and intermediate stages, but also effectively degraded the pre-formed AGE-BSA, demonstrating robust anti-glycation activity.

Furthermore, the mixture reduced high glucose-induced inflammation in NRK-52E cells (rat proximal tubular epithelial cells) and improved renal function parameters, including proteinuria, albuminuria, blood urea nitrogen, and serum creatinine, in STZ-induced diabetic rats after eight weeks of treatment. These findings highlight strong anti-glycation and anti-inflammatory properties of the bioflavonoid mixture, offering significant protection against diabetic nephropathy.

## 25ABS024: Investigating a Polyherbal Formulation for Type 2 Diabetes Management: Preclinical Evidence from a Diabetic Rat Model

**Mr. Animish Andhere**

Research Scholar (Post MSc), Vellore Institute of Technology

**Title: Investigating a Polyherbal Formulation for Type 2 Diabetes Management: Preclinical Evidence from a Diabetic Rat Model**

The rising global prevalence of Type 2 diabetes highlights the need for novel therapeutic strategies that are effective and possess fewer side effects. Polyherbal formulations leveraging bioactive compounds from plants offer a promising approach. This study evaluates the antidiabetic potential of a polyherbal formulation (PHF) composed of Costus pictus, Gymnema sylvestre, and Momordica charantia. Our previously conducted in vitro assays and acute and subacute toxicity studies on Albino Wistar rats established the safety and standardization of the PHF, paving the way for this comprehensive in vivo investigation.

A streptozotocin-induced diabetic rat model was used to assess the therapeutic efficacy of the PHF. The fasting blood glucose levels, body weight, lipid profiles, serum biochemical markers, and haematological parameters were evaluated. Tissue histopathology of the liver, kidney, and pancreas was performed alongside immunohistochemical staining to determine insulin expression.

The PHF treatment significantly reduced fasting blood glucose levels and improved body weight compared to diabetic control rats. Lipid profiles, serum insulin levels, and liver and kidney function markers showed notable improvements, indicative of enhanced metabolic regulation. Histopathological analysis demonstrated preserved tissue architecture in the pancreas, liver, and kidneys, while immunohistochemical staining revealed increased insulin expression in pancreatic tissues.

This study highlights the therapeutic potential of PHF in managing Type 2 diabetes by modulating key metabolic pathways and improving glycemic control. The preservation of vital organ functions and increased insulin expression suggest that PHF could serve as an effective adjunctive therapy for diabetes management, warranting further translational research.

## 25ABS025: Bisphenol A, an Endocrine disruptor instigates diminished Sirtuin-1 mediated Mild cognitive impairment in type 2 diabetes mellitus through vascular calcification

**Dr. Venkataraman Prabhu**

Associate Professor and Research Mentor, SRM Medical College Hospital, SRM Institute of Science and Technology

**Title: Bisphenol A, an Endocrine Disruptor Instigates Diminished Sirtuin-1 Mediated Mild Cognitive Impairment in Type 2 Diabetes Mellitus through Vascular Calcification**

Bisphenol A (BPA) is a reproductive, developmental, and systemic toxicant, often classified as an endocrine-disrupting compound (EDC) and environmental pollutant strongly interacts with insulin resistance, which leads to type 2 diabetes mellitus (T2DM). An uncontrolled glucose level develops Mild Cognitive Impairment (MCI) in T2DM patients. There is dearth of knowledge on the correlation of BPA with the biomarkers of vascular calcification and Amyloid beta (Aβ) in T2DM patients with MCI. In this study, the correlation between the systemic BPA levels with the expression levels of genes related to vascular calcification (Sirtuin 1 & Runx2) and plasma Aβ in T2DM-associated MCI were determined. This study included 120 participants and divided as control (n = 30), T2DM (n = 30), T2DM with MCI (n = 30) and MCI only (n = 30). T2DM underwent cognitive assessment by the Montreal Cognitive Assessment test and their cognitive levels were correlated with their HbA1c and lipid profiles. Serum/ urinary BPA and Plasma Aβ (1-42, 1-40) levels were estimated using an ELISA. Expression level of genes related to vascular calcification and also inflammatory markers (IL-1β, TNF-α) in peripheral blood mononuclear cells (PBMCs) were quantified using qPCR method.

In results, Serum/ urinary BPA and plasma Aβ were higher in T2DM with MCI patients compared to control. Both Serum/ urinary BPA had higher significance with Sirtuin 1 ($p<0.001$, $p<0.001$), Runx2 ($p<0.01$, $p<0.001$), plasma Aβ ($p<0.001$, $p<0.001$) and IL-1β ($p<0.001$, $p<0.02$) and TNF-α ($p<0.001$, $p<0.001$) levels in the study groups. BPA levels were negatively correlated with lower Sirtuin1 and positively with increased Runx2 and plasma Aβ levels in T2DM-associated MCI patients. Also, higher expression of IL-1β and TNF-α was observed in T2DM-associated MCI patients. This study established the association between the BPA and diminished Sirtuin-1 mediated Mild cognitive impairment in type 2 diabetes mellitus through vascular calcification.

## 25ABS026: ASSESSMENT OF HbA1C STABILITY AND DIFFERENCE IN FRACTIONS IN BLOOD SAMPLES STORED AT 2 -8 °C IN TERTIARY CARE HOSPITAL

**Dr. Jayalakshmi Sankaravel**

MD Biochemistry Trainee, Stanley Medical College, Chennai

**Title: Assessment of HbA1C Stability and Difference in Fractions in Blood Samples Stored at 2-8°C in Tertiary Care Hospital**

**Principal Investigator:** Dr. S. Jayalakshmi, 2nd Year Post Graduate, Department of Biochemistry, Govt. Stanley Medical College, Chennai.
**Guide:** Dr. Bhuvaneswari, Associate Professor, Department of Biochemistry, Govt. Stanley Medical College, Chennai.
**Co-Guide:** Dr. Sudharani Michael, Assistant Professor, Department of Biochemistry, Govt. Stanley Medical College, Chennai.

**Background:** HbA1C is a widely used biomarker for assessing long-term glycemic control and has been approved as a diagnostic tool for diabetes. However, in large-scale studies, delays in HbA1C analysis due to storage conditions may impact measurement accuracy. This study evaluates the stability of HbA1C levels and fraction variations in samples stored at 2–8°C for up to one week.

**Objective:** To assess the stability of HbA1C measurements in stored blood samples over a one-week period and analyze differences in retention time of HbA1C fractions.

**Methods:** A prospective observational study was conducted involving 30 diabetic patients aged 50–75 years. Blood samples were collected in EDTA tubes and analyzed using the Bio-Rad D10 HPLC system on Day 0, Day 3, and Day 7. Samples were stored at 2–8°C, and differences in HbA1C values and retention times were recorded.

**Results:** Median differences in HbA1C measurements were 0.0%, 0.1%, and 0.2% on Day 0, Day 3, and Day 7, respectively. Statistical analysis showed p-values >0.05 for comparisons, indicating no significant degradation or variability over time.

**Conclusion:** HbA1C levels remained stable in samples stored at 2–8°C for up to one week. Variations in retention time of fractions were noted but did not affect the overall reliability of results. This finding supports the feasibility of delayed HbA1C testing in resource-limited settings, ensuring accurate results even with sample storage delays.

## 25ABS027: Do we need corrected Sodium for all cases of hyperglycaemia??

**Dr. Soundari Alagesan**

MD Biochemistry Trainee, Stanley Medical College, Chennai

**Title: Do we need corrected Sodium for all cases of hyperglycaemia?**

**Principal Investigator:** Dr. A. Soundari
**Guide:** Dr. R. Amirtha Jansi Rani
**Co-Guide:** Dr. Rathi Roopavathy

**Introduction:** Hyponatremia is the most common electrolyte disorder. It comprises 15–20% of electrolyte disorders in hospital settings. Hyperglycemia causes hypertonic hyponatremia, as excess glucose induces the diffusion of water from cells to the extracellular space, resulting in reduced serum sodium concentration. This necessitates sodium correction for accurate interpretation of laboratory results. Sodium correction is crucial in preventing misdiagnosis of hyponatremia, which can lead to inappropriate interventions.

**Aim:** Hyperglycemia significantly depresses serum sodium concentration. This study examines whether sodium correction is universally required or only necessary for patients exceeding a specific random blood sugar (RBS) threshold.

**Methodology:** A retrospective study was conducted at the 24-hour clinical biochemistry laboratory at Stanley Medical College. Over two weeks, data from 100 patients were collected from the critical care unit. Random Blood Sugar (RBS) was measured using the XL640 system (GOD-POD method). Serum sodium was measured using the EasyLyte ion-selective electrode method. Corrected sodium was calculated using the standard formula:
**Corrected Na = Measured Na + 0.016 × (RBS − 100)**
Patients were stratified into groups based on blood sugar levels: group 1 (200-250 mg/dL), group 2 (251-300 mg/dL), group 3 (301-350 mg/dL), group 4 (351-400 mg/dL), group 5 (400-450 mg/dL), and group 6 (>450 mg/dL).

**Results:** A p-value < 0.05 was considered significant. For groups with RBS < 300 mg/dL, there was no significant difference between measured and corrected sodium. However, for groups with RBS ≥ 300 mg/dL, corrected sodium values were significantly higher, demonstrating the need for sodium correction in these cases.

**Conclusion:** Corrected sodium is usually considered only when hyperglycemia exceeds 500 mg/dL. However, our study shows that significant changes in corrected sodium occur when RBS exceeds 300 mg/dL, emphasizing the necessity of sodium correction at this threshold.

**Reference:** Katz MA. Hyperglycemia-induced hyponatremia—calculation of expected serum sodium depression. N Engl J Med. 1973 Oct 18;289(16):843-4. doi: 10.1056/NEJM197310182891607. PMID: 4763428.

## 25ABS028: ASSESSMENT OF PANCREATIC EXOCRINE FUNCTION IN TYPE 2 DIABETES MELLITUS-A STUDY ON SERUM AMYLASE AND LIPASE LEVEL

**Dr. Aishwarya Hariharan**

MD Biochemistry Trainee, Stanley Medical College, Chennai

**Title: Assessment of Pancreatic Exocrine Function in Type 2 Diabetes Mellitus - A Study on Serum Amylase and Lipase Level**

**Principal Investigator:** Dr. H. Aishwarya
**Guide:** Dr. M. P. Saravanan
**Co-Guide:** Dr. Bhuvaneswari

**Study Background:** Diabetes mellitus is a chronic disorder characterized by hyperglycemia, resulting from defects in either insulin secretion or action. The prevalence of diabetes mellitus in India is projected to increase to 10.4% by 2030. The pancreas plays a crucial role in glucose hemostasis through its endocrine function, regulating insulin and glucagon. Simultaneously, the pancreas also has an exocrine function by providing amylase for carbohydrate breakdown, lipase for lipid digestion, and trypsin and chymotrypsin for protein digestion. Chronic hyperglycemia and insulin resistance in type 2 diabetes mellitus (DM) can lead to pancreatic acinar cell damage, resulting in impaired exocrine function.

**Aims and Objective:** The aim of this study is to evaluate the pancreatic exocrine function in patients with type 2 diabetes mellitus (DM) using serum amylase and serum lipase, and compare the results with healthy controls.

**Material and Method:** A case-control study was conducted among 40 type 2 DM patients attending the diabetic outpatient department (OPD) and 40 healthy controls attending the

master health check-up at Government Stanley Medical College for a period of one month. Random blood samples were collected, and serum amylase and serum lipase levels were compared between the two groups. Patients with known pancreatic diseases, including pancreatitis, pancreatic cancer, or any pancreatic surgery, as well as gastrointestinal tract diseases like celiac disease, inflammatory bowel disease, kidney disease, and gallbladder disease, were excluded from the study.

**Results:** The mean values of random blood sugar (RBS) and serum amylase (49.6 ± 40.25) were significantly decreased in patients with type 2 DM, while serum lipase (66.37 ± 83) showed no significant difference when compared to the controls. A positive correlation between serum amylase and RBS was observed with a p-value < 0.05.

**Conclusion:** There was a significant decrease in serum amylase levels in type 2 DM patients compared to healthy individuals, while serum lipase did not show a significant difference. This suggests that serum amylase may be a useful marker in assessing pancreatic exocrine function in type 2 DM.

## 25ABS029: Endocrine Interventions on the Mental Health and Well-Being of Transgender Youths

**Dr. Siva Vijayakumar Tharumasivam**

Associate Dean - HRDC, Dhanalakshmi Srinivasan University, Samayapuram Trichy

**Title: Endocrine Interventions on the Mental Health and Well-Being of Transgender Youths**

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**Introduction:** Transgender youths face unique challenges in navigating their gender identity, often in environments that are not supportive or understanding of their experiences. In India, transgender individuals are subjected to significant social stigma, discrimination, and exclusion, which exacerbate their mental health challenges. Compared to cisgender peers, transgender youths face greater rates of anxiety, depression, suicide thoughts, and other mental health issues. The process of transitioning, whether socially, medically, or legally, can be a critical factor in improving their mental health and well-being.

Gender-affirming endocrine interventions (GAEI) are recognized as crucial for aligning physical attributes with gender identity, significantly improving mental health outcomes. Despite India's long history of recognizing diverse gender identities, transgender individuals continue to face widespread discrimination and violence. The country's legal and medical systems are still evolving in their recognition and support of transgender people.

**Aims:** This study investigates the long-term impact of gender-affirming endocrine interventions (GAEI) on the mental health and well-being of transgender youths in India. The research employs a descriptive longitudinal design, focusing on Tamil Nadu and Bihar, utilizing a mixed-methods approach. It also incorporates AI-based models like Natural Language Processing (NLP), predictive modeling, and longitudinal data analysis for nuanced insights.

**Significance:** The research has the potential to inform and improve public policies aimed at supporting transgender youths. By providing a robust framework for assessing the impact of gender-affirming care, the study will offer policymakers concrete data to advocate for more inclusive and supportive environments for transgender individuals.

## 25ABS030: Topical menthol, pharmacological cold mimicker, activates brown adipose tissue to enhance energy expenditure

**Dr. Mahendra Bishnoi**

Scientist and Group Leader, National Agri-Food Biotechnology Institute (NABI), SAS Nagar

**Title: Topical Menthol, Pharmacological Cold Mimicker, Activates Brown Adipose Tissue to Enhance Energy Expenditure**

Authors: Mahendra Bishnoi, Roshan Lal, Kanthikiran Kondepudi, Kanwaljit Chopra

**Background and Hypothesis:** Transient Receptor Potential Melastatin 8 (TRPM8), a cold sensor, has been reported to induce adaptive thermogenesis in brown adipose tissue (BAT) and browning of white adipose tissue (WAT) in mice. The study aims to explore the effects of topical menthol (pharmacological cold mimicker) on thermal sensitivity, thermogenesis, lipid utilization, and other metabolic parameters in mice.

**Methodology:** Male C57BL/6J mice were treated with 4g/kg of 10% menthol cream applied once daily, or with vehicle as control. Acute (single application) and chronic (15-day) applications were performed on the dorsal surface of the mice. Thermal sensitivity, adaptive thermogenesis, lipid-utilizing phenotype, and neuropeptides released from sympathetic nerves in BAT were analyzed. Transcriptome analysis identified hub genes and differentially expressed genes (DEGs) using bioinformatics methods. Untargeted metabolomics was also conducted to characterize metabolic changes post-menthol application.

**Results:** Topical menthol application induced a warm-seeking phenotype, increased adaptive thermogenesis, enhanced sympathetic innervation, and promoted lipolysis and lipid utilization. Neuropeptides (CGRP and NPY) were released from activated sympathetic innervation in BAT. Transcriptomic analysis revealed DEGs involved in cold-induced thermogenesis and lipid metabolic processes, identifying Sun2, Tmem120, Mgmt, Eif4ebp1, and Angptl2 as hub genes. Significant modulation of genes involved in AMPK, PPARγ, adipokine signaling, thermogenesis, lipolysis, insulin resistance, and β-oxidation was observed. Metabolome analysis revealed upregulation of metabolites linked to steroid hormone biosynthesis, fatty acid biosynthesis, carbohydrate metabolism, and retinol metabolism, while decreasing metabolites related to metabolic disturbances and inflammation.

**Conclusion:** Topical menthol application mimics cold exposure, activating BAT and improving energy expenditure. This strategy holds potential for combating weight gain and enhancing metabolic health.

## 25ABS031: Transforming Maternal Healthcare in Rural Communities of Australia: Leveraging Existing Resources to Enhance Systems and Build Sustainable Solutions for Gestational Diabetes Management

**Dr. Radhika Arunkumar**

Researcher / Lecturer, School of Psychology and Public Health, La Trobe University

**Title: Transforming Maternal Healthcare in Rural Communities of Australia: Leveraging Existing Resources to Enhance Systems and Build Sustainable Solutions for Gestational Diabetes Management**

Authors: Radhika Arunkumar, Gillian Gould, Marilyn Clarke

**Introduction:** Gestational Diabetes Mellitus (GDM) poses substantial health risks to both mothers and their fetuses without timely management. Women in rural areas are particularly vulnerable due to socio-ecological barriers such as limited healthcare access, transportation issues, language barriers among migrants, and a lack of awareness and postpartum support.

**Aim of the Study:** This study aims to leverage the existing GDM-related healthcare infrastructure in rural Australia to improve systems and build sustainable solutions for managing GDM. The key focus areas include:

1. Understanding the potential of digital health support within rural healthcare services.
2. Exploring the perspectives of mothers, partners, and caregivers to identify community-based interventions.

**Methodology:** A mixed-methods approach will be employed involving surveys with expecting mothers and those who have recently given birth within the past year in rural hospitals across Victoria and Queensland. The study will focus on:

Publishing the first systematic review on barriers and enablers in GDM-related interventions for rural Australian populations.

Identifying key barriers and enablers for implementing improved eHealth facilities through survey responses.

Providing comprehensive health education and resources to support informed decision-making during pregnancy, childbirth, and diabetes management.

**Second Phase:** The second phase of the study will involve collaboration with industry partners, clinicians, and experts to establish mobile clinics with telemedicine capabilities. This will ensure quality prenatal care becomes accessible to remote regions. The initiative aims to utilize technology for information dissemination on GDM, align shared goals, and bridge healthcare delivery gaps, leading to sustainable maternal health interventions.

## 25ABS032: Risk of Developing Type II Diabetes Mellitus Using Indian Diabetic Risk Score Assessment Among Rural Population of Perambalur District, Tamil Nadu: A Community Based Cross-Sectional Study

**Dr. C. Brilly Swarna**

MD Community Medicine Trainee, Dhanalakshmi Srinivasan Medical College and Hospital, Perambalur, Tamil Nadu

**Title: Risk of Developing Type II Diabetes Mellitus Using Indian Diabetic Risk Score Assessment Among Rural Population of Perambalur District, Tamil Nadu: A Community Based Cross-Sectional Study**

Authors: C. Brilly Swarna, S. Ramkumar

**Background:** According to the National Non-Communicable Disease Monitoring Survey, the prevalence of Diabetes in India is 9.6% in 2024. The Indian Diabetic Risk Score (IDRS) was developed to identify individuals at risk for Type II Diabetes. The IDRS score categorizes individuals into three groups: low risk (60). This study aims to predict the risk of developing Type II Diabetes among rural populations in Perambalur District and determine the association of risk with socio-demographic factors.

**Methods:** A cross-sectional study was conducted over three months in Senjeri, a rural area under the field practice of Dhanalakshmi Srinivasan Medical College and Hospital.

**Inclusion Criteria:** Individuals over 18 years, not diagnosed with Type II Diabetes.

**Exclusion Criteria:** Diagnosed with Type II Diabetes.

**Sample Size:** Based on the reference study, a minimum of 195 participants was calculated.

**Sampling Method:** Convenience sampling was used.

**Data Collection:** A semi-structured questionnaire was administered after ethical approval.

**Statistical Analysis:** Data analysis was done using SPSS, with chi-square tests to assess associations (p-value <0.05).

**Results:** Among the 223 participants studied, 78 (35.0%) were male, and 145 (65.0%) were female. The risk for diabetes was classified as follows:

35.5% of males were at low risk, 37.6% at medium risk, and 32.3% at high risk.

64.5% of females were at low risk, 62.4% at medium risk, and 67.7% at high risk.

The higher risk of developing Type II Diabetes was found among individuals aged above 50 years, particularly in 54.5% of males and 67.7% of females. Associated factors included:

Spending more time on social media (37.2%).

Lesser physical activity (9.4%).

Hypertension (6.3%).

**Conclusion:** The risk of developing Type II Diabetes is increasing among the rural population. Statistically significant associations were found with higher age and lower levels of physical activity. Raising awareness and promoting lifestyle modifications are essential to mitigate these risks.

## 25ABS033: TYPE 1B DIABETES/IDIOPATHIC DIABETES-THE SILENT CHALLENGER IN DIABETIC CARE

**Dr. M.D. Rashid Haider**

DNB GENERAL MEDICINE Trainee, SOUTHERN RAILWAY HEADQUARTERS HOSPITAL

**Title: TYPE 1B DIABETES/IDIOPATHIC DIABETES-THE SILENT CHALLENGER IN DIABETIC CARE**

Authors: Dr. M.R. Haider, Dr. G.B. Vidyashankari, Dr. Radha Vijayaraghavan, Dr. G. Arun Kumar, Dr. Jayasudha K

**Background:** Type 1B diabetes, also known as idiopathic diabetes, is a rare subtype of diabetes predominantly seen in African-Asian ethnicities. It is characterized by insulin deficiency, susceptibility to ketoacidosis, and the absence of autoimmune markers. Unlike Type 1A diabetes, which has autoimmune etiology, Type 1B diabetes often shows a strong familial predisposition but lacks autoimmune markers. This report discusses the case of a 63-year-old male diagnosed with Type 1B diabetes after presenting with unexplained weight loss, fluctuating blood sugars, and diabetic ketoacidosis (DKA).

**Methods:** The patient presented with weight loss (3–4 kg over a period of 1 month), fatigue, and blood sugar variability. The following investigations were performed:

**BMI:** 14.2 (underweight)

**C-peptide:** 0.03 (low)

**Autoantibodies:** Anti-GAD65, Islet Cell Antibodies, and Zinc Transporter 8 were negative.

**Imaging and laboratory tests:** Ruling out malignancies and infections.

**Abdominal MRI:** Showed mild pancreatic changes without necrosis.

The patient was initially treated for DKA and transitioned to basal-bolus insulin therapy. Further investigations for occult malignancy and tuberculosis were negative. Persistent glycemic variability with low C-peptide levels and negative autoantibodies confirmed the diagnosis of Type 1B diabetes.

**Results:** The patient's clinical findings, including weight loss, glycemic variability, and negative autoimmune markers, pointed toward Type 1B diabetes. The diagnosis was established after careful exclusion of other possible causes of insulin deficiency, including autoimmune disorders and malignancies. The patient was managed with insulin therapy

and supportive care.

**Conclusion:** Type 1B diabetes presents significant diagnostic and therapeutic challenges, especially in elderly patients. This case underscores the need for clinicians to consider this rare form of diabetes in patients with insulin deficiency, ketoacidosis, and glycemic variability, even when autoimmune markers are negative. Early recognition and personalized treatment are essential to improve patient outcomes and prevent complications.

## 25ABS034: Hepatokine S100A6: A Key Player in NAFLD-Driven Diabetes

**Ms. Kajal Jaswal**

INDIAN INSTITUTE OF TECHNOLOGY, (IIT MANDI)

**Title: Hepatokine S100A6: A Key Player in NAFLD-Driven Diabetes**

Authors: Kajal Jaswal, Indian Institute of Technology, (IIT Mandi)

**Background:** Non-alcoholic fatty liver disease (NAFLD) is a significant risk factor for systemic insulin resistance and type 2 diabetes mellitus (T2DM). While the association between liver fat accumulation and insulin resistance is well-established, its impact on pancreatic β-cell function remains unclear. This study aimed to explore the mechanisms through which enhanced de novo lipogenesis (DNL) contributes to β-cell dysfunction and T2DM progression, specifically focusing on the role of S100A6, a calcium-binding protein.

**Methods:** This study utilized human samples, high-fat diet-induced mouse models of NAFLD, and cell-based assays to explore the role of S100A6 in β-cell glucose-stimulated insulin secretion (GSIS). Serum S100A6 levels were measured in NAFLD patients and correlated with β-cell insulin secretory capacity. Functional experiments involved hepatic S100A6 depletion in mice, ectopic expression of ChREBP (a key DNL regulator), and development of neutralizing antibodies targeting S100A6. GSIS and glycaemic control were assessed as functional outcomes.

**Results:** S100A6 was identified as a suppressor of GSIS in β-cells, acting through activation of the receptor for advanced glycation end products (RAGE) and impairing mitochondrial respiration. Elevated serum S100A6 levels were observed in NAFLD patients and mouse models, negatively correlating with β-cell function in humans. Hepatic S100A6 depletion improved GSIS and glycaemic control in mice. Mechanistically, hepatic S100A6 transcription was regulated by ChREBP, and ectopic ChREBP expression impaired GSIS in an S100A6-dependent manner. Neutralizing antibodies against S100A6 reversed these effects, restoring insulin secretion and metabolic regulation.

**Conclusion:** This study identifies S100A6 as a novel hepatokine linking NAFLD to β-cell dysfunction and T2DM. Elevated S100A6 levels may serve as a biomarker for NAFLD patients at risk of developing diabetes. Targeting S100A6 with neutralizing antibodies offers a promising therapeutic approach to restore insulin secretion and improve glycaemic control in NAFLD-associated diabetes. These findings highlight S100A6 as a critical mediator of hepatopancreatic communication and a potential therapeutic target.

## 25ABS035 Intrahepatic crosstalk in insulin resistance: Kupffer Cells-derived VIF propels Hepatocytes' lipid metabolism

**Ms. Priya Rawat**

Post Doc., IISER Berhampur

**Title: Intrahepatic Crosstalk in Insulin Resistance: Kupffer Cells-Derived VIF Propels Hepatocytes' Lipid Metabolism**

Authors: Priya Rawat, Prosenjit Mondal, Indian Institute of Science Education and Research Berhampur (IISER Berhampur)

**Background:** Insulin promotes hepatic lipogenesis under normal conditions, but during insulin resistance, its lipogenic effects persist, driving fat accumulation. The mechanisms sustaining lipogenesis in insulin resistance remain unclear. Intrahepatic communication, particularly between Kupffer cells (KCs) and hepatocytes (HCs), has been found to play a crucial role in regulating lipid metabolism in insulin-resistant states. This study explores how KC-derived VIF drives hepatocyte lipogenesis during insulin resistance, contributing to non-alcoholic fatty liver disease (NAFLD) progression.

**Methods:** In vitro, ex vivo, and in vivo models were used to investigate the role of VIF in KC-hepatocyte communication. Kupffer cells were exposed to hyperinsulinemic conditions to assess VIF release and its regulation by STK38. Serum VIF levels were analyzed in NAFLD patients and high-fat diet (HFD)-induced NAFLD mice models. HFD-fed and Kupffer cell-depleted mice were employed to study intrahepatic lipid accumulation. Conditioned media assays examined the impact of KC-derived VIF on hepatocyte AMPK signaling and lipid metabolism.

**Results:** The study reveals that serum VIF levels are significantly elevated in NAFLD patients and HFD-fed mice. Kupffer cells (KCs) from HFD-fed mice showed increased STK38 expression, driving VIF release. KC-derived VIF binds to hepatocyte IGF1-R, promoting LKB1 nuclear retention, suppressing AMPK signaling, and enhancing de novo lipogenesis (DNL), leading to lipid accumulation. Depleting KCs in HFD-fed mice reduced serum VIF levels, improved glucose tolerance and insulin sensitivity, and decreased hepatic lipid accumulation. Recombinant VIF supplementation in KC-depleted mice restored lipid accumulation, confirming its role in hepatocyte lipid metabolism and NAFLD progression.

**Conclusion:** This study identifies Kupffer cell-derived VIF as a novel mediator of hepatocyte lipid metabolism in NAFLD. Hyperinsulinemia and HFD-induced upregulation of KC-STK38 increased VIF release, which acted on hepatocytes via IGF1-R, disrupting LKB1-mediated AMPK signaling and enhancing DNL. Depleting KCs or KC's STK38 and VIF reduced intrahepatic lipid accumulation and improved metabolic outcomes. These findings provide critical insights into KC-hepatocyte crosstalk in obesity-driven NAFLD and underscore the therapeutic potential of targeting the STK38-VIF axis to mitigate hepatic insulin resistance and associated fatty liver pathologies.

## 25ABS036: UNUSUAL GENES ELUCIDATING UNDUE COMPLEXION – A CASE SERIES OF PRIMARY ADRENAL INSUFFICIENCY

**Dr. Dhivyalakshmi T**

DM Endocrinology Trainee, Madras Medical College, Chennai

**Title: Unusual Genes Elucidating Undue Complexion – A Case Series of Primary Adrenal Insufficiency**

Authors: Dr. T. Dhivyalakshmi, Dr. B. Rameez Raja, Dr. T.B. Uma Devi, Madras Medical College, Chennai

**Background:** Primary Adrenal Insufficiency (PAI) in children is a rare disorder, with congenital adrenal hyperplasia (CAH) being the most common cause. Other genetic etiologies include Adrenal Hypoplasia Congenita (AHC), Adrenoleukodystrophy (ALD), Familial Glucocorticoid Deficiency (FGD), AAA syndrome, proximal steroidogenesis defects, Autoimmune Polyendocrine Syndrome 1 (APS1), and MIRAGE syndrome. This study presents a case series of patients with genetically-proven (non-CAH) PAI.

**Methods:** Patients attending our department between May 2023 and November 2024 were screened for a prior diagnosis of PAI or for clinical and biochemical findings suggestive of PAI. Patients lacking genetic evaluation underwent clinical exome sequencing.

**Results:** Eighteen patients (9 females) receiving steroid replacement were identified with prior diagnoses of non-CAH PAI, and their clinico-etiological profiles were analyzed. Among these: - Six neonates presenting with hyperpigmentation, persistent vomiting, hypoglycemia, and failure to thrive were diagnosed with adrenal hypoplasia congenita (1), familial glucocorticoid deficiency (4), and MIRAGE syndrome (1) with mutations in NORB1, MC2R, MRAP, and SAMD9 genes, respectively. - Six toddlers presenting with candidiasis, alacrimia with dysphagia, and neurological involvement had mutations in AIRE, AAAS, and ABCD1 genes, confirming diagnoses of APS1 (1), AAA syndrome (2), and adrenoleukodystrophy (3), respectively. - One case with hyperpigmentation was found to have a mutation in the SERPINA6 gene resulting in CBG deficiency. - Two siblings who presented for short stature and delayed puberty had a mutation in CYP11A1, confirming the diagnosis of side-chain cleavage enzyme deficiency. - Two adolescents with neurological involvement had mutations in the ABCD1 gene, while another, presenting with extreme fatigue, had a TXNRD2 gene mutation.

**Conclusion:** While clinical presentations in cases like AAAS and APS1 are self-evident, genetic confirmation during the presentation of PAI can help anticipate other complications earlier, thus aiding in appropriate interventions. This approach can improve both mortality and morbidity, facilitate genetic counseling for families, and enhance their quality of life.

## 25ABS037: Study of prevalence of diabetic retinopathy among diabetic patients and correlating it with the inflammatory marker levels in tear fluid.

**Dr. Neha Elenjickal**

Clinical Attachee, Altnagelvin Hospital

**Title: Study of Prevalence of Diabetic Retinopathy Among Diabetic Patients and Correlating It with the Inflammatory Marker Levels in Tear Fluid**

Authors: Dr. Neha Elenjickal, Altnagelvin Hospital

**Background:** Diabetic retinopathy (DR) is a microvascular complication of diabetes mellitus (DM), arising from prolonged hyperglycemia, and affects 12.2% of the DM population in India. By 2030, global DR cases are projected to reach 130 million. DR often develops asymptomatically and is the leading cause of blindness in working-age adults. Inflammatory markers such as TNF-α, IL-6, and NF-κB play pivotal roles in DR pathogenesis by driving retinal microvascular damage. Non-invasive screening for these markers in tear fluid offers a promising approach for early detection and optimized intervention.

**Methods:** This cross-sectional study was conducted over two months at a tertiary care hospital in Kerala, enrolling 120 diabetic patients. Inclusion criteria included patients with or without complications of diabetes but without ophthalmic symptoms. Exclusion criteria encompassed severe eye diseases and systemic conditions affecting tear composition. Informed consent was obtained after explaining the procedures. Fundus images were captured using an FDA-approved handheld non-mydriatic fundoscopy device, with AI-generated reports determining the diabetic retinopathy status. Tear samples were collected via Schirmer test and analyzed using RT-PCR to quantify inflammatory markers (TNF-α, IL-6, NF-κB). Collected data was analyzed.

**Results:** The prevalence of DR was found to be 38% by AI imaging. The mean level of TNF-α in DR (+VE) was 27.815 (moderate positive), while the mean level of TNF-α in DR (-VE) was 30.72 (low positive). The mean level of IL-6 in DR (+VE) was 28.405 (low positive), while the mean level of IL-6 in DR (-VE) was 28.89 (low positive).

**Conclusion:** Non-mydriatic fundoscopy, augmented by AI, has shown promise in detecting DR efficiently. A mild correlation between inflammatory markers in tear fluid and DR suggests potential for non-invasive screening. However, challenges such as refining participant selection, improving sample handling, and addressing costs hinder widespread implementation. Further studies are essential to validate this approach, optimize its feasibility, and enhance early detection strategies, particularly in resource-constrained settings.

## 25ABS038: HADH Gene Mutations in Congenital Hyperinsulinism: Clinical and Genetic Insights from Three Cases

**Dr. Y N Krishna Reddy**

DM Endocrinology Trainee, AJ Institute and Research Centre, Mangalore

**Title: HADH Gene Mutations in Congenital Hyperinsulinism: Clinical and Genetic Insights from Three Cases**

Authors: Dr. Y N Krishna Reddy, Dr. B. Rameez Raja, Dr. T.B. Uma Devi

**Introduction:** Congenital hyperinsulinism (CHI) is a rare disorder characterized by persistent hypoglycemia due to inappropriate insulin secretion. Mutations in the HADH gene, encoding the enzyme 3-Hydroxyacyl-Coenzyme A Dehydrogenase, can lead to diazoxide-responsive CHI. This case series describes three genetically confirmed cases of CHI with HADH mutations.

**Case Report:**

**Case 1 & 2:** Two siblings, born to a non-consanguineous couple, presented with neonatal hypoglycemia. The elder brother had hypoglycemia and seizures at birth, with critical sampling revealing hyperinsulinemia (insulin: 10.5 mIU/mL). Exendin-4 PET-CT showed diffuse pancreatic β-cell activity. He was initially started with diazoxide (3–8 mg/kg/day) slowly tapered, but adherence was suboptimal, leading to intermittent hypoglycemia. Development and vision remained normal. The younger sister had neonatal hypoglycemia without seizures. Critical sampling showed hyperinsulinemia (insulin: 6.9 mIU/mL) and mild hyperammonemia (ammonia: 150 µg/mL). Both siblings were diagnosed with autosomal recessive CHI after genetic testing revealed a homozygous deletion in exon 1 of the HADH gene. Both responded well to diazoxide and maintained normoglycemia with regular monitoring. Mild hypertrichosis was noted during follow-up.

**Case 3:** A male infant born in Dubai developed symptomatic hypoglycemia (22–24 mg/dL) at 48 hours of life. After moving to India, critical sampling showed hyperinsulinemia (insulin: 21 µU/mL) with an insulin-to-glucose ratio >0.43. Genetic testing revealed a rare HADH mutation. He was started on diazoxide (10 mg/kg/day), later tapered to 7 mg/kg/day, along with hydrochlorothiazide. His blood glucose levels stabilized, and development remained normal, though mild hypertrichosis was observed.

**Conclusion:** These cases highlight the importance of genetic testing in diagnosing HADH-related CHI. Early identification and treatment with diazoxide can provide favorable outcomes. Further research is needed to understand the link between protein metabolism and hyperinsulinism in HADH mutations.

## 25ABS039: Metabolic profiles of children of mothers with and without gestational diabetes at age of 5 years

**Dr. Simran Thakkar**

DrNB Endocrinology Trainee, Indraprastha Apollo Hospital, New Delhi

**Title: Metabolic profiles of children of mothers with and without gestational diabetes at age of 5 years**

Authors: Dr. Simran Thakkar

**Aims:** Epidemiological studies have demonstrated that Indian babies born to mothers with gestational diabetes mellitus (GDM) have an adverse metabolic profile earlier in life. We compared the anthropometry and metabolic profiles in children of women with and without GDM at age 5 years.

**Results:** Maternal BMI was positively associated with the adiposity in both groups. The risk of being overweight/obese was increased 3.27-fold if mothers were overweight/obese (95% CI 1.56-4.16) compared to 4.35-fold (95% CI 2.50-9.88) if mothers additionally had GDM. CGDM had higher measures of SSF and TSF as compared to WGDM ($p<0.001$). A higher FBS (92 ± 4.6 mg% vs. 88 ± 3.22 mg %) but not PPBS was seen in CGDM vs. WGDM. HDL was lower (37 ± 2.3 mg% vs. 43 ± 1.96 mg%) and triglycerides (133 ± 4.4 mg% vs. 127 ± 3.37 mg%) levels were higher in CGDM vs. WGDM. There were no differences in the LDL levels. Transaminases (SGOT, SGPT) were higher in WGDM as compared to CGDM, but the differences were not significant. There were no differences in anthropometry and metabolic parameters irrespective of the treatment given for gestational diabetes. We did not find any gender specific differences although males had higher SSG, TSF and lower HDL levels as compared to females.

**Conclusions:** CGDM had higher anthropometric measures - SSF and TSF- and higher fasting glucose, low HDL and higher triglycerides as compared to WGDM at age of 5 years. This may translate into adverse metabolic outcomes later in life and contribute to disease burden. Interventions focused on obesity prevention in women planning to conceive (and otherwise also), and effective management of GDM may contribute towards reducing childhood obesity.

## 25ABS040: Clinical Profile and Molecular Genetic Analysis of Prader - Willi Syndrome A Single Centre Experience at a Tertiary Care Centre

**Dr. Harini Jayaraman**

DM Endocrinology Trainee, AJ Hospital and Research Centre

**Title: Clinical Profile and Molecular Genetic Analysis of Prader-Willi Syndrome: A Single Centre Experience at a Tertiary Care Centre**

Authors: Dr. Harini Jayaraman, Dr. Ganesh HK, Dr. Himamshu Acharya

**Introduction:** Prader–Willi syndrome (PWS) is one of the most common causes of syndromic obesity, with varied clinical manifestations. Here, we describe the clinical and molecular characteristics of PWS patients diagnosed in an Endocrinology OPD of a tertiary care hospital.

**Materials and Methods:** A cross-sectional study comprising 8 clinically suspected cases of PWS screened between January 2018 and December 2024. A comprehensive history (H/O), clinical examination, metabolic panel, and molecular confirmation were noted, along with treatment modalities, compliance, and complications.

**Result:** A total of 8 cases (5 males, 3 females) with a mean age of presentation 17.75±9.07 ranging from 6-33 years, with no significant family history, presented with short stature (Height < 5th percentile) and obesity, with a mean BMI of 30.78±7.32, ranging from 21.18 to 41.60. H/O birth asphyxia, poor cry, inability to suckle, hypotonia, and delayed developmental milestones elicited in all. Hyperphagia, obesity, short stature, delayed puberty, diabetes mellitus, and subnormal intelligence were the most predominant clinical features. Majority of the boys (4/5) presented with cryptorchidism & micro-penis. A narrow forehead, almond-shaped eyes, rounded cheeks, and small hands were observed in all cases. Molecular diagnosis was confirmed using methylation-specific PCR in 50% of cases, remaining unable to afford the same. Dyslipidaemia, impaired fasting (149.88±58.33 mg/dL) & post-prandial plasma glucose (227±102.70 mg/dL) with mean HbA1C of 7.32±1.62 with 75% cases requiring anti-diabetic medications with 2 patients on Insulin, 25% cases requiring anti-hypertensive & anti-obesity drugs, 12.5% cases requiring lipid-lowering therapy. Cognitive-behavioural abnormalities with poor scholastic performance leading to school dropouts, recurrent respiratory infections & OSA requiring CPAP support were the prevailing complications. One patient progressed to diabetic nephropathy & neuropathy with foot ulcer. Six patients are alive and compliant to treatment modalities comprising a multidisciplinary approach. Two patients succumbed to respiratory infection & sepsis in the background of worsening OSA.

**Conclusion:** PWS should be screened in patients of childhood/adolescent obesity with short stature, cryptorchidism, developmental delay & subnormal intelligence. Judicious use of molecular diagnostic testing should be made in all clinically suspected cases. Early diagnosis and appropriate management of this complex disorder by a multidisciplinary team will improve the quality of life and treatment outcome.

## 25ABS041: A Case of “Diabetic Dance”: Unraveling the Mystery of Diabetic Striatopathy

**Dr. Tejaram Rajanala**

MD General Medicine Trainee, Aarupadai Veedu Medical College and Hospital, Puducherry

**Title: A Case of “Diabetic Dance”: Unraveling the Mystery of Diabetic Striatopathy**

Authors: Dr. Tejaram Rajanala, Dr. K. Jayasingh, Dr. Sridharan, Dr. P. Santhosh Kumar

**Introduction:** Diabetic striatopathy is a rare complication of diabetes characterized by involuntary movements, typically hemichorea-hemiballismus, linked to hyperglycemia and basal ganglia abnormalities. Its pathophysiology remains unclear but is thought to result from metabolic changes affecting the striatum.

**Case Presentation:** A 62-year-old female with poorly controlled diabetes presented with involuntary movements in the right upper and lower limbs, with a blood glucose of 512 mg/dL. CT brain ruled out ischemic or hemorrhagic stroke, and an MRI brain was normal, indicating clinically isolated diabetic striatopathy (1). She was started on intensive insulin therapy and showed no further episodes of involuntary movements.

**Discussion:** Diabetic striatopathy occurs due to vascular and metabolic disturbances in the striatum in poorly controlled diabetes. The condition manifests with involuntary movements, such as chorea or dystonia. Early diagnosis is crucial, and imaging studies, particularly MRI, help rule out other neurological conditions. Management includes glycemic control and medications like anticholinergics or dopamine antagonists.

**Conclusion:** Diabetic striatopathy should be considered in patients with uncontrolled diabetes presenting with unilateral chorea and characteristic basal ganglia lesions on imaging. Early recognition and correction of hyperglycemia are crucial for symptom resolution. This case highlights the importance of considering diabetic striatopathy in the differential diagnosis and reinforces the role of metabolic stabilization in management.

## 25ABS042 Risk Factors of Hip Fracture among Postmenopausal Women with Diabetes Mellitus in Kerala

**Dr. Indra N**

PhD Student, Believers Church Medical College, Kozhencherry, Kerala

**Title: Risk Factors of Hip Fracture among Postmenopausal Women with Diabetes Mellitus in Kerala**

Authors: Indra N, Alice David, Thomas V Paul, Kripa Elizabeth Cherian, Philip Finny

**Background:** The prevalence of osteoporosis with fragility fractures is higher among individuals with Type 2 diabetes mellitus (T2DM). The risk factors associated with osteoporotic fractures in postmenopausal women with T2DM have not been studied in the South Indian state of Kerala.

**Objectives:** To identify the risk factors and T-score threshold among postmenopausal women with T2DM who had sustained a hip fracture (HF).

**Methods:** A case-control study of postmenopausal women with T2DM, with and without HF, was conducted over a period of 2 years. After informed consent, clinical risk factors for fall and fragility HF were collected using a structured questionnaire. Bone mineral density was assessed at lumbar spine (LS) and femoral neck (FN) with a DXA (Dual Energy X-ray Absorptiometry) scan. Fracture Risk Assessment tool (FRAX) was used to assess the risk probability of fracture. ROC curves were constructed, and area under the curve (AUC), sensitivity, and specificity of FN T-scores were computed.

**Results:** This study included 50 cases and 66 controls. The mean age was 74.9 (±7.8) for cases and 69.8 (±7.4) for controls (p=0.0006), with a mean BMI of 26.1 (±4.0 kg/m²) for cases and 26.9 (±4.5 kg/m²) for controls. The AUC for the T-score of femoral neck (FN) was 71.9% (CI 62.5%-81.3%). For the cut-off point of FN T-score of -2.0, the sensitivity was 88.0% and specificity was 34.8%. Independent risk factors identified included advancing age [OR (95% CI): 1.1 (1.02-1.14)], hearing impairment [OR (95% CI): 3.6 (0.9-14.7)] and FN T-score of ≤ -2.0 [OR (95% CI): 3.2 (1.1-9.0)]. The FRAXHF risk score of >3% had 5.3 times higher risk probability [OR (95% CI): 5.3 (2.1 – 12.9)] of having HF.

**Conclusions:** In postmenopausal women with T2DM, a cut-off value of -2.0 for FN T-score had high sensitivity and acceptable specificity for HF. Hearing impairment seems to be a potentially correctable risk factor associated with falls and fractures in this population.

## 25ABS043: Hypoglycemia Unawareness in Children with Type-1 Diabetes: It is an alarming risk- A state-wide cross-sectional study from Kerala.

**Dr. Sangeetha Merrin Varghese**

Associate Professor, Believers Church Medical College Hospital, Thiruvalla, Kerala

**Title: Hypoglycemia Unawareness in Children with Type-1 Diabetes: It is an alarming risk- A state-wide cross-sectional study from Kerala**

Authors: Sangeetha Merrin Varghese, Philip Finny, Bifina Begum M, Jyothi Krishna, Mariamma Joseph, Deepa Lekshmi, George Chandy

**Introduction:** The prevalence of Hypoglycemia Unawareness (HU) is as high as 40% in people with T1DM. It can lead to cognitive and behavioral problems in children. There is no data regarding the prevalence of HU among Indian children with T1DM.

**Objectives:** 1. To assess the prevalence of Hypoglycemia Unawareness (HU) and various blood glucose parameters in children with T1DM. 2. To estimate the HbA1c and lipid abnormalities in children with T1DM.

**Methods:** A cross-sectional survey was done among 600 children (between 6-18 yrs) with T1DM across Kerala from April-August 2024 using a Continuous Glucose Monitoring System (CGMS) for 2 weeks. Blood tests for HbA1c and lipid parameters were conducted on 150 randomly selected children from among the 600.

**Results:** The mean age of participants was 13.79 ± 4.00 years. Hypoglycemia was present in 83.5% (501/600) of the children. Hypoglycemia Unawareness (HU) was present in 98.4% (493/501). The proportion of children within the time in range (TIR) (>70%) was only 4%. Time spent with very low blood glucose (250 mg/dL) for more than 5% of the time was 90%. The mean HbA1c of 150 children was 9.61 ± 2.15, with 38% having HbA1c >10%. Elevated cholesterol was seen in 34.6%, and elevated LDL in 66% of the children.

**Conclusion:** Our study shows that 98.5% of children with T1DM have HU, and nearly 40% have poorly controlled diabetes with HbA1c above 10%. Preventing HU and maintaining acceptable HbA1c and lipid levels are essential to reduce long-term morbidity in children with T1DM.

## 25ABS044: Atypical Type 2 Diabetes mellitus: Unmasking Hidden Secondary Causes

**Mr. Jagapathi Babu CH**

DM Endocrinology Trainee, AIIMS Rishikesh, Dehradun

**Title: Atypical Type 2 Diabetes Mellitus: Unmasking Hidden Secondary Causes**

Authors: Jagapathi Babu CH

**Introduction:** Type 2 diabetes mellitus can present atypically, such as with early insulin dependence, warranting evaluation for secondary causes like hemochromatosis. Hemochromatosis may be primary (HFE gene mutations: C282Y, H63D) or secondary (e.g., transfusions, alcohol), leading to systemic iron overload and diabetes.

**Case Report:** A 46-year-old male presented with generalized weakness, fatigue, significant weight loss (20 kg over two years), and uncontrolled blood glucose levels. He had been diagnosed with type 2 diabetes mellitus (T2DM) three years prior and required insulin for the past year. Notably, there was a family history of early-onset diabetes. Physical examination revealed hepatosplenomegaly. Laboratory investigations demonstrated elevated liver enzymes (SGOT: 63 U/L, SGPT: 86 U/L), negative viral and autoimmune markers, and abnormal iron studies with a transferrin saturation of 94% and serum ferritin of 3,841 ng/mL. Imaging confirmed hepatosplenomegaly and autosomal dominant polycystic kidney disease (ADPKD). Liver biopsy revealed cirrhosis with iron overload and chronic hepatitis, with Perl's stain positive for iron deposits. Genetic analysis identified homozygosity for the HJV mutation (exon 3, c.295G>A). A diagnosis of primary hemochromatosis with secondary diabetes mellitus, cirrhosis, and ADPKD was established.

**Discussion:** Hereditary hemochromatosis (HH) primarily affects individuals of Northern European descent, with men being more commonly affected. In this case, the patient's presentation with diabetes mellitus and liver dysfunction matched the typical demographic and age profile for HH. However, atypical features, such as a short duration of diabetes and early insulin dependence alongside liver dysfunction, prompted further evaluation. The clinical triad of diabetes, cirrhosis, and iron overload, corroborated by radiological and histopathological findings, confirmed the diagnosis of HH. Unlike Western data, Indian patients, such as in this case, present with HJV mutations.

**Conclusion:** Accurate clinical evaluation and thorough assessment of patients with atypical features of T2DM are crucial for identifying secondary causes such as hereditary hemochromatosis.

## 25ABS045: Diagnostic refinement and treatment modification in Juvenile-Onset Diabetes Mellitus: A MODY 12 (ABCC8 Variant) Case Report

**Dr. Abel Jaison**

Post Doctoral Fellowship in Metabolic and Lifestyle Medicine, Believers Church Medical College, Thiruvalla

**Title: Diagnostic Refinement and Treatment Modification in Juvenile-Onset Diabetes Mellitus: A MODY 12 (ABCC8 Variant) Case Report**

Authors: Abel Jaison, Anju Francis, Mariamma Joseph, Philip Finny

**Background:** Accurate classification of juvenile-onset diabetes mellitus remains challenging, especially when clinical presentations deviate from typical Type 1 or Type 2 criteria. Genetic testing is crucial for accurate diagnosis and guiding personalized treatment.

**Case Report:** A 16-year-old female presented with poor glycemic control (HbA1c: 14.3%, random blood glucose: 290 mg/dL) despite no ketosis, a normal BMI (20.9 kg/m²), and significant family history of diabetes spanning four generations.

**Methods:** Comprehensive evaluation included:

Metabolic and Hormonal Assessment (C-peptide: 2.6 ng/mL)

Genetic Testing by Targeted Next Generation Sequencing - ABCC8 gene mutation (NM_000352.6:c.487G>A; p.Gly163Ser)

Ultrasound Abdomen: Mild hepatomegaly with grade 1 fatty infiltration and bilateral polycystic ovarian morphology

**Results:** The heterozygous ABCC8 variant, classified as a MODY 12 mutation, enabled the transition from intensive insulin therapy (Aspart and Premixed Insulin) to Glibenclamide. Glycemic control improved significantly without hypoglycemic episodes:

Initial HbA1c: 14.3%

Post-insulin therapy: 10.4%

After Glibenclamide: 7.8%

**Conclusion:** This case underscores the importance of genetic testing in juvenile-onset diabetes. Precise diagnosis of MODY 12 facilitated a successful transition to targeted oral therapy, optimizing glycemic control and avoiding unnecessary insulin dependence.

## 25ABS046: A RARE CASE OF PITUITARY STALK INTERRUPTION SYNDROME LEADING TO METABOLIC DYSFUNCTION ASSOCIATED STEATO- HEPATITIS

**Dr. Mithran B R**

MD Internal Medicine Trainee, Madras Medical College & Rajiv Gandhi Government General Hospital, Chennai

**Title: A Rare Case of Pituitary Stalk Interruption Syndrome Leading to Metabolic Dysfunction Associated Steatohepatitis**

Authors: Dr. Mithran B R, Prof Dr. C S Gauthaman, Dr. R Rajesh, Dr. Naveen Kumar

**Background:** Pituitary Stalk Interruption Syndrome (PSIS) is a rare congenital abnormality characterized by a thin or absent pituitary stalk, ectopic posterior pituitary, and absent pituitary stalk. This leads to the primary deficiency of all anterior pituitary hormones and its clinical features. PSIS can also lead to metabolic syndrome and subsequently lead to Metabolic Dysfunction-Associated Fatty Liver Disease (MAFLD).

**Case Report:** A 31-year-old female, known case of panhypopituitarism since 2014, presented with primary amenorrhea and multiple episodes of adrenal insufficiency. She presented with complaints of yellowish discoloration of eyes, fever, and vomiting. On examination, she had icterus, right hypochondrial tenderness, hepatomegaly, and Cushingoid body habitus. Lab parameters showed dyslipidemia, hyperglycemia, hyperbilirubinemia, and elevated liver enzymes. Hormonal levels were at the lower limit for all anterior pituitary hormones. Liver biopsy revealed severe steatosis and fibrosis. The final diagnosis was metabolic dysfunction-associated steatohepatitis secondary to PSIS.

**Discussion:** The exact pathophysiology of PSIS remains unclear. Several mechanisms such as STAT1 and STAT3 activation, along with STAT5 inhibition, leading to altered hepatic fat metabolism and increased insulin resistance, have been proposed. MAFLD progression is quite rapid in PSIS compared to other causes. The mainstay of treatment is hormone replacement therapy, which is considered to halt the progression of MAFLD. High clinical suspicion and routine liver function tests are crucial to decreasing complications related to MAFLD.

## 25ABS047: Glycemic control and bone health: A comparative study of BMD and glycemic markers.

**Dr. Sanjana Gayatri Bazar**

DrNB Endocrinology Trainee, Nizam's Institute of Medical Sciences, Hyderabad, Telangana

**Title: Glycemic Control and Bone Health: A Comparative Study of BMD and Glycemic Markers**

Authors: Dr. Sanjana Gayatri Bazar

**Background:** Bone mineral density (BMD) is a key indicator of skeletal health and fracture risk. Diabetes mellitus is known to influence bone quality, with conflicting evidence regarding its impact on BMD. Type 2 diabetes is often associated with preserved or increased BMD despite higher fracture susceptibility. The factors such as insulin resistance, glycemic control, and metabolic changes potentially influence bone health.

**Methods:** This is an ambispective study involving 75 diabetic and 75 non-diabetic individuals, matched for age and gender. BMD was measured at the lumbar spine and femoral neck using dual-energy X-ray Absorptiometry (DXA). Clinical and demographic data, including HbA1c levels, age, gender, and body mass index (BMI), were collected for all

participants. BMD values were compared between diabetic and non-diabetic groups using independent t-tests. Pearson or Spearman correlation analyses were performed to evaluate the relationship between BMD and variables such as HbA1c, age, gender, and BMI. Statistical significance was set at $p < 0.05$.

**Results:** Compared with the T2DM group, the BMD and T scores of lumbar spines 1–4 (L1–L4) and femoral neck in the non-T2DM group were significantly lower ($P < 0.05$). Additionally, the probability of major osteoporotic fracture in the next 10 years (PMOF) was significantly higher in the non-T2DM group ($P < 0.001$). However, with the prolongation of T2DM, the BMD significantly decreased, while fracture risk and the prevalence of osteoporosis significantly increased ($P < 0.05$).

**Conclusion:** These findings highlight the complex relationship between diabetes and bone health, emphasizing the need for regular monitoring of BMD and fracture risk in individuals with long-standing T2DM. The findings also underscore the importance of advanced imaging techniques like Quantitative Computed Tomography (QCT), which offers a more precise assessment of trabecular and cortical bone, providing a better understanding of bone quality beyond BMD measurements.

## 25ABS048:

Will be updated soon...

## 25ABS049: FEV1 and Platelet Parameters in Diabetic Rural School Teachers: A Pilot Study.

**Speaker Name**

Speaker Designation

**Title: FEV1 and Platelet Parameters in Diabetic Rural School Teachers: A Pilot Study**

**Background:** Platelets play a crucial role in hemostasis. There are limited studies on altered platelet parameters associated with inflammation in respiratory disorders. FEV1 is widely used as an indicator of lung function. This pilot study aims to investigate the relation between FEV1 and platelet parameters in diabetic rural school teachers for early detection of respiratory illness.

**Methods:** This random pilot study included 41 rural female diabetic school teachers. The study is approved by the Institutional Ethics Committee of GSL Medical College and General Hospital, Rajahmundry. After obtaining informed, written consent, blood samples are collected through venipuncture. Platelet parameters are analyzed using an automated analyzer and FEV1 is recorded using a portable spirometer (Model Number: SMPF-1). Correlation between variables is analyzed with Pearson correlation.

**Results:** The mean age of participants was 39.61 ± 6.62 years with BMI of 26.70 ± 4.8 kg/m². The mean FEV1 is 1.622 ± 0.43 lit/min. FEV1 is positively correlated with MAP ($r = 0.369$, $p = 0.05$) and platelet count ($r = 0.320$, $p = 0.05$) while it is negative with BMI ($r = -0.420$, $p < 0.01$). Although a negative correlation is observed between FEV1 and MPV (Mean platelet volume), PDW-SD (Platelet distribution width-Standard deviation), PDW-VC (Platelet Distribution Width-Variation Coefficient), P-LCR (Platelet-Large Cell Ratio), and P-LCC (Platelet-Large Cell Count), suggesting a potential inverse relationship between these platelet parameters.

**Conclusion:** In this study, FEV1 is decreased with increased BMI, showing that higher BMI is associated with reduced lung function. However, a positive association with platelet count and MAP signifies better lung function. As platelets release Platelet Derived Growth Factor (PDGF), which can promote lung tissue repair and regeneration, this may lead to improved lung function. A larger sample size is warranted for further understanding the importance of managing both metabolic and platelet-related factors in female diabetic rural teachers to mitigate the risk of respiratory complications.

## 25ABS050: "Dual cause for hypocortisolemia – a diagnostic and therapeutic challenge"

**Dr. Devika Nandakumar**

DM Endocrinology Registrar, Christian Medical College, Vellore

**Title: Dual cause for hypocortisolemia – a diagnostic and therapeutic challenge**

Authors: Devika Nandakumar, Remya Rajan, Ashish Singh, HS Asha

**Introduction:** Adrenal insufficiency can be classified as primary (PAI) or secondary (SAI), depending on whether the disruption occurs in the adrenal gland or the hypothalamic-pituitary-adrenal axis. PAI typically leads to aldosterone deficiency, hyperkalemia, and hypotension, while SAI primarily affects cortisol production without altering aldosterone secretion. Adenoid cystic carcinoma (ACC) of the sphenoid sinus is a rare malignancy that can compress adjacent structures, resulting in panhypopituitarism. Additionally, immune checkpoint inhibitors (ICIs) such as pembrolizumab are associated with immune-related adverse effects (IRAEs), including hypophysitis and PAI. This report presents a unique case of concurrent PAI and SAI, underscoring the diagnostic and management challenges encountered.

**Case Report:** A 53-year-old man with a history of ACC presented with giddiness, vomiting, diplopia, ptosis, and orthostatic hypotension. MRI demonstrated tumor progression with pontine compression. Hormonal evaluation confirmed panhypopituitarism, including central hypocortisolism, hypothyroidism, hypogonadism, and partial arginine vasopressin (AVP) deficiency. Hormone replacement therapy, including thyroxine, prednisolone, and desmopressin, led to symptom improvement. Subsequently, pembrolizumab was initiated to manage the primary malignancy.

Three months later, the patient developed hyperkalemia (5.7 mmol/L) and worsening postural hypotension. Investigations identified mineralocorticoid deficiency, indicative of pembrolizumab-induced PAI. The addition of fludrocortisone normalized potassium levels and alleviated postural symptoms. Distinguishing PAI from SAI was complicated by concurrent adrenal and pituitary dysfunction, rendering ACTH levels unreliable. Clinical indicators such as hyperkalemia and postural hypotension, coupled with symptom resolution following mineralocorticoid replacement, confirmed PAI.

**Conclusion:** This case highlights the complexity of managing adrenal insufficiency resulting from ICI therapy in a patient with tumor-related panhypopituitarism. Clinical signs, including hyperkalemia and postural hypotension, were instrumental in identifying PAI amidst pituitary dysfunction. Careful evaluation and targeted treatment are crucial for optimizing outcomes in such challenging cases.

## 25ABS051: Glucose intolerance in gestational diabetes mellitus is driven primarily by impaired insulin secretory capacity and is not associated with dysregulation of systemic iron homeostasis: preliminary results

**Prof. Joe Varghese**

Department of Biochemistry, Christian Medical College, Vellore

**Title: Glucose intolerance in gestational diabetes mellitus is driven primarily by impaired insulin secretory capacity and is not associated with dysregulation of systemic iron homeostasis: preliminary results**

Authors: Padmanaban Venkatesan, Mithra Balaji, Monica Peter, Arun Jose Nellickal, Molly Jacob, Anne George Cherian, Joe Varghese

**Introduction:** Elevated body iron stores have been hypothesized to impair pancreatic beta-cell function, potentially leading to decreased insulin secretion and diabetes mellitus. However, human studies exploring this relationship, especially in pregnant women with gestational diabetes mellitus (GDM), remain limited. This study aimed to address this gap by examining whether systemic iron homeostasis is linked to glucose tolerance and beta cell function in GDM.

**Methodology:** Pregnant women attending the antenatal clinic at CHAD hospital, CMC, Vellore, who were undergoing oral glucose tolerance test (OGTT) at 24-28 weeks of gestation as a routine part of their antenatal care, were the subjects of this study. After obtaining informed consent, blood samples were collected at fasting and 30-, 60-, and 120-minutes post glucose load. Women diagnosed with GDM were compared to age- and parity-matched normoglycemic controls. Fasting blood samples were analyzed for iron-related parameters, including serum iron, transferrin, transferrin saturation, ferritin, and non-transferrin bound iron (NTBI). Insulin secretion dynamics (disposition index and insulinogenic index) and insulin resistance (HOMA-IR and Matsuda index) were assessed from blood samples obtained during the OGTT.

**Results:** Preliminary results from 47 women with GDM and matched controls indicate that those with GDM had significantly lower disposition and insulinogenic indices compared to controls, suggesting impaired insulin secretion. However, markers of insulin resistance, HOMA-IR and Matsuda index, were not significantly different between the two groups. Iron-related parameters, including serum iron, transferrin, transferrin saturation, ferritin, and NTBI, were not different between the groups.

**Conclusions:** Our interim findings suggest that glucose intolerance in GDM is primarily driven by impaired insulin secretory capacity, rather than by insulin resistance, and this is not associated with dysregulation of systemic iron homeostasis.

## 25ABS052: Clinical profile of people with diabetes mellitus hospitalized with COVID-19 – A retrospective study

**Dr. Nikhil Sanjeev K**

DM ENDOCRINOLOGY Trainee, All India Institute of Medical Sciences, Raipur

**Title: Clinical profile of people with diabetes mellitus hospitalized with COVID-19 – A retrospective study**

**Background:** Corona virus disease-2019 (COVID-19) is caused by severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2) virus. Various meta-analyses demonstrated that diabetes was associated with more than doubled risk of COVID-19 severity and mortality. This study aims to identify the clinical and biological features associated with disease severity and mortality risk in people with diabetes hospitalized for COVID-19.

**Methodology:** In this single-center retrospective cohort study, data of 2736 patients hospitalized with COVID-19 during the year 2020 were screened. Among them, 1108 patients were found to have diabetes mellitus, of which 153 patients were selected by simple randomization. Data on demographics, clinical, biochemical, glycemic parameters, antidiabetic medications, illness severity, and outcomes were gathered from electronic medical records and analyzed.

**Results:** The mean age was 56.7 ± 11.2 years, and 77.8% of the cohort were males. Among them, 62%, 32.4%, and 3.4% had associated co-morbidities of hypertension, ischemic heart disease, and cerebrovascular disease, respectively. During admission, they had a mean SpO2 of 94.7 ± 8%, and 40.5% required oxygen supplementation. Mean total daily insulin requirement was 30.2 ± 23.3 units. Additionally, 22.9% received both oral antidiabetic medication and insulin, and 9.8% experienced hypoglycemia events. Overall, 76.5% were discharged, and 22.9% succumbed. Mean fasting glucose was a strong predictor of severe disease, requirement of invasive ventilation, intensive care admission, and death ($p < 0.001$). Mean post-meal glucose also predicted the above outcome measures (p values 0.034, 0.049, 0.030, respectively). Mean daily glucose did not predict these measures (p

values 0.722, 0.730, 0.721, respectively).

**Conclusion:** There is significant morbidity and mortality in diabetes mellitus patients hospitalized with COVID-19. Poorly controlled diabetes with altered glycemic and biochemical parameters is associated with disease severity, hospitalization, and death.

## 25ABS053: TYPE 2 DIABETES IN ADOLESCENTS WITH AMBULANT KETOSIS

**Dr. Nitin Prakash Sivasubramanian**

Special Trainee, Department of Internal Medicine, Madurai Medical College

**Title: TYPE 2 DIABETES IN ADOLESCENTS WITH AMBULANT KETOSIS**

**BACKGROUND:** Type 2 diabetes mellitus prevalence is increasing. Nowadays adolescents are also developing it. When they present with ketosis, the term Ketosis Prone Diabetes (KPD) is used, other names are Flatbrush diabetes, atypical diabetes, and Type 1.5 diabetes mellitus. The absence of autoimmune markers such as GAD autoantibodies, Anti-islet cell autoantibodies and the presence of ketosis without obesity or any other underlying cause for glycemia makes it a probable diagnosis. It has features of both type 1 and type 2 diabetes mellitus.

**METHODOLOGY:** The patient presented with osmotic symptoms, fatigue for 1 month, and loss of weight for 1 year. She had a positive history of diabetes mellitus in the maternal grandparents. On examination, she had mild dehydration, acanthosis grade - 1. Waist-hip ratio was 0.95 and BMI-22. Systemic examination was normal. All the relevant investigations were conducted.

**RESULTS:** The random blood glucose levels were elevated at 218 mg/dl. The HbA1c level was 14.8%. Blood counts and serum electrolytes were normal. Urine sugar and urine acetone were positive on the day of admission and were nil the next day after initiating treatment. Fasting CBG was 175 mg/dl. The C-peptide levels were 1.47 ng/ml. The GAD autoantibody was absent. The USG of the abdomen showed a normal-sized pancreas.

**CONCLUSION:** This patient had ketosis, which was reversed after treatment. She had a normal BMI, which was unusual. She had negative autoantibodies and normal C-peptide levels, which leads to the categorization of this patient into A-B+ type of KPD. Tablets metformin 500mg bd, Vildagliptin 50mg bd, and Injection premixed 30/70 20 units od were given. The patient improved after the initial treatment and has good glycemic control currently.

## 25ABS054: Atypical forms of monogenic diabetes mellitus

**Dr. Bhavishya Desai**

DM Endocrinology Trainee, Vydehi Institute of Medical Science and Research Centre

**Title: Atypical forms of monogenic diabetes mellitus**

Authors: Bhavishya Desai, Parvathy Lalitha, Shruthi R, Dhananjaya M S, Vijaya Sarathi

**Background:** Monogenic diabetes mellitus (MDM) is a rare subset of diabetes caused by single-gene mutations. Among these, maturity onset diabetes in young (MODY), neonatal diabetes mellitus (NDM) and some syndromes like Wolfram 1, Down's, Turner and Prader-Willi are relatively more common. Here, we describe five pediatric patients with very rare forms of MDM.

**Methods:** The medical records were searched from January 2019 to November 2024 for pediatric MDM. The rarer forms with MDM were included in the present study. Clinical evaluation including detailed history taking, physical examinations, laboratory investigations (including HbA1c, C-peptide, and autoantibody testing), and genetic analysis using whole-exome sequencing of these patients were recorded.

**Results:** The clinical and genetic characteristics of the patients are summarized in the table below. Patients demonstrated diverse presentations, ranging from atypical late-onset immune dysregulation to syndromic diabetes associated with multi-system involvement:

| Case | Age/Gender | Clinical Presentation | Genetic Mutation | Associated Syndrome |
|---|---|---|---|---|
| 1 | 17 years Boy | Chronic diarrhea, weight loss, early-onset cataracts, diabetes mellitus | Hemizygous FOXP3 variant (c.1108A>G) | IPEX syndrome |
| 2 | 7 years Girl | Diabetes mellitus, sensorineural hearing loss, primary hypothyroidism, negative T1DM antibodies. | Homozygous SLC29A3 variant (c.400C>T) | Histiocytosis-Lymphadenopathy Plus Syndrome |
| 3 | 5 years Girl | Growth retardation, uncontrolled diabetes without ketosis, high insulin requirement (8 U/kg/d), no acanthosis | Heterozygous INSR variant (c.50C>T) | Insulin resistance syndrome |
| 4 | 13 years Girl | Coarse facial features, hepatomegaly, severe lipodystrophy, sibling with early-onset diabetes | BSCL2 mutation (c.414_415del) | Congenital Generalized Lipodystrophy Type 2 |
| 5 | 11 years Girl | Born small for gestational age (SGA), hyperglycemia, facial dysmorphism, severe insulin resistance | Heterozygous PIK3R1 mutation | SHORT syndrome |

**Conclusion:** We present five rare forms of MDM. Except for case 4, genetics played a vital role in attaining the correct clinical diagnosis. Hence, all pediatric diabetes mellitus patients with atypical presentation should be evaluated with molecular testing.

## 25ABS055: CASE REPORT OF A UNIQUE COMBINATION - BARDET – BIEDL SYNDROME, PERRAULT SYNDROME, OCCULOCUTANEOUS ALBINISM – A RARE GENETIC OVERLAPABSTRACT

**Dr. Battu Sree Vaishnavi**

DM Endocrinology Trainee, AIIMS Raipur

**Title: Case Report of a Unique Combination - Bardet-Biedl Syndrome, Perrault Syndrome, Oculocutaneous Albinism – A Rare Genetic Overlap**

**Introduction:** Bardet-Biedl syndrome (BBS) is a rare disorder characterised by central obesity, hypogonadism, learning difficulties, vision loss due to rod cone dystrophy, and polydactyly. We hereby present a rare association of Bardet-Biedl Syndrome, Perrault syndrome, and oculocutaneous albinism.

**Case report:** A 15-year-old girl presented with a history of weight gain, hyperphagia, and ataxia since 3 years of age. She also complained of secondary amenorrhea for 1 year (menarche onset at age 12). The patient had a history of delayed motor milestones but normal intelligence. On examination, she weighed 81.3 kilograms with a height of 150 cm, resulting in a BMI of 36.1 kg/m² (greater than 120% of the 95th percentile). Features included a high arched palate, dental crowding, and low-set ears. Her Tanner staging for breast and pubic hair was 3 and 1, respectively, with no axillary hair. Neurological examination showed horizontal nystagmus in both eyes, a wide-based gait, abnormal finger-to-nose test, and hypotonia. Fundus examination revealed bilateral albinotic fundus with bilateral foveal hypoplasia, retinitis pigmentosa, and mild hearing loss in both ears. Raised FSH on two different occasions indicated hypergonadotropic hypogonadism. Genetic testing identified homozygous mutations in the following genes:

**CEP 290 gene** (c.3G>A p.Met1), suggestive of Bardet-Biedl syndrome

**HSD17B4 gene** (c.667C>T p.Leu223Phe), suggestive of Perrault syndrome

**OCA 2 gene** (c.1453G>A p.Gly48SArg), suggestive of oculocutaneous albinism

The patient was given dietary modification and advised physical activity. Estradiol valerate 0.5mg OD was started for ovarian insufficiency.

**Conclusion:** Early onset obesity with dysmorphic features and delayed developmental milestones should raise suspicion for genetic causes of obesity. In this case, mutations in the CEP 290 gene, seen in only 6.3% of patients, were identified. Reported associations of this gene include Joubert syndrome, Leber congenital amaurosis, Meckel syndrome, and Senior-Loken syndrome. This is the first case report of a rare association of Bardet-Biedl Syndrome, Perrault Syndrome, and Oculocutaneous Albinism, which has not been previously reported.

## 25ABS056: Dual cause for hyperglycaemia: Co-existence of Type B Insulin resistance syndrome and Type 1 Diabetes Mellitus

**Dr. Marri Lakshmi Harika**

DM Endocrinology Senior Resident, CMC Vellore

**Title: Dual Cause for Hyperglycemia: Co-existence of Type B Insulin Resistance Syndrome and Type 1 Diabetes Mellitus**

Authors: Marri Lakshmi Harika, Remya Rajan, C E Eapen, Nihal Thomas, Asha H S

**Introduction:** Type B insulin resistance syndrome is a rare autoimmune disorder in which autoantibodies against insulin receptors result in altered insulin signaling causing hyperglycemia, and very rarely hypoglycemia. It is frequently associated with other autoimmune diseases. There is no standardized treatment, but immunomodulation may

accelerate remission and reduce mortality.

**Case Report:** An 18-year-old lady with Type 1 Diabetes Mellitus and autoimmune hepatitis, under our care, presented with an increase in insulin requirement over one to two weeks. Initially on 2.1 units/kg/day of insulin, her requirement surged to 300 units per day (7.1 units/kg/day), with a suboptimal glycemic profile. Given the co-existing autoimmune diseases, Type B insulin receptor antibody was suspected. Her insulin receptor antibody levels were found to be 65 u/l. She underwent three cycles of plasma exchange, resulting in a reduction in insulin requirement to 56 units per day (1.3 units/kg/day), and her insulin receptor antibody levels also decreased. She is currently on prednisolone 5 mg, Tacrolimus 1 mg, and 56 units of insulin daily, with an HbA1c of 7%.

**Conclusion:** Although Type B insulin resistance is rare, it should be suspected when there is resistant hyperglycemia and underlying autoimmune diseases. The co-existence of Type 1 Diabetes Mellitus complicated both the clinical course and management in our patient. This case highlights the diagnostic and therapeutic challenges in treating a patient with Type B insulin resistance and pre-existing Type 1 Diabetes Mellitus.

## 25ABS057: Effect of short-term (4 weeks) low-calorie diet on beta-cell function in overweight normoglycemic subjects.

**Dr. Padmanaban Venkatesan**

Associate Professor, Department of Biochemistry, Christian Medical College, Vellore

**Title: Effect of Short-Term (4 Weeks) Low-Calorie Diet on Beta-Cell Function in Overweight Normoglycemic Subjects**

Authors: Monica Peter, Mithra Balaji, Joe Varghese, Sam Marconi, Yesudhas Sudhakar, Felix Jebasingh, Padmanaban Venkatesan

**Introduction:** Recent evidence shows that beta-cell dysfunction is a primary contributor to the increased incidence of diabetes mellitus, particularly in South Asians. South Asians typically exhibit lower lean mass, higher body fat percentage, and greater liver fat. We hypothesized that reduced beta-cell function in South Asians results in liver fat accumulation, creating a cycle that worsens beta-cell function when exposed to high-calorie intake. We propose that calorie restriction-induced weight loss could disrupt this cycle, improving beta-cell function even with moderate weight loss.

**Methods:** In this pilot study, we investigated the effects of a low-calorie diet (~1500 kcal/day) over 4 weeks in 20 overweight participants (BMI ≥25 kg/m²) without diabetes. Participants were given a balanced 1500 kcal/day meal replacement shake (Optifast) and dietary advice. We measured beta-cell function (disposition index) and insulin sensitivity using the oral minimal model during a mixed meal challenge test at baseline and after 4 weeks. Body composition changes were measured using DEXA scans.

**Results:** Of the 21 participants, 15 completed the study. The average weight loss was 3 kg (±1.2 kg), a 3.7% reduction, and visceral adipose tissue decreased by 59 g (±108 g), a 10% reduction. Glucose tolerance improved by 5%, as measured by the area under the curve of blood glucose levels. Insulin sensitivity and beta-cell function improved by 40% and 32%, respectively. Linear regression analysis showed that beta-cell function improved by 25% (±7.7) per kilogram of weight loss (P = 0.0103) and by 17% (±6.5) for every 50g of visceral adipose tissue lost (P = 0.0312).

**Conclusion:** Short-term moderate weight loss in overweight normoglycemic subjects effectively improves beta-cell function and reduces visceral adipose tissue mass.

## 25ABS058: Hoffmann's indirect method-based establishment of reference interval of Thyroid stimulating hormone in neonates: An initiative towards less biased thyroid status screening in neonates of Chamarajanagar.

**Dr. Naresh Rangasamy**

MD Biochemistry Trainee, Chamarajanagar Institute of Medical Sciences, Chamarajanagar, Karnataka

**Title: Hoffmann's Indirect Method-Based Establishment of Reference Interval of Thyroid Stimulating Hormone in Neonates: An Initiative Towards Less Biased Thyroid Status Screening in Neonates of Chamarajanagar**

**Background:** Newborn screening is crucial for identifying congenital diseases that can be treated early to prevent permanent disabilities. Congenital hypothyroidism (CH) is one of the most preventable causes of mental retardation in neonates. Thyroid Stimulating Hormone (TSH) is a reliable marker for diagnosing CH. Clinical Laboratory Standards Institute recommends using local, population- and age-specific TSH reference ranges for accurate thyroid status assessment. Hoffmann's indirect method, a computerized approach, is increasingly used by laboratories to establish reference intervals (RI) that closely reflect true values. This study aims to establish the TSH RI for newborns using Hoffmann's indirect method.

**Materials & Methods:** The study utilized TSH report data for newborns aged 0 to 30 days from the Maternal and Child Health Hospital, CIMS, Chamarajanagar, from 2022 to 2024. The first TSH report of each newborn within this age range was retrieved and compiled. The local population-specific reference interval for TSH, measured by Chemiluminescence immunoassay, was then established using Hoffmann's indirect method.

**Results:** The study found that the reference interval of TSH established by Hoffmann's indirect method for newborns aged 0 to 7 days was 0.23 to 5.52 µIU/ml and for 8 to 30 days was 0.38 to 8.92 µIU/ml. This interval differed from the manufacturer's recommended reference interval (0.3 to 4.2 µIU/ml).

**Conclusion:** Each laboratory must establish customized reference intervals to ensure accurate interpretation of biochemical parameters. Hoffmann’s indirect method is a simple, effective tool for this purpose. The new TSH reference interval, specific to the local population, assay, and age group, will be used for interpreting thyroid status in neonates at CIMS, Chamarajanagar.

## 25ABS059: Haemoglobin and gestational diabetes mellitus: triangulating evidence from observational and Mendelian randomization studies

**Dr. Monica Peter**

Assistant Professor, Christian Medical College, Vellore

**Title: Haemoglobin and Gestational Diabetes Mellitus: Triangulating Evidence from Observational and Mendelian Randomization Studies**

Authors: Monica Peter, Padmanaban Venkatesan, Manisha Madhai Beck, Swati Rathore, Anuja Abraham, Kavita Abraham, Molly Jacob, Joe Varghese

**Introduction:** Observational studies have reported a higher incidence of gestational diabetes mellitus (GDM) in pregnant women without anemia compared to those with anemia. However, data from India is scarce. This study examines the relationship between hemoglobin levels in pregnancy’s first and second trimesters and their association with GDM in a retrospective analysis. Additionally, Mendelian randomization (MR) analysis was performed to further validate the findings.

**Methodology:** Data from 21,121 pregnant women from a South Indian hospital were analyzed for the association between hemoglobin and GDM. Multiple genome-wide association studies (GWAS) on hemoglobin and iron parameters were used for Mendelian randomization analyses to explore the relationship with GDM.

**Results:** The study found that the prevalence of anemia in the first trimester (Hb <11 g/dL) was 21.7%, and in the second trimester (Hb <10.5 g/dL) was 30.1%, while the prevalence of GDM was 19.1%. Anemia in the first trimester was associated with a higher risk of GDM (Relative Risk = 1.21 (1.1 – 1.4), P value <0.001). Interestingly, an increase in Hb levels from the first to second trimester was also linked to a higher risk of GDM. However, no causal association was found between hemoglobin or any iron parameters and GDM in the Mendelian randomization analyses.

**Conclusion:** Despite the observed associations in observational data, the Mendelian randomization analysis did not find any causal relationship between hemoglobin, iron parameters, and gestational diabetes mellitus.

## 25ABS060: A Study to Assess the Medication Adherence Among Type 2 Diabetes Mellitus Patients with and without Chronic Kidney Disease Attending Out-patient Department, Tertiary Care Hospital, Vellore

**Mrs. Anandha Ruby Jacob**

PhD in Medical Surgical Nursing, Christian Medical College, Vellore

**Title: A Study to Assess the Medication Adherence Among Type 2 Diabetes Mellitus Patients with and without Chronic Kidney Disease Attending Out-patient Department, Tertiary Care Hospital, Vellore**

**Background:** Medication non-adherence is a prevalent issue worldwide, especially among individuals with long-term health problems and an aging population. Poor adherence to prescribed medications can reduce the benefits and effectiveness of treatment, making it an important area of concern for healthcare providers.

**Aims and Objectives:** This study aims to assess medication adherence in patients with Type 2 Diabetes Mellitus (T2DM), with and without Chronic Kidney Disease (CKD), attending the outpatient department of a tertiary care hospital in Vellore.

**Methodology:** A cross-sectional research design was used for a duration of one year. A total of 45 patients with CKD were recruited through consecutive sampling. The study involved identifying and comparing medication adherence in patients with T2DM, with and without CKD.

**Results:** The study participants were divided into two age groups: those under 53 years (mean adherence score 4.73, SD 1.38) and those over 53 years (mean adherence score 4, SD 1.21). Most participants were from rural areas (mean score 4.46, SD 1.44), married (mean score 4.45, SD 1.28), employed (mean score 3.75, SD 0.0), from joint families (mean score 4.86, SD 1.32), and had primary education (mean score 4.25, SD 2.28). A striking 80% of patients with CKD were non-adherent to their medication, compared to 20% of patients without CKD.

**Conclusion:** The study suggests that a significant proportion of patients with CKD are non-adherent to their medication. To slow the progression of CKD, a multifaceted approach that includes health education and multidisciplinary support is essential. Providing patients with the motivation and tools needed to adhere to their treatment regimen is key to improving outcomes.

## 25ABS061: BRONZE PITUITARY AND ISOLATED HYPOGONADOTROPHIC HYPOGONADISM

**Dr. Betty Varghese Thundiyil**

MD General Medicine Trainee, Believers Church Medical College and Hospital

**Title: Bronze Pituitary and Isolated Hypogonadotropic Hypogonadism**

**Introduction:** Pituitary hemochromatosis is the excessive iron accumulation in the anterior pituitary gland. Primary hemochromatosis typically presents in the fifth decade of life, while juvenile hemochromatosis (JH), occurring in individuals younger than 30 years, exhibits multisystem manifestations such as cirrhosis, diabetes mellitus, myocardiopathy, cutaneous pigmentation, and hypogonadism. This condition is caused by the C282Y HFE gene mutation.

**Case Report:** Ms. X, a first-year nursing student from Erumely, presented with chief complaints of amenorrhea since June 2019. She attained menarche in April 2019, but her menstruation stopped in July 2019. She had taken medications in between, resulting in withdrawal bleeding. Examination showed Tanner 4 breast development, poorly formed nipple and areola, Tanner 4 pubic hair, and normal axillary hair. USG abdomen and pelvis revealed a small-sized uterus with a thin endometrium. A left kidney upper pole thin-walled cyst (1.6 cm) was also noted. The uterus had an endometrial thickness of 2.3 mm, indicative of uterine hypoplasia. Hormonal evaluations showed low FSH and LH levels (FSH: 0.81, LH: 0.43). Further workup, including cortisol, macroprolactin, testosterone, DHEAS, FT4, TSH, sodium, potassium, and MRI pituitary protocol, were performed. The lab results showed an FSH of 0.9 mIU/mL, LH of 1.18 mIU/mL, testosterone, DHEA-S, and high total iron (352.9) with a TSAT of 93%. The MRI Brain (pituitary protocol) suggested pituitary gland hemochromatosis and choroid plexus involvement.

**Conclusion:** The case presented demonstrates pituitary hemochromatosis causing secondary amenorrhea and isolated hypogonadotropic hypogonadism. This condition is linked with abnormal iron accumulation in the pituitary gland, leading to hormonal imbalances and infertility.

## 25ABS062: “Evaluating the T3/T4 Ratio as a Potential Indicator of Euthyroid Status in Individuals with Hypothyroidism"

**Ms. Gayathri Saravanan**

MBBS Student, ACS Medical College and Hospital

**Title: Evaluating the T3/T4 Ratio as a Potential Indicator of Euthyroid Status in Individuals with Hypothyroidism**

**Introduction:** The thyroid gland produces mainly T4, and T3 is derived from the peripheral conversion of T4 in the liver and kidneys. Therefore, the T3/T4 ratio is a key marker of thyroid function at the tissue level and is used for diagnosing thyroid disorders, monitoring treatment efficacy, and assessing factors like iodine deficiency or thyroid nodules. This study aims to determine the prevalence of hypothyroid status at the tissue level using the T3/T4 ratio among hypothyroid patients.

**Methods:** This cross-sectional study was conducted in a primary health care setting from January to November 2024. Hypothyroid patients on thyroxine treatment with normal TSH levels were included. Parameters like age, systolic blood pressure (SBP), hemoglobin (HB), BMI, thyroid-stimulating hormone (TSH), T3, and T4 levels were collected, and the T3/T4 ratio was calculated. A cut-off value of 16-18.5 for the T3/T4 ratio was considered as euthyroid status. The data were expressed as mean ± SD. A p-value of less than 0.05 was considered significant. ANOVA was used to analyze statistical significance between the groups using SPSS 22.

**Results:**
A total of 203 hypothyroid patients were included. Based on the T3/T4 ratio, the patients were divided into 3 groups: Group 1 (T3/T4 ratio 18.5). There was no significant difference in the age, SBP, DBP, HB, TSH, or T3/T4 ratio across the groups. The prevalence of a low T3/T4 ratio was 60%, a high T3/T4 ratio was 27%, and a normal T3/T4 ratio was 13%.

**Table of Results:**

| Parameters | Group 1 (N=122) | Group 2 (N=27) | Group 3 (N=54) |
|---|---|---|---|
| Age | 42.86 ± 13.1 | 45.41 ± 15.814 | 39.22 ± 15.448 |
| SBP | 123.05 ± 14.3 | 127.52 ± 19.809 | 121.33 ± 15.467 |
| DBP | 80.79 ± 11.1 | 82.91 ± 10.305 | 80.48 ± 12.179 |
| BMI | 28.77 ± 9.1 | 28.56 ± 9.424 | 29.26 ± 10.090 |
| HB | 11.53 ± 1.6 | 11.93 ± 1.588 | 11.48 ± 1.673 |
| T3/T4 | 8.89 ± 5.3 | 24.39 ± 5.598 | 17.07 ± 0.781 |
| TSH | 2.65 ± 1.2 | 2.44 ± 1.192 | 2.78 ± 1.188 |

**Conclusion:** A low T3/T4 ratio, despite normal TSH and T4 levels, could indicate suboptimal tissue-level thyroid function, helping guide treatment adjustments. Incorporating T3/T4 ratio monitoring may improve outcomes for these patients. In this study, no significant difference was found between the analyzed parameters, which may be due to the smaller sample size in the normal T3/T4 group. Further research is needed to confirm the clinical benefits of T3/T4 ratio monitoring. Our findings suggest that the T3/T4 ratio may be a valuable tool for assessing euthyroid status in hypothyroid patients on T4 therapy.

## 25ABS063: Hyperparathyroidism and Plasma Cell Disorders: Exploring a Rare Connection

**Dr. Fibi Ninan K**

DM Endocrinology Registrar, Christian Medical College

**Title: Hyperparathyroidism and Plasma Cell Disorders: Exploring a Rare Connection**

Authors: Fibi Ninan, Remya Rajan, Kripa Elizabeth Cherian, Supriya Sen, Anish Jacob Cherian, Asha HS
Institute: Christian Medical College, Vellore

**Introduction:** Hypercalcemia, observed in about 15% of hospitalized patients, is often caused by multiple myeloma (MM) or primary hyperparathyroidism (PHPT). The coexistence of both conditions in a single patient is exceptionally rare. This report discusses four cases showcasing this rare phenomenon.

**Case Reports:**

**Case 1:** A 56-year-old man presented with fatigue, anemia, weight loss, and rectal bleeding. He had hypercalcemia and elevated PTH levels. Investigations showed A/G reversal and M band, suggestive of plasma cell dyscrasia. Hypercalcemia evaluation revealed a left intrathyroidal parathyroid adenoma, and the hypercalcemia resolved after excision of the adenoma. Further workup identified low-grade lymphoma, and chemotherapy was initiated.

**Case 2:** A 56-year-old man with acute pancreatitis and a staghorn calculus was found to have PTH-dependent hypercalcemia due to a right inferior parathyroid adenoma. A/G reversal led to further workup, confirming MGUS with IgG lambda. He is planned for adenoma excision.

**Case 3:** A 64-year-old woman undergoing a health check-up was found to have albumin/globulin (A/G) reversal and hypercalcemia with elevated PTH levels. Bone marrow studies confirmed monoclonal gammopathy of undetermined significance (MGUS) with IgG kappa light chain restriction. After localization studies, she underwent focused right inferior parathyroid adenoma excision. The hypercalcemia resolved after adenoma excision. MGUS is under follow-up.

**Conclusion:** The coexistence of primary hyperparathyroidism (PHPT) and multiple myeloma (MM) or monoclonal gammopathy of undetermined significance (MGUS), though uncommon, is of significant clinical importance. Hence, PTH levels should be measured in all cases of hypercalcemia, even in the presence of underlying malignancy.

| Parameter | Patient 1 | Patient 2 | Patient 3 |
|---|---|---|---|
| Calcium (8.3-10.4 mg/dL) | 11.72 | 11.3 | 11.19 |
| Phosphorous (2.5-4.6 mg %) | 4.7 | 3.2 | 3.1 |
| Albumin (3.5-5.0 g/dL) | 3.5 | 2.1 | 4.2 |
| Parathyroid hormone (18.4-80.1 pg/ml) | 342 | 54.4 | 122.9 |
| Alkaline phosphatase (40-125 U/L) | 89 | 144 | 102 |
| 24-hour urine calcium excretion (mg/kg) | 1.3* | 2 | 12 |
| 25(OH)2 Vitamin D (30-75 ng/mL) | 14.4 | 15.1 | 18.9 |
| TMPGFR | 1.14 | 0.81 | 2.5 |

**Received multiple doses of zoledronic acid*

## 25ABS064: Accessory Renal Artery - an Under-Recognized Cause of Secondary Hypertension- A series of 3 cases

**Dr. Puppala Santosh**

DM Endocrinology Registrar, Christian Medical College, Vellore

**Title: Accessory Renal Artery - An Under-Recognized Cause of Secondary Hypertension: A Series of 3 Cases**

Authors: Puppala Santosh*, Remya Rajan*, Varun Kumar*, MJ Paul#, Asha HS*
Institute: Dept of Endocrinology, Diabetes and Metabolism, Christian Medical College, Vellore
#Dept of Endocrine Surgery, Christian Medical College, Vellore

**Introduction:** Accessory renal arteries (ARAs), the most common anatomical variation in renal arteries, have a prevalence of approximately 21.10% and are linked to resistant hypertension via activation of the renin-angiotensin-aldosterone system (RAAS). Emerging evidence suggests that ARAs may directly contribute to resistant hypertension, with affected individuals showing higher baseline blood pressure and plasma renin levels. This report highlights three cases of ARA-related hypertension.

**Case Series:**
**Case 1:** A 39-year-old woman was diagnosed with hypertension, with the highest recorded blood pressure of 200/100 mmHg. Despite treatment with two antihypertensives, her blood pressure remained high. Biochemical workup revealed aldosterone levels of 32.8 ng/dL, renin levels of 56 uIU/mL, and an aldosterone-to-renin ratio (ARR) of 0.5, suggesting hyperreninemic hyperaldosteronism. Renal artery Doppler was normal, but CT angiography revealed a left aberrant renal artery with stenosis at its origin. Blood pressure was controlled with antihypertensives, including spironolactone.

**Case 2:** A 19-year-old man with primary adrenal insufficiency on regular hormone replacement was diagnosed with hypertension during a routine visit. His highest recorded blood pressure was 180/140 mmHg. Biochemical evaluation revealed aldosterone levels of 29.9 ng/dL, renin levels of 95 uIU/mL, and an ARR of 0.3, suggesting hyperreninemic hyperaldosteronism. Renal artery Doppler was normal, and CT angiography revealed adrenal atrophy with the presence of a right accessory renal artery. Blood pressure was optimized with antihypertensives.

**Case 3:** A 26-year-old woman was diagnosed with hypertension in 2019 after presenting with blurred vision. Her blood pressure was 190/100 mmHg. Despite being on four antihypertensive medications, her hypertension remained uncontrolled. Biochemical evaluation revealed aldosterone levels of 66 ng/dL, renin levels of 85 uIU/mL, and an ARR of 0.77, suggesting hyperreninemic hyperaldosteronism. Renal artery Doppler was normal, but CT angiography revealed intra-renal branch renal artery stenosis. Blood pressure was controlled after starting spironolactone.

**Conclusion:** Accessory renal artery (ARA) is an uncommon cause of secondary hypertension and should be suspected in cases of hyperreninemic hyperaldosteronism. In cases of ARA-induced resistant hypertension, spironolactone may help in optimizing blood pressure.

## 25ABS065: Varying degrees of gestational glucose intolerance and their association with adverse pregnancy outcomes

**Dr. Tobey Ann Marcus**

Associate Professor, Christian Medical College Vellore

**Title: Varying Degrees of Gestational Glucose Intolerance and Their Association with Adverse Pregnancy Outcomes**

**Background:** Gestational diabetes mellitus (GDM) is defined as carbohydrate intolerance of variable severity diagnosed in pregnancy and is one of the most common medical complications (prevalence around 15%). Different criteria have been suggested for diagnosing GDM, but only the International Association of Diabetes in Pregnancy Study Groups (IADPSG) criterion is based on maternal and perinatal outcomes. This study explores whether adopting slightly relaxed cut-offs for diagnosis could be as effective in predicting adverse perinatal outcomes.

**Materials and Methods:** The birth records of 18,940 women who delivered at CHAD Hospital, CMC Vellore, between January 2017 and July 2024 and underwent a 75 gm

glucose tolerance test (GTT) were analyzed. The primary objective was to compare birth outcomes with varying levels of glucose intolerance. The IADPSG-defined values of 92/180/153 and other cut-offs (e.g., impaired fasting glucose and Type II diabetes) were used to assess and compare pregnancy outcomes. SPSS v 25.0 was used for analysis.

**Results:** The prevalence of GDM was 19.0% (n=3603) and was significantly higher in multiparous women. The IADPSG cut-offs were significantly associated with preterm birth, macrosomia, and primary LSCS. The highest odds of preterm birth were linked to post-load values ≥ 200 mg/dl (OR 1.794, 95% CI 1.125-2.860) and fasting values ≥ 100 mg/dl (OR 1.655, 95% CI 1.270-2.156). Macrosomia was strongly associated with impaired fasting values, particularly at ≥ 126 mg/dl (OR 3.400, 95% CI 1.849 – 6.253). Post-load values of ≥ 153 mg/dl (OR 1.36, 95% CI 1.174 – 1.591) were most significantly associated with primary LSCS. No significant association was found with low birth weight, perinatal asphyxia, or stillbirth.

**Conclusion:** The study suggests that the IADPSG criteria remain a good standard for diagnosing GDM and predicting maternal and perinatal outcomes in our setting. Varying fasting and post-load glycemic values have significant associations with adverse pregnancy outcomes, and these can be used to guide increased surveillance, appropriate management, and timely referral.

## 25ABS066: A comparative analysis of onset of skeletal muscle fatigue in patients with diabetes and without diabetes using Mosso's Ergograph

**Dr. Rubeena Basheer**

MD Physiology Trainee, Government Medical College, Kozhikode

**Title: A Comparative Analysis of Onset of Skeletal Muscle Fatigue in Patients with Diabetes and Without Diabetes Using Mosso's Ergograph**

Authors: Dr. Rubeena Basheer, Junior Resident, Department of Physiology, GMC Kozhikode
Co-authors: Dr. Razeena K.C, Associate Professor, Department of Physiology, GMC Kozhikode
Dr. Jithesh B, Assistant Professor, Department of Medicine, GMC Kozhikode

**Introduction:** Skeletal muscle fatigue is a reversible physiological state where there is a reduction or absence in performance due to continuous or prolonged physical activity. Even in a fatigued muscle, the electrical excitatory process remains unaffected, and action potential is produced and spreads over the muscle fiber. It is assumed that skeletal muscle fatigue is associated with metabolic hypoactivity, which depends on the availability of glucose. A normal non-contracting skeletal muscle is not very permeable to glucose, but during contraction, it becomes more permeable. Insulin promotes glucose transport into muscle cells by placing GLUT4 on the cell membrane. In diabetes, peripheral insulin resistance can decrease insulin-induced glucose uptake, leading to early fatigue.

**Methods:** Subjects aged over 18 years were assessed. The control group consisted of 50 healthy volunteers, and the test group included 50 patients with diabetes, aged and gender-matched with the controls. Muscle function was assessed using Mosso's Ergography, with finger flexors tested. The time of onset of fatigue was noted, and the work done was calculated. SPSS version 18 for Windows was used for data analysis.

**Results:** The duration of onset of fatigue was significantly higher in non-diabetics than diabetics ($P < 0.005$). The work done was also significantly higher in non-diabetics compared to diabetics ($P < 0.005$). The duration of exercise was shorter in diabetics than controls, and the ability to produce strength was lower in diabetics than in controls.

**Conclusion:** This study highlights the impact of diabetes on skeletal muscle fatigue, with a significantly earlier onset and lower performance in diabetics compared to healthy individuals. Peripheral insulin resistance in diabetes may play a key role in these findings. Further research is needed to explore the underlying mechanisms and potential interventions.

## 25ABS067: MEASUREMENT AND INTERPRETATION OF ANKLE BRACHIAL INDEX (ABI) IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

**Dr. Saranya P**

MD Physiology Trainee, Government Medical College, Kozhikode

**Title: MEASUREMENT AND INTERPRETATION OF ANKLE BRACHIAL INDEX (ABI) IN PATIENTS WITH TYPE 2 DIABETES MELLITUS**

Authors: Dr. Saranya P, Junior Resident, Department of Physiology, GMC Kozhikode
Co-authors: Dr. Harikrishnan R, Dr. Vineeth Gladson, Dr. Divya Unnikrishnan

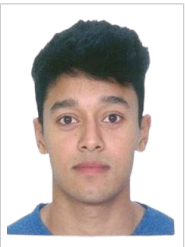
**Background:** Peripheral arterial disease is a major macrovascular complication in diabetics. Early detection can reduce the incidence of cardiovascular morbidity and mortality. Ankle Brachial Index (ABI) is a non-invasive tool for assessing the presence and severity of peripheral artery disease. It is the ratio of ankle systolic pressure to brachial systolic pressure. According to the American Diabetes Association (ADA) guidelines, a low ABI (<0.9) indicates the risk of developing peripheral artery disease (PAD).

**Methodology:** The study included 100 patients diagnosed with Type 2 diabetes and on treatment for at least 5 years, aged above 18, after obtaining informed consent. ABI was measured using a sphygmomanometer and a handheld Doppler. SPSS version 18 for Windows was used to analyze the data.

**Results:** 17% of the study population had a low ABI (<0.9), suggestive of peripheral arterial disease. Age and duration of diabetes showed a positive correlation with low ABI values.

**Conclusion:** ABI can be used as an inexpensive, early screening tool for detecting peripheral arterial disease. An ABI 1.3) is often due to atheromatous changes in chronic diabetes with complications, which lowers the sensitivity of the test. While ABI can be used in diabetes, the values need to be interpreted in conjunction with clinical presentation.

## 25ABS068: Optimizing Glycemic Control in Pregnant Women with Type 1 Diabetes Using the MiniMed 780G Insulin Pump: A Single-Center Study



**Dr. Krish Panikar**

DM Endocrinology Trainee, AMRITA INSTITUTE OF MEDICAL SCIENCES AND RESEARCH, Kochi

**Title: Optimizing Glycemic Control in Pregnant Women with Type 1 Diabetes Using the MiniMed 780G Insulin Pump: A Single-Center Study**

**Introduction:** The MiniMed 780G insulin pump, though not approved for use in pregnancy as the smart guard can only be set to a minimum of 100 mg/dl which is higher than the pregnancy glycemic range targets. In our study we observe three pregnant patients who were on MiniMed 780G to assess its effectiveness in maintaining glucose control and the challenges we faced during all three trimesters. This study aims to present a single-center experience highlighting the pump's impact on glucose management across all trimesters.

**Methods:** Three pregnant patients with type 1 diabetes who were already using the MiniMed 780G insulin pump were taken. Data on glucose control, insulin usage, and glucose variability were collected and analyzed for each trimester.

**Results: Patient 1:**
• First Trimester: Time in Range (TIR) was 88%, with average sensor glucose (SG) of 116 ± 36 mg/dL. Severe hyperemesis gravidarum caused significant glucose fluctuations, necessitating frequent correction boluses (7% of total daily dose).
• Second Trimester: TIR was 87%, average SG of 124 ± 38 mg/dL. Improved stability with minimal correction boluses (1% of total daily dose).
• Third Trimester: TIR improved to 93%, average SG of 120 ± 32 mg/dL. Increased insulin resistance required more correction boluses (9% of total daily dose).

**Patient 2:**
• First Trimester: TIR was 86%, average SG of 125 ± 39 mg/dL. Hypoglycemia occurred infrequently (1% below 70 mg/dL).
• Second Trimester: TIR remained at 86%, average SG of 124 ± 40 mg/dL. Slight increase in hypoglycemia (4% below 70 mg/dL).
• Third Trimester: TIR was 85%, average SG of 123 ± 40 mg/dL. Continued low hypoglycemic incidents, with total daily insulin dose gradually increasing.

**Patient 3:**
• First Trimester: TIR was 77%, average BG of 168 ± 58 mg/dL. Frequent hyperglycemia (2.7 episodes/day).
• Second Trimester: TIR decreased to 75%, average BG of 143 ± 49 mg/dL. Improved hyperglycaemic control (1.3 episodes/day).
• Third Trimester: TIR increased to 82%, average BG of 152 ± 49 mg/dL. Significant reduction in hyperglycaemic episodes (0.5 episodes/day). All three patients delivered healthy babies without any complications.

**Conclusions:** The MiniMed 780G insulin pump effectively maintained and even improved glucose control throughout pregnancy in these type 1 diabetic patients. Despite initial challenges, especially in the first trimester due to severe vomiting, patients demonstrated improved glycemic control by the third trimester. This single-center experience not only showcases the potential of the 780G insulin pump in managing diabetes in pregnant women but also highlights its role in ensuring healthy maternal and fetal outcomes. These findings suggest that the 780G insulin pump could be a valuable tool for managing diabetes in pregnancy, warranting further investigation and potential consideration for broader use in this population.

## 25ABS069: THE DIVERSE SPECTRUM OF MONOGENIC DIABETES: THINKING BEYOND MODY

**Dr. Sreekanth Chowdary**

DM Endocrinology Trainee, Amrita Institute of Medical Sciences and Research

**Title: The Diverse Spectrum of Monogenic Diabetes: Thinking Beyond MODY**

**Introduction:** This poster emphasizes that not all cases of young-onset diabetes are caused by Maturity-Onset Diabetes of the Young (MODY). Through the analysis of three cases, this study challenges the prevalent idea that MODY accounts for all early-onset diabetes cases and highlights the importance of exploring other potential causes.

**Materials and Methods:** We examined three cases of young-onset diabetes that presented with unusual features. These patients underwent comprehensive clinical assessments, genetic testing, and other diagnostic evaluations. We focused on diagnosing conditions such as **lipodystrophy** and **Werner's syndrome**, which led to unique presentations of diabetes.

**Results:** The study demonstrated that early-onset diabetes can arise from causes beyond MODY. Specifically, we identified **lipodystrophy** and **Werner's syndrome** as underlying factors in the cases we examined. Genetic testing revealed mutations that were unrelated to MODY, prompting a reconsideration of the initial diagnosis in each case.

**Conclusion:** This study underscores that early-onset diabetes does not always equate to MODY. It highlights the need to consider a broader range of causes, such as **lipodystrophy** and **Werner's syndrome**, when diagnosing young patients with diabetes. Our findings advocate for a more careful and individualized approach to diagnosis, ensuring that patients receive the most appropriate care tailored to their specific condition. This study contributes to a more comprehensive understanding of early-onset diabetes and calls for healthcare professionals to think beyond MODY when faced with such cases.

## 25ABS070: Heterogeneity of Type 2 Diabetes: A prospective cluster based subgroup identification and complication prediction in urban Bangalore.

**Mrs. Debalina Sen**

Tutor, Shri Atal Bihari Vajpayee Medical College & Research Institute

**Title: Heterogeneity of Type 2 Diabetes: A Prospective Cluster-Based Subgroup Identification and Complication Prediction in Urban Bangalore**

**Background:** Type 2 Diabetes Mellitus (T2DM) is increasingly recognized as a heterogeneous disease with diverse clinical manifestations and varying risks of complications. In urban Indian populations, T2DM poses significant healthcare challenges due to its rising prevalence. Recognizing and addressing the heterogeneity in T2DM is crucial to developing precision medicine strategies, particularly in resource-constrained settings like India. This study aimed to identify distinct phenotypic subgroups of T2DM patients in Bangalore using cluster analysis and to examine their association with diabetic complications.

**Methods:** This prospective cohort study analyzed 1,153 newly diagnosed T2DM patients from the Bangalore Diabetes Centre. K-means clustering was performed using six clinical variables—age at onset, BMI, HbA1c, HOMA-B, HOMA-IR, and ALT—to identify phenotypic subgroups. The Jaccard bootstrap method validated cluster stability. Statistical analyses were conducted using ANOVA, Chi-square tests, and post hoc analyses, and the prevalence of diabetic complications was assessed across the identified clusters.

**Results:** Four distinct clusters were identified based on clinical characteristics: - **Cluster 1** (25%) - Mild Obesity-Related Diabetes (MOD): High BMI (30.5 kg/m²), insulin resistance, and unhealthy dietary patterns. - **Cluster 2** (42%) - Mild Age-Related Diabetes (MARD): Older patients with better glycemic control and healthier lifestyle habits. - **Cluster 3** (16%) - Severe Insulin-Resistant Diabetes (SIRD): Significant insulin resistance, high ALT levels, and elevated risks of nephropathy and ischemic heart disease. - **Cluster 4** (17%) - Severe Insulin-Deficient Diabetes (SIDD): Early onset, poor glycemic control (HbA1c 12.1±1.84), and significant beta-cell dysfunction (HOMA-B 43.7±22.9). SIDD cluster showed the highest prevalence of diabetic retinopathy (9.4%, p<.001), while MARD had the lowest prevalence of complications and insulin use.

**Conclusion:** The study successfully identified four distinct subgroups of T2DM patients in Bangalore, each with unique biochemical characteristics and different risks for diabetic complications. This clustering approach demonstrates the heterogeneity of T2DM and the necessity for personalized management strategies. By addressing the specific characteristics of each subgroup, this study lays the groundwork for developing targeted interventions to reduce the burden of T2DM-related complications in urban populations, particularly in settings with limited healthcare resources.

## 25ABS071: UNMASKING THE SILENT INVADER

**Mr. Nandha Kumar**

MBBS Student, ACS Medical College and Hospital, Chennai

**Title: Unmasking the Silent Invader**

Authors: Mr. Nandha Kumar S (3rd year MBBS)

Moderator: Dr. Aishwariya, Senior Resident, Department of General Medicine, ACS Medical College and Hospital, Poonamallee

Headache - Most common symptom in medicine OPD with a major diagnostic journey. A 45 years old woman came with complaints of sub acute onset of headache for 3 months, insidious onset, dull aching, and mild to moderate intensity, diffuse type. Not associated with nausea, vomiting and visual disturbance. On examination- she was tall, facial features of frontal bossing, enlarged jaw, prognathism and enlarged hands and feet were present. She was suspected to have Acromegaly. CT Brain showed tumour in the pituitary gland, which was confirmed by MRI of pituitary and hormonal assays. Planned for surgical resection of tumour after discussing with neurosurgeon.

## 25ABS072: Resolution of acute visual loss in an individual with diabetes mellitus due to Posterior reversible encephalopathy syndrome (PRES)

**Dr. Lakshmi Ramesh**

Junior Resident, Believer's Church Medical College Hospital, Thiruvalla

**Title: Resolution of Acute Visual Loss in an Individual with Diabetes Mellitus due to Posterior Reversible Encephalopathy Syndrome (PRES)**

Authors: Dr. Lakshmi Ramesh, Junior Resident, Department of Endocrinology, Believers Church Medical College Hospital, Thiruvalla.
Co-authors: Dr. Anulekha Mary John, Professor, Department of Endocrinology, Believers Church Medical College Hospital, Thiruvalla.
Dr. Philip Finny, Head of Department, Endocrinology, Believers Church Medical College Hospital, Thiruvalla.

**Introduction**: In patients with diabetes mellitus (DM), acute visual loss is commonly associated with conditions like cataracts, glaucoma, macular edema, and advanced retinopathy. However, this case highlights an unusual cause of acute visual loss due to Posterior Reversible Encephalopathy Syndrome (PRES). PRES is a rare condition caused by the permeability of cerebral vessels, leading to the development of cerebral edema and neurological symptoms.

**Case Report**: A 47-year-old woman with a known history of DM and hypertension for 1.5 years presented to the emergency department with palpitations and presyncope. She had been previously evaluated at several hospitals and was on beta-blockers. A coronary angiogram showed normal results, and she was started on antiplatelets and statins. Despite this, she continued to experience severe headaches and uncontrolled blood pressure (BP), prompting further work-up. This confirmed a diagnosis of Right Adrenal

Pheochromocytoma through biochemical testing and imaging. During her hospital stay, the patient developed acute visual loss and left hemiparesis. Clinical examination revealed occipital blindness. An MRI of the brain confirmed PRES.

**Treatment and Outcome**: The patient's condition improved clinically after aggressive BP management with alpha-blockers. She underwent Right Adrenalectomy 8 weeks later, after which her vision and hemiparesis gradually improved. Subsequently, her diabetic and antihypertensive medications were discontinued.

**Conclusion**: This case demonstrates that PRES was the underlying cause of occipital blindness in this patient with diabetes. Timely diagnosis and appropriate treatment of the underlying cause led to significant improvement in vision and neurological function, highlighting the importance of early recognition of PRES. Additionally, the possibility of diabetes reversal due to secondary causes, such as pheochromocytoma, is underscored.

## 25ABS073: ANTHROPOMETRIC PARAMETERS AMONG TYPE 2 DIABETIC PATIENTS VERSUS NORMAL SUBJECTS – A CROSS-SECTIONAL COMPARATIVE STUDY.

**Dr. Kaveri S S**

Junior Resident, Department of Physiology, Government Medical College, Kozhikode

**Title: Anthropometric Parameters Among Type 2 Diabetic Patients Versus Normal Subjects – A Cross-Sectional Comparative Study**

Authors: Dr. Kaveri S.S, Junior Resident, Department of Physiology, Government Medical College, Kozhikode.
Co-authors: Dr. Jija Jose. M, Dr. Soopy Kayanaduth.

**Background**: The prevalence of Type 2 Diabetes Mellitus (T2DM) has increased drastically over the past few decades. Diabetic patients are at higher risk for several debilitating and life-threatening complications, making diabetes prevention a top priority. Obesity, particularly central obesity, is strongly associated with T2DM. This study aims to compare the association of T2DM with various anthropometric parameters like BMI, Waist Circumference, Waist-to-Stature Ratio (WSR), and Waist-to-Hip Ratio (WHR), and evaluate their role in early diagnosis and prevention of T2DM in clinical practice.

**Methodology**: This is a cross-sectional comparative study that includes 44 diagnosed cases of Type 2 DM (Group 1), with more than 2 years of disease duration, aged 20-60 years. Another group (Group 2) consists of 44 age and gender-matched healthy individuals with no chronic illnesses like DM or hypertension. After obtaining written informed consent, anthropometric measurements such as weight, height, waist circumference, and hip circumference were recorded. The following ratios were calculated: - BMI: Weight (kg)/Height ($m^2$) - Waist-to-Stature Ratio (WSR): Waist Circumference (cm)/Height (cm) - Waist-to-Hip Ratio (WHR): Waist Circumference (cm)/Hip Circumference (cm)

**Results**: A statistical analysis using Student's T-test revealed a significant association of Type 2 DM with BMI, Waist Circumference, and WSR (p-value 0.05).

**Conclusion**: The study highlights the association of various anthropometric parameters with Type 2 DM. Individuals with higher BMI, waist circumference, and WSR may be at higher risk for T2DM. These parameters can serve as useful clinical screening tools for early diagnosis and prevention of T2DM, either in hospital settings or community-based programs.

## 25ABS074: Relapsed Paget’s disease of the Bone: Clinical Presentation, Predictors, and Therapeutic Response

**Dr. Sherin Varghese**

DM Endocrinology Registrar, Christian Medical College Vellore

**Title: Relapsed Paget's Disease of the Bone: Clinical Presentation, Predictors, and Therapeutic Response**

**Background**: Paget's disease of the bone (PDB) is a skeletal disorder often managed with bisphosphonates, yet 3–15% of patients experience relapse. There is limited literature identifying predictors of relapse, underscoring the need for long-term follow-up to detect both clinical and biochemical recurrence.

**Objective**: This study aims to describe the clinical presentation, predictors, and treatment response of patients with relapsed Paget's disease of the bone (RPDB) from a single quaternary care center in Southern India.

**Methods**: This observational study analyzed data of patients diagnosed with RPDB between 2010 and 2016. Data were extracted from the hospital's computerized records after obtaining ethical approval.

- **RPDB Diagnosis**: Biochemical worsening with or without clinical/radiological deterioration following documented remission.
- **Comparative Analysis**: Predictors of relapse were evaluated by comparing RPDB patients with a previously published cohort (n=41) without relapse.

**Results**: Among 48 patients treated for PDB, 7 (14.5%) experienced relapses. RPDB patients were significantly older (mean age: 69.4 vs. 60.3 years; $P < 0.001$), more likely to have been treated with oral bisphosphonates (85.7% vs. 26.8%; $P = 0.002$), and had lower serum 25(OH) D levels (mean: 15.1 vs. 20.6 ng/mL; $P = 0.024$) compared to those without relapse (n=41). The mean duration from initial treatment to relapse was 55 months (SD: 27.3). All patients with RPDB achieved remission with intravenous bisphosphonates.

**Conclusion**: Relapsed Paget's disease of the bone can occur several months after initial treatment, emphasizing the importance of long-term follow-up. Older age, oral bisphosphonate therapy, and lower vitamin D levels are associated with a higher risk of relapse. Intravenous bisphosphonates effectively restore remission in these patients.

## 25ABS075: Clinico - Etiological Profile and Outcome of Children presenting with diabetes at a tertiary care hospital in Bangalore

**Dr. Gautham Ram Kumar**

MD Paediatrics Trainee, Bangalore Medical College and Research Institute

**Title: Clinico - Etiological Profile and Outcome of Children Presenting with Diabetes at a Tertiary Care Hospital in Bangalore**

Authors: Dr. Gautham Ram Kumar, Junior Resident, Department of Paediatrics, Bangalore Medical College and Research Institute; Dr. Sahana Devadas, Professor, Department of Paediatrics, Bangalore Medical College and Research Institute.

**Introduction:** Type 1 Diabetes mellitus is characterized by low or absent insulin levels due to autoimmune destruction of beta cells in the pancreas. It is most commonly seen in

young children and adolescence. This study aims to investigate the demographic and clinical profile, precipitating factors, severity of symptoms, and outcomes following treatment in children with Type 1 diabetes admitted to our hospital. The study includes all cases, ranging from newly diagnosed uncontrolled diabetes to severe Diabetic Ketoacidosis (DKA).

**Method:** A prospective observational study was conducted among children admitted to the Pediatric Intensive Care Unit (PICU) and wards of Vani Vilas Hospital, Bangalore, from December 2023 to December 2024.

**Results:** A total of 29 patients were enrolled in this study, with 82.7% presenting with diabetic ketoacidosis. The majority of patients (44.82%) were in the age group of 15-18 years. Non-compliance with insulin usage was identified as one of the major precipitating factors for admission. Other contributing factors, such as pneumonia and acute gastroenteritis, also triggered DKA. The mean HbA1c at admission was 11.4%, with a reduction in HbA1c levels seen in follow-up visits after proper counseling regarding dietary management and insulin usage.

**Conclusion:** This study highlights that, despite advancements in the treatment of diabetes, proper counseling and increased awareness, including the active involvement of parents in day-to-day management, are crucial for children with diabetes. Dietary guidance and regular insulin intake management play a vital role in helping children manage diabetes effectively throughout their lifetime while reducing the risk of long-term complications.

## 25ABS076: Diabetic Ketoacidosis as an uncommon initial presentation of Pheochromocytoma

**Dr. Anju K Francis**

Senior Clinical Pharmacist, Believers Church Medical College Hospital, Thiruvalla

**Title: Diabetic Ketoacidosis as an Uncommon Initial Presentation of Pheochromocytoma**

Authors: Dr. Anju K Francis, Senior Clinical Pharmacist, Department of Endocrinology, Believers Church Medical College Hospital, Kuttapuzha, Thiruvalla; Dr. Rinto Jose Pratheeksh, Senior Resident, Department of Endocrinology, Believers Church Medical College Hospital, Kuttapuzha, Thiruvalla; Mr. Bevan Abraham, PharmD Intern, Nazareth College of Pharmacy, Othera, Thiruvalla; Dr. Swathy Babu, Junior Resident, Department of Endocrinology, Believers Church Medical College Hospital, Kuttapuzha, Thiruvalla; Dr. Philip Finny, Associate Professor and Head of Department, Department of Endocrinology, Believers Church Medical College Hospital, Kuttapuzha, Thiruvalla.

**Introduction:** Pheochromocytoma is a rare catecholamine-secreting tumor of the adrenal medulla. It typically presents as a triad of headache, palpitations, profuse sweating, and elevated blood pressure. This case reports a patient with pheochromocytoma who initially presented with Diabetic Ketoacidosis (DKA).

**Case Report:** A 37-year-old man with a 4-year history of diabetes mellitus was admitted to the ICU with DKA. During his treatment, he developed upper abdominal pain, prompting further imaging studies. A CECT abdomen revealed a lobulated mass (6.2 x 5.6 cm) with necrotic areas in the left suprarenal region. Biochemical tests showed elevated 24-hour urine metanephrine (614 mcg), Normetanephrine (2539.43 mcg), and plasma metanephrine (517 ng/L), confirming the diagnosis of pheochromocytoma. Other adrenal tumor tests, such as cortisol, DHEAS, and aldosterone-renin ratios, were normal. The patient was started on alpha blockade with T. Prazosin (2.5 mg OD), gradually increased over 10 days, and was monitored for blood pressure and postural drops. Additional treatment with calcium channel blockers (Amlodipine 2.5 mg BD) and beta-blockers (Metoprolol 25 mg OD) was administered for blood pressure and heart rate optimization. The patient underwent left adrenalectomy, with histopathology confirming pheochromocytoma with a Zellballen pattern and a PASS score of 3. The postoperative period was uneventful. His diabetes and hypertension medications were tapered and stopped. The patient remained euglycemic and normotensive at discharge, with follow-up showing sustained improvement.

**Conclusion:** DKA as an initial presentation of pheochromocytoma is exceedingly rare. This case highlights the importance of recognizing secondary causes of diabetes, such as pheochromocytoma, which can lead to the remission of diabetes and hypertension following timely diagnosis and treatment.

## 25ABS077 : Revision of diagnosis in a child with Type 1 Diabetes Mellitus due to appropriate genetic testing -Wolfram's Syndrome

**Dr. Jenny Susan**

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**Title: Revision of Diagnosis in a Child with Type 1 Diabetes Mellitus Due to Appropriate Genetic Testing - Wolfram's Syndrome**

Authors: Dr. Jenny Susan Varghis, PharmD Intern, Believers Church Medical College Hospital, Kuttapuzha, Thiruvalla; Dr. Philip Finny, Associate Professor, Head of Dept, Endocrinology, Believers Church Medical College Hospital, Thiruvalla, Kerala; Dr. Anju K Francis, Senior Clinical Pharmacist, Department of Endocrinology, Believers Church Medical College Hospital, Kuttapuzha, Thiruvalla; Dr. Mariamma Joseph, Diabetic Nurse Specialist, Believers Church Medical College Hospital, Thiruvalla, Kerala.

**Introduction:** Wolfram syndrome (DIDMOAD) is a rare inherited disorder that begins in childhood with insulin-dependent diabetes mellitus and progressive optic atrophy. Over time, hearing loss, diabetes insipidus, neuronal loss, and cerebellar issues develop. In advanced stages, brainstem atrophy leads to severe neurological impairments and early adulthood death. It is caused by mutations in the WFS1 gene and follows an autosomal recessive inheritance pattern.

**Case Report:** An 8-year-old boy, diagnosed with Type 1 Diabetes Mellitus (T1DM) at age 4, presented with blurred vision for the past two months. He was being treated with twice-daily human premixed insulin, but his HbA1c was 13.2%. After adjusting his insulin regimen and correcting insulin administration errors, his HbA1c improved. Further investigations revealed negative GAD-65 antibodies (<5) and normal c-peptide levels. Ophthalmological examination revealed bilateral optic atrophy, but no retinopathy. The MRI of the brain was normal, and his audiogram showed no hearing loss. There were no neurological issues or signs of diabetes insipidus. Genetic testing using targeted next-generation sequencing (NGS) for the WFS1 gene and CISD-2 genes showed a compound heterozygous novel WFS1 mutation (p.Trp612Ter) and a pathogenic in-frame deletion (p.Val509_Tyr513del). This prompted genetic counseling and family screening. The patient is now on regular follow-up.

**Conclusion:** This case describes a child initially diagnosed with Type 1-B Diabetes Mellitus, later reclassified as Wolfram Syndrome through genetic testing. This underscores the importance of genetic screening for MODY and Wolfram's syndrome in the differential diagnosis of young-onset diabetes mellitus, with significant prognostic and therapeutic implications.

## 25ABS078: PNPLA6 Compound Heterozygosity: A Unique Sibling Case of Hypogonadotropic Hypogonadism, Hyposmia, and Cerebellar Atrophy and pituitary Hypoplasia

**Dr. Varun Kumar V**

DM Endocrinology Registrar, Christian Medical College Vellore

**Title: PNPLA6 Compound Heterozygosity: A Unique Sibling Case of Hypogonadotropic Hypogonadism, Hyposmia, Cerebellar Atrophy, and**

**Pituitary Hypoplasia**

**Introduction:** Gordon Holmes Syndrome (GHS) is a rare autosomal recessive disorder characterized by progressive cerebellar atrophy and hypogonadotropic hypogonadism. It typically presents between the first and fourth decades of life. Key features include delayed puberty and absence of secondary sexual characteristics. Mutations in genes such as RNF216, OTUD4, STUB1, and PNPLA6 are known to cause GHS.

**Case Report:** We report two sibling cases of GHS caused by novel compound heterozygous mutations in the PNPLA6 gene. The first case involves a 23-year-old male who presented with delayed puberty, absent secondary sexual characteristics, and cerebellar atrophy. His 24-year-old sibling had similar features, along with a history of congenital undescended testis. Both siblings showed significant hormonal deficits including low testosterone, follicle-stimulating hormone (FSH), and luteinizing hormone (LH). MRI revealed cerebellar atrophy and pituitary hypoplasia in both cases, consistent with GHS.

Whole exome sequencing identified rare compound heterozygous missense mutations in the PNPLA6 gene. Hormone replacement therapy was initiated, leading to improved endocrine function, though it did not reverse the neurological impairment.

**Conclusion:** This report expands the phenotypic and genetic spectrum of PNPLA6-related GHS. It emphasizes the importance of comprehensive clinical, radiological, and genetic evaluations in suspected GHS cases. Early diagnosis enables timely management, although neurological progression remains a challenge. The findings highlight the significance of family screening and the need for personalized, multidisciplinary management approaches in rare neuroendocrine disorders.

## 25ABS079: Circulating MicroRNA profile of prediabetic lean adolescent women from rural India

**Dr. Neelam Shirsat**

Scientist, BKL Walawalkar Hospital & Research Centre

**Title: Circulating MicroRNA Profile of Prediabetic Lean Adolescent Women from Rural India**

Authors: Dr. Neelam Shirsat, Charudatta Joglekar, Pallavi Bhat, Dnyaneshwar Jadhav, Suvarna Patil

**Introduction:** The DERVAN Cohort is a prospective longitudinal study of 1520 adolescent girls in rural Konkan, focusing on the relationship between physical growth, nutrition, and the risk of developing non-communicable diseases (NCDs) in adulthood. Evidence is emerging that epigenetic changes play a significant role in the pathogenesis of Type 2 diabetes (T2DM). These alterations are observed in the pancreas and insulin target organs, with microRNAs being key regulators in insulin secretion and signaling pathways. This study investigates the circulating microRNA profile of lean prediabetic adolescent girls from the rural Konkan region, a population exposed to undernutrition for many generations.

**Method:** The study defined impaired fasting glucose as fasting glucose ≥ 100 mg/dl and impaired glucose tolerance as glucose ≥ 140 mg/dl after a 75 g oral glucose load. Beta-cell function and insulin resistance were evaluated using the homeostasis model assessment. Underweight was defined using WHO growth charts. The study involved microRNA profiling of serum specimens from prediabetic girls with impaired glucose tolerance, using Next Gen sequencing and real-time RT-PCR analysis with nanofluidic arrays, compared with normal glucose level controls.

**Results:** 58% of the cohort girls were underweight (BMI ≤ 18.5 kg/m²), while only 4.4% were overweight. Despite this, 15% of the girls exhibited impaired glucose tolerance. Eighteen microRNAs were found to be significantly upregulated, and four downregulated in the sera of prediabetic girls. Notably, miR-122, miR-193b, miR-194, and miR-215 were elevated, and associated with incident or prevalent Type 2 diabetes. Conversely, miR-338-3p, known to be lower in insulin-resistant rodent models, was found to be lower in the sera of the glucose-intolerant girls.

**Conclusion:** Significant alterations in the circulating microRNA profile at early stages of lean prediabetes suggest their potential role in pathogenesis and utility as biomarkers for identifying high-risk cases. This study sheds light on the molecular underpinnings of lean diabetes, emphasizing the importance of microRNA profiling in early detection and intervention.

## 25ABS080: GLYCATED HEMOGLOBIN MAY BE SLIGHTLY UNDERESTIMATED IN TYPE 2 DIABETES MELLITUS WITH THE THROMBOCYTOPENIC HARRIS PLATELET SYNDROM

**Dr. Shruthi R**

Assistant Professor, Vydehi Institute of Medical Sciences and Research Centre

**Title: Glycated Hemoglobin May Be Slightly Underestimated in Type 2 Diabetes Mellitus with the Thrombocytopenic Harris Platelet Syndrome**

Authors: Dr. Shruthi R, Dr. Satish Kumar Samal, Dr. S L Sagar Reddy, Dr. Dhananjaya M S, Dr. Vijaya Sarathi

**Introduction:** Harris Platelet Syndrome (HPS) is characterized by thrombocytopenia (<$50x10^9$/L) with giant platelets, without bleeding symptoms or abnormal platelet aggregation. Some inherited giant platelet syndromes, including HPS, are linked with abnormal red cell parameters like increased red cell distribution width (RDW). Anemia and erythrocyte turnover can influence HbA1c levels, but the effect of HPS on HbA1c in Type 2 Diabetes Mellitus (T2DM) has not been studied. This study aims to evaluate the glycemic parameters in T2DM patients with HPS.

**Methodology:** Data was retrospectively collected from T2DM patients of East-Indian origin who had been on stable medication for at least 3 months. The data collected included complete blood count, fasting blood glucose (FPG), postprandial blood glucose (PPG), and HbA1c. Patients were categorized into five groups based on mean platelet volume (MPV) and platelet count:
- Group NN (platelet count >1.5 lakh/$mm^3$, MPV <10 fL)
- Group MN1 (platelet count >1.5 lakh/$mm^3$, MPV: 10-12 fL)
- Group MN2 (platelet count >1.5 lakh/$mm^3$, MPV >12 fL)
- Group MT1 (platelet count <1.5 lakh/$mm^3$, MPV 10-12 fL)
- Group MT2 (platelet count <1.5 lakh/$mm^3$, MPV >12 fL)

The glycemic parameters were compared among the groups.

**Results:** The study involved 2,437 patients with T2DM, 66.5% of whom were male, with a mean age of 49.5±10.3 years. The overall mean FPG, PPG, and HbA1c levels were 173.21±77.36 mg/dl, 260.75±113.0 mg/dl, and 8.23±2.2%, respectively. HbA1c was significantly lower in group MT1 (7.97±2.1) compared to groups NN (8.35±2.26), MN1 (8.39±2.27), and MN2 (8.36±2.16), and in group MT2 (7.89±2.11) compared to groups NN, MT1, and MN2 (all p-values <0.01). There were no significant differences in FPG and PPG levels among the groups. HbA1c had a positive correlation with hemoglobin (r= 0.132, p<0.001) and negative correlations with mean corpuscular volume (MCV) (r=-0.082, p<0.001), mean corpuscular hemoglobin (MCH) (r=-0.081, p<0.001), and RDW-CV (r=-0.123, p<0.001).

**Conclusion:** Among T2DM-HPS patients, those with thrombocytopenia had lower HbA1c but comparable FPG and PPG. This suggests that HbA1c may be mildly underestimated in T2DM patients with thrombocytopenic HPS, likely due to altered red cell dynamics. Further prospective studies are needed to validate these findings.

## 25ABS081: Advancing Diabetic Kidney Disease Diagnosis: Performance of the Proflo-U® Fluorescence-Based Point-of-Care System

**Mr. Shivam Mishra**

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**Title: Advancing Diabetic Kidney Disease Diagnosis: Performance of the Proflo-U® Fluorescence-Based Point-of-Care System**

Authors: Shivam Mishra, Sumona K Mishra, Aseem Mishra, Midde Hari Satyanarayana, Debapriya Bandyopadhyay, Manoja Das

**Background:** Diabetic Kidney Disease (DKD) is a major complication of diabetes, affecting about 30% of Type 1 and 10-40% of Type 2 diabetic patients, often leading to end-stage kidney disease (ESKD). Early diagnosis is crucial for improving the quality of life in diabetic patients. Urine albumin is a vital biomarker for detecting early DKD, but conventional methods like dipsticks and immunoturbidity assays have limitations. This study evaluates the Proflo-U®, a novel fluorescence-based point-of-care (PoC) system, for measuring urine albumin and its diagnostic performance in early DKD detection.

**Methods:** The Proflo-U® system integrates a mini-analyzer test cartridge and an Android app for data analysis. The study compared the Proflo-U® with reference methods. A 100µL urine sample was used in the Proflo-U® cartridge. Standard recombinant human serum albumin solutions were employed to establish the device's detection range, linearity, and limits of blank, detection, and quantification. Spiked urine samples were analyzed using both Proflo-U® and Beckman Coulter systems to assess correlation and recovery rates. The system was tested on 255 patient samples from a tertiary care hospital and 75 samples from a Primary Health Centre for field applicability.

**Results:** Proflo-U® exhibited a reliable quantification range from 20mg/L to 1200mg/L in standard albumin solutions, urine samples, and albumin-spiked samples. The system demonstrated high specificity for albumin, with minimal interference from 15 studied agents. A strong correlation was found between Proflo-U® and Beckman Coulter measurements ($R^2 > 0.99$), with ROC analysis showing an AUC of 0.998. Compared to the dipstick method, Proflo-U® showed superior outcomes. The Proflo-U® scored 100 out of 115 points in PoC suitability assessment, excelling in 20 parameters and showing moderate performance in 3 parameters.

**Conclusions:** Proflo-U® offers high diagnostic accuracy, sensitivity, and specificity, matching traditional methods. Its portability and ease of use make it ideal for early DKD detection, improving patient compliance, and facilitating large-scale screening, especially in resource-limited settings. Widespread adoption could significantly reduce the progression to ESKD.

## 25ABS082: In the ‘Eye’ of the storm – exploring a novel cognitive intervention to reduce fear of hypoglycemia in Fibrocalcific Pancreatic Diabetes: A randomized control trial in Indian patients

**Dr. Indira Priyadarshini**

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**Title: In the ‘Eye’ of the Storm – Exploring a Novel Cognitive Intervention to Reduce Fear of Hypoglycemia in Fibrocalcific Pancreatic Diabetes: A Randomized Control Trial in Indian Patients**

Authors: Indira Priyadarshini Dhanabalan, Abhishek Pandey, Balaji Tejerao Naik, Afaq Ahmed, Pavan Kumar KV, Bhagyashree R, Murali A, Riddhi Das Gupta, Shivaprasad C.

**Background:** Fear of hypoglycemia (FOH) is a debilitating complication among insulin-using diabetes patients, but its significance in Fibrocalcific Pancreatic Diabetes (FCPD) remains unexplored. Eye Movement Desensitization and Reprocessing (EMDR) is a novel psychological intervention that has the potential to improve glycemic control and quality of life by alleviating FOH in these patients.

**Methodology:** We conducted a prospective randomized controlled trial (RCT) with 56 FCPD patients experiencing FOH over 6 months. The intervention group (n=30) received EMDR in addition to standard care, while the control group received only standard care. FOH was assessed using the Hypoglycemia Fear Survey-Version II Worry scale at baseline, and 1, 3, and 6 months. The EMDR intervention included two 45-minute individual sessions based on standardized protocols, conducted by an independent psychiatrist blinded to group allocation. Diabetes self-care activities were measured using the DSMQ questionnaire, and glycemic variability (GV) was assessed using an Abbott Freestyle Libre device at baseline, 1 month, and 6 months. Data were analyzed at one, three, and six months.

**Results:** The intervention group showed a 14-point reduction in FOH after 1 month and a 16-point reduction at 3 months. These improvements were sustained at 6 months and were significantly better than the control group ($p<0.01$). Total DSMQ scores, along with domains of diet, physical activity, and glycemic control, showed significant improvement in the intervention group, sustained at the 6-month follow-up ($p<0.01$). Additionally, hypoglycemia episodes, glycemic control, and HbA1c levels were significantly better in the intervention group at 6 months (all $p<0.01$). Glycemic variability parameters (TIR, MAGE, CONGA, and SD) also improved significantly in the intervention group ($p<0.01$).

**Conclusion:** This is the first study to suggest that EMDR is a cost-effective, easy-to-implement outpatient technique for FCPD patients with FOH. It provides long-term benefits, including improved glycemic variability and enhanced quality of life in this challenging group of brittle diabetes patients.

## 25ABS083: Long-term metabolic benefits of intensive lifestyle therapy in young adults with de-novo-diagnosed type 2 diabetes mellitus

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**Title: Long-term Metabolic Benefits of Intensive Lifestyle Therapy in Young Adults with De-Novo-Diagnosed Type 2 Diabetes Mellitus**

**Introduction:** The data on long-term outcomes of intensive lifestyle therapy (ILT) for diabetes remission, particularly in Indian patients with Type 2 Diabetes Mellitus (T2DM), is limited. In a small cohort of 30 de-novo-diagnosed T2DM patients, we previously reported a 67% remission rate at two years with ILT. This study presents a 10-year follow-up of this cohort and compares the metabolic outcomes of the ILT group with a matched cohort managed by conventional treatment (CT).

**Methods:** The study was conducted at a tertiary health care center in South India. It included 30 young adults (18-30 years) with de-novo-diagnosed T2DM enrolled for ILT between November 2012 and October 2013, and 32 age-, sex-, and BMI-matched young adults diagnosed with T2DM between November 2010 and October 2012, whose 10-year follow-up data was available. The latter group was managed with CT. Baseline and 10-year follow-up data were compared between the two groups.

**Results:** The 10-year follow-up data were available for 30 participants in the ILT group. A significantly higher 5-year remission rate was observed in the ILT group (10/30 vs. 0/32), but the 10-year remission rate was similar in both groups (3/30 vs. 0/32, $p=0.1$). The ILT group had significantly lower levels of fasting plasma glucose (124.5±11.6 vs. 169.6±26.6 mg/dl), postprandial plasma glucose (148.9±23.4 vs. 249.3±42.3 mg/dl), HbA1c (7.2±0.4 vs. 8.8±0.9%), serum triglycerides (121.1±21.8 mg/dl vs. 243.65±58.6 mg/dl), alanine transaminase (25.9±4.9 vs. 43.2±11.6 U/L), aspartate transaminase (22.9±4.6 vs. 39.6±10.8 U/L), and uric acid (3.5±0.9 vs. 5.4±1.3 mg/dl). The ILT group had fewer patients with HbA1c 25 kg/m2) (4/30 vs. 22/32), hypertension (3/30 vs. 11/32), and fatty liver on ultrasound (4/30 vs. 18/32), all of which were significantly lower in the ILT group than in the CT group.

**Conclusions:** Intensive lifestyle therapy from the time of diagnosis provides decade-long remission of T2DM in 13.3% of young adults with de-novo-diagnosed T2DM, along with several other metabolic benefits. Thus, ILT should be offered to all young adults newly diagnosed with T2DM. Larger, prospective studies are warranted to confirm these findings.

## 25ABS084: "Management of Hypertensive Urgency in Pheochromocytoma: A Case Report Emphasizing Surgical Challenges"

**Dr. Bishal Kumar Dukhi**

Post Graduate Registrar, General Surgery, Christian Medical College Vellore

**Title: Management of Hypertensive Urgency in Pheochromocytoma: A Case Report Emphasizing Surgical Challenges**

**Introduction:** Pheochromocytoma, a rare adrenal tumour, often presents with hypertensive crises due to catecholamine surges. This report describes the case of a 60-year-old female with hypertensive urgency managed through careful preoperative stabilization, intraoperative strategies, and postoperative monitoring.

**Case Presentation:** An elderly lady presented with abdominal pain, vomiting, diaphoresis, and sustained hypertension (≥200/≥120 mmHg) unresponsive to standard therapy. Initial laboratory evaluation revealed markedly elevated plasma-free metanephrines. Imaging studies (CT Abdomen and pelvis) confirmed the presence of a unilateral large heterogeneously enhancing ovoid right adrenal mass measuring 11.4 x 9.2 x 9.9 cm, cranially indenting the undersurface of the liver and abutting the inferior vena cava (IVC), consistent with pheochromocytoma.

**Preoperative Challenges:**

- **Blood Pressure Control:** Phenoxybenzamine (non-selective alpha blocker) was started at a low dose. Dose titration over 10 days achieved satisfactory blood pressure control. Metoprolol (beta-blocker) was cautiously added after alpha blockade to manage persistent tachycardia.
- **Hyponatremia and Hypokalemia:** Preoperatively, there was persistent hyponatremia and hypokalemia due to catecholamine surges, which were corrected.

**Intraoperative Course:**

- **Surgical Procedure:** The patient underwent open right adrenalectomy under general anaesthesia.
- **Intraoperative Hemodynamic Management:** Despite tumour handling, there was no catecholamine surge, likely due to prior tumor blockade.
- **Technical Challenges:** The tumour's proximity to the liver and inferior vena cava required careful dissection to avoid injury to these structures.
- **Outcome:** The adrenal mass was successfully excised without complications or spillage.

**Follow-Up:**

- The patient’s blood pressure normalized without the need for antihypertensive medications.
- Postoperative follow-up includes monitoring plasma metanephrine levels after 3 months.

**Discussion:** This case highlights the complexity of managing pheochromocytoma, especially in patients presenting with hypertensive urgency. Preoperative challenges such as blood pressure control, volume repletion, and patient-specific factors require a tailored approach. Intraoperative hemodynamic management and meticulous surgical technique are critical in preventing complications. Postoperative care should focus on monitoring for hypotension and ensuring complete biochemical remission.

**Conclusion:** The management of hypertensive urgency in pheochromocytoma demands a multidisciplinary approach, incorporating endocrinologic, anaesthetic, and surgical expertise. This case demonstrates the importance of preoperative optimization, precise intraoperative strategies, and comprehensive postoperative monitoring in achieving successful outcomes.

## 25ABS085: Clinical and Genetic Insights into Dorsal Agenesis of the Pancreas: A Retrospective Analysis

**Dr. Ayushi Pattani**

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**Title: Clinical and Genetic Insights into Dorsal Agenesis of the Pancreas: A Retrospective Analysis**

**Background:** Dorsal agenesis of the pancreas (DAP) is a rare congenital anomaly caused by disruptions in pancreatic development, often leading to diabetes mellitus (DM) and exocrine insufficiency. Genetic mutations, especially monogenic variants such as HNF1B, HNF1A, and GATA6, are central to its pathogenesis. A comprehensive understanding of the clinical, morphological, and genetic features of DAP is essential for accurate diagnosis and effective management.

**Methods:** This retrospective study analyzed 30 patients diagnosed with DAP based on imaging findings. Patients were categorized as having complete agenesis (23 out of 30) or partial agenesis (6 out of 30). Clinical data, including pancreatic morphology, stool elastase levels, fasting and postprandial C-peptide levels, and genetic findings, were assessed. Exocrine insufficiency was identified by stool elastase levels below 200 µg/g. Genetic testing focused on identifying mutations in key pancreatic developmental genes.

**Results:** The mean age at presentation was 26.5 ± 7.2 years, while the mean age of onset was 20.0 ± 6.5 years. The average height, weight, and BMI of patients were 162.2 ± 9.8 cm, 49.3 ± 9.8 kg, and 18.7 ± 3.0 kg/m², respectively. Fasting and postprandial C-peptide levels were 1.24 ± 0.89 ng/mL and 3.28 ± 3.17 ng/mL, reflecting variability in β-cell function. Exocrine insufficiency was present in 50 percent (15 out of 30) of patients. Morphological abnormalities were observed in all cases, with no fatty replacement or intraductal calcifications. Genetic mutations were identified in developmental genes, including HNF1B, SPINK1, PDX1, GLIS3, PTF1A, EIF2AK3, HNF1A, and GATA6. Variants of uncertain significance (VUS) were seen in 16.7 percent (5 out of 30), disease-associated variants in 10 percent (3 out of 30), pathogenic mutations in 16.7 percent (5 out of 30), and likely pathogenic mutations in 3.3 percent (1 out of 30).

**Conclusion:** DAP has distinct clinical and genetic profiles. Monogenic mutations, particularly in HNF1B, HNF1A, and GATA6, play critical roles in its development. Detailed imaging and genetic evaluations are essential for precise diagnosis and personalized treatment, ultimately improving outcomes for affected patients.

## 25ABS086: Redefining Diabetes Control: Emerging Biomarkers beyond HbA1c

**Dr. Vinut Digraj**

MD General Medicine Trainee, Vinayak Missions Kirupananda Variyar Medical College, Salem

**Title: Redefining Diabetes Control: Emerging Biomarkers beyond HbA1c**

Authors: Vinut Digraj, Vinayak Missions Kirupananda Variyar Medical College, Salem

**Background:** HbA1c, while widely used, fails to capture daily glycemic fluctuations critical to diabetes management. Emerging biomarkers such as time-in-range (TIR), glycemic

variability (GV), and continuous glucose monitoring (CGM) metrics offer dynamic and individualized insights into glycemic control.

**Methods:** This case series analyzed CGM data from 20 patients with diabetes over six months. Key metrics included TIR, GV, mean glucose levels, and hypoglycemia frequency. Therapy modifications guided by these metrics were documented, and patient feedback was evaluated.

**Results:** TIR ranged from 55% to 85%, with higher TIR linked to improved glycemic outcomes and reduced complications. Lower GV correlated with greater glucose stability and fewer hypoglycemic events. CGM-driven therapy adjustments, such as optimized insulin dosing, improved glycemic control in 80% of cases and reduced hypoglycemia by 35%. Patients reported increased satisfaction and confidence in managing their condition. These biomarkers provided actionable insights, enabling precise and effective interventions.

**Conclusion:** TIR, GV, and CGM metrics address the limitations of HbA1c, offering real-time, personalized insights that improve glycemic outcomes and reduce complications. Integrating these tools into routine care elevates diabetes management, marking a shift toward precision medicine and patient-centered care.

## 25ABS087: Effect of Hemoglobinopathies on HbA1c evaluation

**Ms. Priya G**

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**Title: Effect of Hemoglobinopathies on HbA1c evaluation**

Authors: Priya Gurajala, Dr Umalakshmi Annavarapu, Dr Dhananjaya M S, Santoshkumar S Asangi, Dr Vijaya Sarathi

**Introduction:** Glycated haemoglobin, a product of the nonenzymatic binding of glucose (glycation) to haemoglobin, is a common measure of glycemic status over the last 12 weeks with a greater impact from the past 4 weeks. Several factors affect the accuracy of Glycated haemoglobin (HbA1c). HbA1c is rarely reported as 'not processed' (HbA1c-NP) or observed to be unusually higher or lower than expected based on blood glucose levels (Discordant HBA1c). Hb electrophoresis is commonly ordered in such scenarios to look for underlying hemoglobinopathies. Here, we describe our experience with the contribution of hemoglobinopathies to erratic HbA1c.

**Methodology:** The retrospective study (December 2022-September 2023) included individuals with HbA1c-NP and discordant HbA1c, that were not attributable to other recognizable causes and were investigated with Hb electrophoresis. Personal and family history of anaemia, blood transfusions, and physical examination findings (pallor, icterus, and splenomegaly), laboratory investigations [complete blood count, HbA1c, glucose readings available over the last 12 weeks, fructosamine, and continuous glucose monitoring (estimated A1c), repeat HbA1c (within a week) and Hb electrophoresis] were noted. HbA1c was estimated by high-performance liquid chromatography (HPLC), Biorad variant II whereas Hb electrophoresis was performed by HPLC using Biorad D10.

**Results:** During the study period, 2684 HbA1c tests for 1948 individuals were ordered; of the latter, 44 individuals (43 of east-Indian origin) had undergone Hb electrophoresis to evaluate HbA1c-NP (n=25) or discordant HBA1c (n=19). HbE homozygous state, HbEβ thalassemia, β-thalassemia major, sickle cell disease (HbSS), and HbE trait accounted for 13, 8, two, one, and one HbA1c-NP, respectively. Thirteen individuals with discordant HbA1c (reported HbA1c: 3.3-3.9%) but normal Hb electrophoresis had normal levels on repeat HbA1c (4.1-5.3%). Two patients with provisional diagnosis of HbH (2.9-3.3%) and one patient with HbE homozygous had unusually low HbA1c whereas three patients with HbEβ thalassemia had unusually higher HbA1c (6.6-8.2%).

**Conclusion:** In east-Indian individuals with HbA1c-NP, HbE homozygous state and HbEβ thalassemia are the most common causes of HbA1c-NP whereas HbA1c may be overestimated in patients with HbEβ thalassemia receiving recent transfusion. Further studies are warranted to explore the underlying mechanisms for the latter.

## 25ABS088: Thyroid function in Neonates: Comparing Term and Preterm TSH levels in a Tertiary Care Teaching Hospital

**Dr. Sonalika Ningthoujam**

PG Registrar, Kodagu Institute of Medical Sciences

**Title: Thyroid function in Neonates: Comparing Term and Preterm TSH levels in a Tertiary Care Teaching Hospital**

Authors: Dr. Sonalika Ningthoujam, 2nd Year Post Graduate, Department of Biochemistry, Kodagu Institute of Medical Sciences, Madikeri, Karnataka.

**Background:**

Thyroid function is crucial in neonatal growth and development, mainly in brain maturation. Thyroid-stimulating hormone (TSH) levels are a key marker of thyroid activity. While normal TSH level ranges are well established for term neonates, preterm neonates often exhibit variations due to immature hypothalamic-pituitary-thyroid (HPT) axis function. This study aims to compare serum TSH levels between term and preterm neonates to understand these differences and their clinical implications better.

**Methodology:**

A retrospective study was conducted in a tertiary care hospital over six months. Serum TSH levels were measured in cord blood samples of 60 neonates, divided into two groups: 30 term neonates (>37 weeks of gestation) and 30 preterm neonates (<37 weeks of gestation). TSH levels were analyzed using a chemiluminescent immunoassay. The data was summarized as mean and standard deviation (SD). The student's t-test was used to compare the mean TSH levels between the two groups, and a p-value <0.05 was considered statistically significant.

**Results:**

The mean TSH level in term neonates was significantly higher compared to preterm neonates, $p < 0.001$. A positive correlation was observed between the gestational age and TSH levels. Preterm neonates also exhibited a wider range of TSH values, indicating variability in thyroid axis maturation.

**Conclusion:**

Serum TSH levels are significantly lower in preterm neonates compared to term neonates, reflecting the immaturity of the HPT axis in preterm infants. These findings highlight the need for gestational age-specific reference ranges for TSH to improve the accuracy of thyroid function assessment in neonates. Early recognition and intervention in preterm neonates with thyroid dysfunction may reduce the risk of long-term developmental deficits.

## 25ABS089: The Empty Nest: A Case of Panhypopituitarism

**Dr. Abhinav Mahesh**

Interns, Chettinad Hospital and Research Institute

**Title: The Empty Nest: A Case of Panhypopituitarism**

Authors: Dr. Abhinav Mahesh, Prof. Dr. Mohan Rao, Interns, Chettinad Hospital and Research Institute

**Introduction:**
Panhypopituitarism is characterised by the deficiency of all hormones secreted by the pituitary gland. The inadequacy can impact functioning of vital organs, thus increasing the risk of mortality due to cardiovascular, cerebrovascular and respiratory diseases. The subtle symptoms and absence of adequate clinical features pose a diagnostic challenge.

**Case report:**
Here we discuss a 57-year-old male who presented with recurrent abdominal pain and vomiting for 4 months. Episodes of vomiting were followed by lethargy, fatigue, and confusion. The patient had been treated elsewhere with IV fluids and oral Tolvaptan 3 months back for similar complaints. On admission, serum sodium was 127 mEq/L, and urine sodium was elevated at 168 mEq/L. A differential diagnosis of peptic ulcer disease/chronic gastritis with hyponatremia was considered.
Cosyntropin test was performed, revealing reduced cortisol secretion. MRI brain showed empty sella syndrome. Other blood investigations revealed reduced free T3, T4, prolactin, testosterone, and IGF-1.

**Management:**
After the diagnosis of panhypopituitarism secondary to empty sella syndrome, the patient was started on T. Prednisolone 5mg OD. Symptoms improved with sodium levels returning to 137 mEq/L nearly one month after the initial testing.

**Conclusion:**
This case is presented to highlight that keen clinical suspicion is imperative in persistent hyponatremia, which could be indicative of a much larger underlying disease. Paradoxical findings in this patient were an absence of hypotension despite hyponatremia and reduced cortisol production after ACTH administration. Early detection of hypopituitarism is crucial, as subtle symptoms may mask life-threatening diseases affecting multiple target organs.

## 25ABS090: Beneath the Stones: Parathyroid Adenoma as a Cause of Recurrent Nephrolithiasis

**Dr. Vinut Digraj**

MD General Medicine Trainee, Vinayak Missions Kirupananda Variyar Medical College Salem

**Title: Beneath the Stones: Parathyroid Adenoma as a Cause of Recurrent Nephrolithiasis**

**Background:**
Nephrolithiasis is a prevalent urological condition with significant morbidity, often linked to glucocorticoid use, loop diuretics, and conditions like primary hyperparathyroidism. In primary hyperparathyroidism, nephrolithiasis occurs in 20% of patients, and 5% of renal stone cases are associated with hyperparathyroidism. This report highlights nephrolithiasis secondary to parathyroid adenoma.

**Method:**
A 48-year-old female with a history of recurrent renal calculi and pyelonephritis presented with high-grade fever, chills, and fatigue for 15 days. Investigations revealed hypercalcemia (11.9 mg/dL), elevated serum creatinine (1.45 mg/dL), pyuria, elevated procalcitonin (29.98 ng/mL), and elevated iPTH (215 pg/mL), with low Vitamin D (13 ng/mL). Imaging showed bilateral renal calculi, nephrocalcinosis, right moderate hydroureteronephrosis, and a hypoechoic lesion in the right thyroid lobe. A Tc-99m Sestamibi scan confirmed a parathyroid adenoma in the right inferior parathyroid gland. The patient underwent parathyroidectomy, with pre-operative iPTH of 169 pg/mL and serum calcium of 11.8 mg/dL. Post-surgery, iPTH dropped to 15 pg/mL, and calcium normalized to 9.6 mg/dL by day 2. Histopathology confirmed a benign parathyroid adenoma.

**Results:**
The patient recovered fully post-surgery without complications.

**Conclusion:**
Primary hyperparathyroidism is a key cause of recurrent nephrolithiasis. Early diagnosis and parathyroidectomy reduce recurrence rates and should be considered in cases of recurrent kidney stones, particularly when other causes are ruled out.

## 25ABS091: A RARE PRESENTATION OF MEN 1 SYNDROME

**Dr. Bhavana Maddisetty**

DM Endocrinology Trainee, Sri Venkateshwara Institute of Medical Sciences, Tirupati

**Title: A Rare Presentation of MEN 1 Syndrome**

**Introduction:**
The incidence of adrenocortical tumors in patients with MEN1 is reported to be 20% to 55%. Most affected patients are asymptomatic. The majority of tumors include cortical adenomas, hyperplasia, multiple adenomas, nodular hyperplasia, cysts, or carcinomas; here we present a case of symptomatic adrenal tumor in MEN1.

**Case report:**
A 38-year-old lady presented with male pattern terminal hair growth over chin and upper lip for 3 months and cystic acne over the body. She also had voice change for 2 months, hair loss for 2 months, weight gain over the past 1 month, and facial puffiness for 1 month. She had regular menstrual cycles and was married for 10 years with 2 children, the last childbirth being 4 years ago. She was diagnosed with hypertension 3 months ago and started on Tab Amlodipine 5 mg once a day. A history of recurrent renal calculus was present, and the patient underwent ESWL in 2021 and 2023. No family history of similar complaints. On examination, terminal hair was noted on the upper lip, clitoral index was 18 mm*12 mm (216 $mm^2$), facial plethora, acne on the upper back, and healed acne over the face. There were no striae or bruises. On evaluation, newly diagnosed diabetes was present with FBS 145 mg/dL, HbA1c 7.4%, testosterone 2.8 ng/ml (9.1 nmol/L), ONDST 26.61 mcg/dl, LDDST was non-suppressed (30 mcg/dl), DHEAS 690 mcg/dl. 24-hour urine metanephrines and normetanephrines were normal. In view of high testosterone and cortisol, an adrenal source was suspected. Contrast CT abdomen showed a mass of 4.6 x 3.2 x 4.5 cm in the right adrenal gland. Serum calcium levels were elevated (11.2 mg/dl) with low phosphorus (1.7 mg/dl) and elevated intact PTH (69.9 pg/ml). 25(OH) Vit D was 24 ng/ml. Technetium MIBI parathyroid scintigraphy scan suggested MIBI-avid left inferior parathyroid adenoma. The patient underwent right adrenalectomy in March 2024, and histopathology was suggestive of oncocytic adrenal carcinoma. Genomic sequencing of the MEN1 gene revealed c.784-9G>A mutation (likely pathogenic variant). Further plans include evaluating pituitary tumors and pancreatic lesions, with a plan for subtotal parathyroidectomy.

**Conclusion:**
Rapid onset hirsutism requires careful evaluation, and this case emphasizes the importance of considering MEN1 syndrome in such presentations.

## 25ABS092: "Hypothyroidism and diabetes: An exploration of the relationship between thyroid function and glycemic control in a tertiary care hospital."

**Dr. Suganya R**

MD Biochemistry Trainee, Kodagu Institute of Medical Sciences

**Title: Hypothyroidism and Diabetes: An Exploration of the Relationship Between Thyroid Function and Glycemic Control in a Tertiary Care Hospital**

**BACKGROUND:**

Type 2 diabetes mellitus (T2DM) and hypothyroidism are common metabolic disorders that affect people worldwide. The underlying causes of T2DM and thyroid dysfunction often overlap significantly. Hypothyroidism is increasingly recognized as a crucial factor that can influence the progression of diabetes. Additionally, patients with diabetes are at a higher risk of developing thyroid diseases. According to data from the International Diabetes Federation (IDF) in 2021, there were 537 million people with diabetes globally. This number is projected to rise to 643 million by 2030 and reach 783 million by 2045.

**METHODS:**

A total of fifty reports, including data from both female and male patients, were reviewed retrospectively over a five-month period at a tertiary care hospital in Madikeri. The analysis focused on thyroid function tests, glycated hemoglobin (HbA1c), fasting blood sugar (FBS), and postprandial blood sugar (PPBS) results for these patients.

**RESULTS:**

Out of the 50 reports, 35 were from female patients and 15 from male patients. Our findings indicate that the prevalence of hypothyroidism among patients with diabetes mellitus is higher in females than in males. There is a significant association between thyroid dysfunction and poor glycemic control. Patients with hypothyroidism had higher HbA1c levels than those with normal thyroid function. Furthermore, hypothyroid patients exhibited more unstable blood glucose levels and greater variability in fasting blood glucose measurements.

**CONCLUSION:**

These results highlight the importance of routine thyroid screening for patients with diabetes. Early detection and management of thyroid disorders can enhance overall glycemic control and reduce the risk of long-term complications. Thyroid dysfunction significantly affects the management and progression of diabetes mellitus (DM). Hypothyroidism is common among individuals with diabetes and is associated with impaired glycemic control, increased insulin resistance, and a higher risk of diabetes-related complications, such as diabetic neuropathy and elevated cardiovascular risks.

## 25ABS093: A novel ‘PRAIAS’ to reduce recurrent diabetic foot ulcers utilizing ‘intelligent’, feedback-enhanced dynamic pressure-sensing insoles- a randomized control trial from South India.

**Dr. Afaq Ahmed**

PG Registrar, Sapthagiri Hospital

**Title: A Novel ‘PRAIAS’ to Reduce Recurrent Diabetic Foot Ulcers Utilizing ‘Intelligent’, Feedback-Enhanced Dynamic Pressure-Sensing Insoles -**

**A Randomized Control Trial from South India**

**Introduction:**

Recurrent diabetic foot ulcers (DFU) often lead to limb-threatening complications. Our objective was to develop an indigenous, innovative insole system with a concomitant 'intelligent' feedback mechanism that empowers patients in self-offloading of aberrant plantar pressures, reducing DFU recurrence.

**Methodology:**

A prospective, randomized study included Type 2 Diabetes Mellitus (T2DM) patients with peripheral neuropathy and a recent history of plantar foot ulceration. Patients were randomized into either intervention or control groups. All patients received an insole system that measured plantar pressure (PP) continuously during daily activities. The intervention group received a smartwatch linked to the insole system that provided audio-visual alerts when PP exceeded a threshold, along with feedback on offloading instructions to alleviate aberrant pressures. The control group did not receive alerts. The primary outcome was plantar foot ulcer recurrence within 18 months. The insole system detected PP exceeding capillary perfusion pressure (>35mmHg) in real time, and integrated that pressure data over time. Pressure readings were categorized into high, medium, or low, based on the percentage of readings exceeding 35mmHg in the last 15 minutes. These readings were transmitted wirelessly to the smartwatch, where data were stored.

**Results:**

A total of 128 patients met the inclusion criteria: 67 in the intervention group and 61 in the control group. DFU recurrence occurred more frequently in the control group (n=13, 21%) compared to the intervention group (n=8, 12%; p=0.01). A total of 21 ulcers occurred from 13,786 person-days in the control group, and 8 ulcers from 14,595 person-days in the intervention group (p=0.01). This represents a 74% reduction in ulcer incidence in the intervention group, compared to the control group (Poisson regression, incidence rate ratio 0.32, 95% CI, 0.14–0.49; p=0.01). The intervention group wore the device for a median of 789 hours (IQR: 390–1675.8 hours), compared with 885 hours (IQR: 219.4–15321.4 hours) in the control group (p=0.65). In an exploratory analysis of good compliers (n=102), ulcer incidence was reduced by 89% in the intervention group versus the control group (RR 0.17, 95% CI 0.05–0.27; p=0.01).

**Conclusion:**

This is the first study to develop an indigenous, feedback-enhanced insole system, which, by continuous plantar pressure monitoring and dynamic offloading guidance, can significantly reduce DFU recurrence.

## 25ABS094: Neuroleptic Malignant Syndrome with Recurrent Hypoglycemia: A Rare Pair

**Dr. Abhinav Mahesh**

Chettinad Hospital and Research Institute

**Title: Neuroleptic Malignant Syndrome with Recurrent Hypoglycemia: A Rare Pair**

**Introduction:**

Hypoglycemia with Neuroleptic Malignant Syndrome (NMS) is a rare but critical neuroendocrine emergency. This case is reported for the unusual association between the two, presenting a challenging treatment scenario.

**Case Report:**

A 45-year-old male with a history of schizophrenia and depression, on treatment with antidepressants and antipsychotics, presented with vomiting, difficulty swallowing, fatigue, and an inability to walk for 2 days. He had a reduced GCS of 13/15 (E4V3M6) but was conscious and could follow simple commands. On examination, the patient had tachypnea, pallor, and a staring gaze. Neurological deficits included dysarthria, difficulty in clenching teeth (CN V), inability to wrinkle the forehead, difficulty smiling, inability to blow out cheeks (CN VII), inability to shrug shoulders (CN XI), and inability to protrude the tongue (CN XII). Motor examination revealed lead-pipe rigidity and reduced power in all limbs. A provisional diagnosis of Neuroleptic Malignant Syndrome was considered. Blood investigations showed leucocytosis, elevated C-reactive protein, creatinine kinase levels, reduced serum iron, and elevated procalcitonin. HRCT chest confirmed aspiration pneumonitis. Additionally, a 2012 PETCT DOTANOC scan revealed nesidioblastoma.

**Management:**
The patient was started on antibiotics for aspiration pneumonia. Bromocriptine was introduced but discontinued after the patient had an episode of hypoglycemia. Persistent hypoglycemia was managed with dextrose-containing IV fluids. Over time, his tongue dystonia improved, and he regained the ability to protrude his tongue. The rigidity diminished, and the patient's general condition improved.

**Conclusion:**
Antipsychotic drugs can induce hypoglycemia, and Neuroleptic Malignant Syndrome is a life-threatening reaction that requires immediate management. In a previously diabetic patient, prompt recognition of NMS and hypoglycemia is crucial to prevent significant morbidity, especially due to renal and cardiopulmonary complications.

## 25ABS095: NOVEL TREATMENT FOR RELAPSED/PERSISTENT GRAVES' DISEASE – IS RFA THE ANSWER?

**Dr. AFAQ AHMED**

PG Registrar, SAPTHAGIRI HOSPITAL

**Title: Novel Treatment for Relapsed/Persistent Graves' Disease – Is RFA the Answer?**

**Objectives:**
Treatment with antithyroid drugs (ATD) for Graves' disease (GD) is associated with disease persistence/relapse in over 50% of cases. Definitive options such as Radioactive Iodine (RAI) ablation and surgery come with their own disadvantages. Radiofrequency ablation (RFA), a minimally invasive therapy recently popularized for benign thyroid nodules, has been largely unexplored in GD. Our objective was to evaluate single-session RFA as a treatment alternative for persistent or relapsed GD.

**Methods:**
This prospective study involved 47 consecutive patients aged 18 years and above attending our OPD with persistent or relapsed GD after receiving ATD for at least 18 months. Exclusion criteria included compressive features, suspected thyroid malignancy, moderate-severe Graves' ophthalmopathy, lactating or pregnant women. Eligible patients received ultrasound-guided RFA to the entire bulk of the thyroid. The primary outcome was disease remission rate at 12 months post RFA, defined as being biochemically euthyroid or hypothyroid without ATD. Secondary outcomes were complication rates.

**Results:**
A total of 18 patients with persistent/relapsed GD met the inclusion criteria and consented to receive RFA. The majority were females (79%) with a mean age of 37.6 (± 6.5) years and a median thyroid volume of 22.8 mL (16.4–35.1). After a single-session RFA, disease remission was achieved in 77.8% at 6 months and 72.2% at 12 months. Among the 5 patients with relapse at 12 months, 3 (60%) received second ATD but at significantly lower doses ($p = 0.01$); 2 opted for surgery without complications. Analysis revealed total thyroid volume as the only significant factor associated with relapse after RFA (OR 1.28, CI: 1.266–1.352, $p = 0.001$). In those with RFA volume less than 20 mL, 100% achieved remission at 1 year, compared to only 37.5% in patients with a total thyroid volume ≥20 mL ($p = 0.01$). There were no complications such as vocal cord palsy, skin burns, hematomas, or thyroid storm after RFA.

**Conclusions:**
This is the first Indian study to explore single-session RFA as a promising therapy for relapsed/persistent GD, especially for those with smaller goiters (volume <20 mL).

## 25ABS096: Risk of Non-Alcoholic Fatty Liver Disease and Hepatic Fibrosis in Type 2 Diabetes Mellitus Patients: Evidence from a Clinic based Study at Durgapur, West Bengal

## 25ABS097: NUTRITION IN TYPE 1 DIABETES MELLITUS-CASE REPORT

**Mrs. E. Deena**

Associate Professor, College of Nursing, Christian Medical College, Vellore

**Title: Nutrition in Type 1 Diabetes Mellitus - Case Report**

Authors: Mrs. E. Deena, Associate Professor, College of Nursing, Christian Medical College, Vellore

**Introduction:**

Type 1 Diabetes Mellitus (T1DM) is a chronic autoimmune condition where the body's immune system attacks the insulin-producing β cells in the pancreas. Nutrition plays a crucial role in managing T1DM, and recent evidence suggests that personalized dietary approaches can significantly improve glycemic control and overall health outcomes.

**Case Report:**

A 12-year-old boy with T1DM was struggling to maintain stable blood glucose levels despite adherence to a standard diabetic diet and insulin therapy. His HbA1c levels were consistently above the target range, and he experienced frequent episodes of both hyperglycemia and hypoglycemia.

Upon consultation with a dietician, a personalized nutrition plan was developed, focusing on a low-carbohydrate diet with an emphasis on whole, unprocessed foods. The plan included:

1. **Reduced Carbohydrate Intake:** Limiting carbohydrate intake to 50-100 grams per day.
   i. Balance: Adjusting the amount and type of carbohydrates can help stabilize blood glucose levels.
   ii. Monitoring: Continuous glucose monitoring (CGM) allows for real-time adjustments to dietary intake based on glucose levels.
2. **Increased Protein and Healthy Fats:** Incorporating lean proteins and healthy fats to maintain satiety and stabilize blood sugar levels.
3. **Meal Timing and Frequency:**
   i. Consistent Meals: Regular meal times help prevent drastic fluctuations in blood glucose levels.
   ii. Small, Frequent Meals: Eating smaller, more frequent meals can aid in maintaining steady glucose levels throughout the day.
4. **Individual Preferences and Lifestyle:**
   Sustainability: A personalized diet that fits an individual's lifestyle is more likely to be sustainable long-term.
   Flexibility: Allowing for flexibility in meal choices can improve adherence and overall satisfaction with the dietary plan.

Over the next six months, the boy's HbA1c levels decreased significantly, and he reported fewer episodes of hypoglycemia. His overall energy levels improved, and he felt more in control of his diabetes management.

**Conclusion:**

Recent trends in T1DM management highlight the importance of personalized nutrition plans. The case of this young boy demonstrates how a tailored low-carbohydrate diet, combined with regular monitoring, can lead to improved glycemic control and better quality of life.

## 25ABS098: TITLE: A RARE CAUSE OF AMENORRHEA

**Dr. Geerthana V**

DM Endocrinology Trainee, Sri Venkateshwara Institute of Medical Sciences

**Title: A Rare Cause of Amenorrhea**

Authors: Dr. Geerthana V, DM Endocrinology Trainee, Sri Venkateshwara Institute of Medical Sciences

**Introduction:**
MEN 2 is a relatively rare disease, with autosomal dominant inheritance and a prevalence of 1-10/100,000 population. MEN 2A, accounting for 80% of cases, is characterized by Medullary Thyroid Carcinoma (90%), pheochromocytoma (50%), and hyperparathyroidism (30%).

**Presentation:**
A 24-year-old female presented with complaints of menstrual irregularity (oligomenorrhea) for 2 years and subsequently developed amenorrhea for the past 6 months. She was put on medication for cycle regularization. There was no history of weight gain, excessive hair growth over the body or hair loss, acne eruptions, or hoarseness of voice.

**Examination:**
Her clitoral index was 24mm², and FG score was 4/36. There were no purple striae, no buffalo hump, no galactorrhea, and no breast atrophy. Sexual maturation rating was B5, P4. The thyroid was barely palpable.

**Management and Outcome:**
Serum prolactin, TSH, and TT4 were within normal limits. Serum testosterone was 1.66 nmol/L. A bilateral adrenal mass was detected on ultrasound of the abdomen. Urine metanephrine and normetanephrine were elevated (urine metanephrine - 2012 mcg/24 hours (150-350), normetanephrine - 4567 mcg/24 hours (200-600)). DHEAS was 52 mcg/dL. The overnight dexamethasone suppression test was -4.18 mcg/dl (patient was on oral contraceptive pill). ACTH was 35 pg/mL. USG thyroid showed TIRADS 4 nodule in the left lobe and TIRADS 2 nodule in the right lobe. FNAC from thyroid was suggestive of medullary thyroid carcinoma. Serum calcium was within normal limits.

The patient underwent bilateral adrenalectomy, total thyroidectomy, and central node dissection. She is on replacement doses of Thyroxin, hydrocortisone, and fludrocortisone. Postoperative calcitonin levels are undetectable. Her younger sister was later operated for MTC. Her father has a goiter and is yet to be evaluated.

**Discussion:**
Every case of amenorrhea requires careful evaluation.

## 25ABS099: Investigating genetic evidence for causal association of organ iron levels with type 2 diabetes mellitus and glycemic traits.

**Dr. Padmanaban Venkatesan**

Associate Professor, Dept. of Biochemistry, Christian Medical College, Vellore

**Title: Investigating genetic evidence for causal association of organ iron levels with type 2 diabetes mellitus and glycemic traits**

Authors: Dr. Padmanaban Venkatesan, Associate Professor, Dept. of Biochemistry, Christian Medical College, Vellore

**Introduction:**

Observational studies have found that higher iron levels are associated with an increased risk of diabetes mellitus. Given the limitations of causal inferences from observational studies and the expensive and time-consuming nature of randomized controlled trials, Mendelian randomization analysis presents a reasonable alternative to study causal relationships. Previous MR analyses studying iron levels and diabetes have used indirect markers of iron levels, such as serum ferritin, and found conflicting results. In this study, we performed bidirectional Mendelian Randomization analyses using organ iron (liver, spleen, and pancreas) levels, which are more direct markers of iron status, to study the causal association of iron levels with type 2 diabetes mellitus and glycaemic traits.

**Methods:**

Two sample MR analyses were employed bi-directionally to study the causal effect of liver, spleen, and pancreas iron levels on type 2 diabetes and glycaemic traits and the causal effect of type 2 diabetes on organ iron levels, using summary data from genome-wide association studies (UK-Biobank, DIAGRAM, and MAGIC consortia). SNPs associated with organ iron levels with a cut-off of $P < 5 \times 10^{-7}$ were used as instrumental variables for the MR analyses of the effect of organ iron levels on type 2 diabetes/glycaemic traits, and SNPs associated with diabetes mellitus with a cut-off of $P < 5 \times 10^{-8}$ were used as instrumental variables for the MR analyses of the causal effect of type 2 diabetes on organ iron levels. Serum ferritin (GWAS meta-analysis of deCODE, UK INTERVAL, and Denmark studies) and haemoglobin (Blood Cell consortium) were used as positive controls for the MR analysis with liver iron as the exposure. Primary analyses used the inverse variance weighted means of Wald's ratio. Sensitivity analyses included inverse variance weighted median, weighted mode, and MR-Egger methods.

**Results:**

Our findings reveal no causal association between liver and pancreas iron levels with type 2 diabetes (Liver iron: OR = 1.02, P = 0.1, Pancreas iron: OR = 1.11, P = 0.5). This also holds for glycaemic traits, except for the negative causal effect of liver iron levels on HbA1c (OR = 0.93, P = 0.001). Spleen iron levels had a negative causal effect on type 2 diabetes (OR = 0.94, P = 0.049). However, these exceptions are likely due to possible pleiotropy, as these associations can be explained by the effect of the genetic variants on factors that falsely decrease HbA1c levels. No causal association was found for the effect of type 2 diabetes on organ iron levels.

**Conclusion:**

Organ iron levels, which are relatively more direct indicators of iron status, showed no causal association with type 2 diabetes in the European population.

## 25ABS0100: Unmasking of Hypopituitarism in Extra-Pleural Tuberculosis

**Dr. Mansha Dua**

MD General Medicine Trainee, Vinayaka Missions Kirupananda Variyar Medical College and Hospitals, Salem, Tamil Nadu

**Title: Unmasking of Hypopituitarism in Extra-Pleural Tuberculosis**

Authors: Nieshanth Parthiban (4th year medical student, Christian Medical College, Vellore), Basir Ahmed, Nihal Thomas, Felix Jebasingh (Department of Endocrinology, Christian Medical College, Vellore)

**Introduction:**

Hypopituitarism can present varied and non-specific clinical features, often leading to diagnostic challenges. Postpartum pituitary necrosis, or Sheehan's syndrome, is a rare but important cause of hypopituitarism in women, typically presenting with symptoms such as lactational failure and secondary adrenal insufficiency. This report highlights an unusual case of hypopituitarism presenting as tubercular lymphadenitis, emphasizing the importance of clinical vigilance in diagnosing endocrine disorders in atypical settings.

**Case Report:**

A 45-year-old woman presented to CMC Vellore-Chittoor Campus with a history of weight loss and bilateral neck swelling. Examination revealed bilateral level 5 lymphadenopathy, and a biopsy confirmed tubercular lymphadenitis. She was started on weight-based four-drug antitubercular therapy (ATT).

One week later, she was readmitted with persistent vomiting and hypotension. Initially suspected to have ATT-induced hepatitis, further history revealed lactational failure after her last delivery, prompting evaluation for Sheehan's syndrome. Biochemical investigations showed hyponatremia, low cortisol, low free thyroxine, low TSH, and low FSH, indicative of panhypopituitarism.

The patient was promptly treated with intravenous hydrocortisone, leading to rapid clinical improvement, and transitioned to oral prednisolone and thyroxine. Rifampicin-induced steroid metabolism necessitated higher doses of prednisolone during ATT. Later, an MRI of the pituitary confirmed an empty sella, consistent with Sheehan's syndrome.

She completed six months of ATT, with a higher dose of prednisolone during the ATT. Post 6-month ATT, the prednisolone was tapered to 2.5 mg daily. At five years of follow-up, she remains asymptomatic on low-dose steroids and thyroxine replacement.

**Conclusion:**

This case highlights the importance of detailed history in managing complex presentations. The coexistence of tuberculosis and Sheehan's syndrome is rare and underscores the need for vigilance in recognizing endocrine dysfunction in infectious diseases. Adequate hormone replacement, tailored to drug interactions, is essential in the prevention of acute Addisonian crisis. This report underscores the intersection of infectious disease and endocrinology as a critical learning point for clinicians.

## 25ABS0101 : Unmasking of Hypopituitarism in Extra-Pleural Tuberculosis

**Mr Nieshanth Parthiban**

MBBS Student, Christian Medical College Vellore

**Title: Unmasking of Hypopituitarism in Extra-Pleural Tuberculosis**

Nieshanth Parthiban[1], Basir Ahmed[2], Nihal Thomas[2], Felix Jebasingh[2]

[1] 4th year medical student, Christian Medical College, Vellore

[2] Department of Endocrinology, Christian Medical College, Vellore

**Introduction:** Hypopituitarism can present varied and non-specific clinical features, often leading to diagnostic challenges. Postpartum pituitary necrosis, or Sheehan's syndrome, is a rare but important cause of hypopituitarism in women, typically presenting with symptoms such as lactational failure and secondary adrenal insufficiency. This report highlights an unusual case of hypopituitarism presenting as tubercular lymphadenitis, emphasizing the importance of clinical vigilance in diagnosing endocrine disorders in atypical settings.

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## 25ABS0102: BULBAR PALSY IN THYROTOXIC PERIODIC PARALYSIS: A RARE MANIFESTATION OF AN UNCOMMON DISEASE

**Dr. Sumith Panayanthatta**

Clinical Research Fellow/ Non PG Registrar, Endocrinology, CMC Vellore

**Title: Bulbar Palsy in Thyrotoxic Periodic Paralysis: A Rare Manifestation of an Uncommon Disease**

Authors: Dr. Sumith Panayanthatta (Clinical Research Fellow/Non PG Registrar, Endocrinology, CMC Vellore)

**Background:**
Thyrotoxic Periodic Paralysis (TPP) is a disorder predominantly seen in Asian men, characterized by abrupt hypokalemia and ascending paralysis. We present a case of Thyrotoxic Periodic Paralysis with an unusual manifestation, detailing the clinical approach required for its effective management.

**History & Clinical Case Finding:**
A 48-year-old woman with non-obstructing renal calculi, managed medically, reported chronic intermittent thigh weakness triggered by consuming a high-carbohydrate South Indian breakfast and physical exertion, resolving after rest. She also experienced difficulty in swallowing liquids during these episodes. She noted a neck swelling, gradually enlarging and is with insomnia, heat intolerance, anxiety, and weight loss. Clinical examination revealed that the patient is poorly built with moist skin, fragile hair, tachycardia, and a 4x3 cm diffuse neck swelling that was moving while swallowing. Assessment of cranial nerve showed decreased palatal reflex and reduced uvula movement. She had proximal lower limb muscle weakness and hypotonia with intact reflexes and sensations. The metabolic panel showed decreased potassium level of 2.5 mEq/L, elevated FT4 and FT3 levels, and very low TSH. Her ECG indicated hypokalemia. Ultrasonography and an RAI uptake scan confirmed toxic multinodular goiter, and positive TSH receptor antibodies indicating coexisting Graves' disease. Normal urinary potassium levels and low Transtubular Potassium Gradient (TTKG) further supported the diagnosis of TPP.
Due to change in ECG, emergency potassium replacement was done. Later she was introduced to neomercazole and propranolol, resulting in symptomatic improvement, resolution of proximal myopathy and bulbar symptoms, and normalization of the altered potassium levels.

**Unique Feature of the Case:**
TPP is a condition commonly found in East Asians, particularly in males with a sex ratio of 20:1 to 30:1. In rare instances, TPP involves fluctuating bulbar, ocular, or respiratory muscle weakness. This report details a case involving a middle-aged Southeast Asian female who presented with an atypical presentation of bulbar palsy, presenting a diagnostic challenge.

**Take Home Message:**
This case indicates the importance of diagnosing TPP, especially in females with bulbar palsy as it is often misdiagnosed in Western countries with familial periodic paralysis, myasthenia gravis, or structural brain lesions. Early diagnosis aids in proper management and prevents rebound hyperkalemia from excess replacement.

## 25ABS0103: An Enigma of Hormonal collapse

**Dr. Telma Joby**

Internal Medicine Trainee, Dr. Moopens Medical College, Wayanad

**Title: An Enigma of Hormonal Collapse**

Authors: Dr. Telma Joby (Internal Medicine Trainee, Dr. Moopens Medical College, Wayanad)

**Introduction:**

Panhypopituitarism is a clinical condition characterized by the deficiency of multiple anterior and posterior pituitary hormones, often with diverse etiologies. Craniopharyngioma, a benign but potentially aggressive tumour arising in the sellar and suprasellar regions, can rarely present with panhypopituitarism.

**Case report:**

A 19-year-old male presented with complaints of persistent headache and generalized tiredness for three weeks. The headache was not associated with fever, vomiting, blurring of vision, or photophobia. Additionally, he reported increased thirst and polyuria. Laboratory investigations revealed hypernatremia (serum sodium: 152 mmol/L), elevated serum osmolality (311 mOsm/kg), and low urine osmolality (186 mOsm/kg), consistent with diabetes insipidus.

Further endocrine evaluation demonstrated multiple hormonal deficiencies:

- TSH: 0.11 µIU/mL, FT4: 16.01 pmol/L, FT3: 3.01 pmol/L
- Serum cortisol: 1.05 µg/dL
- Prolactin: 12.99 ng/mL
- FSH: 0.654 mIU/mL, LH: 0.610 mIU/mL

These findings confirmed panhypopituitarism.

An MRI of the brain revealed a well-defined T1 hypointense and T2 hyperintense lesion measuring 12.6 × 10.5 mm in the sellar region with suprasellar extension. The imaging findings, in conjunction with clinical and biochemical results, led to a diagnosis of craniopharyngioma.

**Conclusion:**

In this case, craniopharyngioma presented initially with symptoms of panhypopituitarism and diabetes insipidus, without typical signs like visual disturbances or focal neurological deficits, highlighting the importance of considering craniopharyngioma in the differential diagnosis of panhypopituitarism. Prompt recognition and imaging are essential for accurate diagnosis and timely management to prevent long-term complications.

## 25ABS0104: Risk factor assessment and incidence of metabolic syndrome in a tertiary care hospital in Odisha.

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**Title: Risk factor assessment and incidence of metabolic syndrome in a tertiary care hospital in Odisha**

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**Background:**
Metabolic syndrome, a cluster of conditions increasing cardiovascular risk, is also associated with diabetes and chronic kidney disease. This study aims to determine the prevalence of metabolic syndrome in individuals with varying waist circumferences (WC) and investigate its associations with age, sex, body mass index (BMI), body surface area (BSA), total cholesterol (TC), low-density lipoprotein (LDL), very low-density lipoprotein (VLDL), glycated hemoglobin (HbA1c), homeostatic model assessment for insulin resistance (HOMA-IR), and C-reactive protein (CRP).

**Materials and Methods:**
This cross-sectional study included 68 participants attending a comprehensive health checkup clinic at a tertiary care hospital in Cuttack, Odisha, India. Anthropometric measurements (waist circumference, weight, and height), blood pressure, blood sugar levels, and fasting lipid profiles were collected. The NCEP ATP III criteria were used to diagnose metabolic syndrome.

**Results:**
The prevalence of metabolic syndrome among the total cases was 51.4%. Females exhibited a higher prevalence (62%) compared to males (37.1%), with the highest prevalence observed in the age group below 50 years. BMI >25, high waist circumference, decreased HDL (<40), elevated VLDL, fasting blood sugar exceeding 100 mg/dL, HOMA-IR values of 1.9 or higher, and hypertension exceeding stage I were significantly associated with metabolic syndrome (p-value < 0.05). These parameters were significantly more prevalent in females compared to males.

**Conclusions:**
The observed prevalence of metabolic syndrome in this hospital-based study population may represent a higher-than-average occurrence due to the inherent selection bias of a hospital setting. This highlights the need for larger, population-based studies to accurately estimate the true prevalence of metabolic syndrome in the general population. Furthermore, aggressive lifestyle modification interventions are crucial for preventing the metabolic complications associated with this syndrome.

## 25ABS0105: A Rare Presentation of Diabetic Ketoacidosis with Rhabdomyolysis and Acute Pancreatitis

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**Title: A Rare Presentation of Diabetic Ketoacidosis with Rhabdomyolysis and Acute Pancreatitis**

Author: Dr. Vishalakshi Jorepalli, Junior Resident, Department of General Medicine, Sree Balaji Medical College and Hospital, Chrompet, Chennai, Tamil Nadu, India, 600044.

**Background:**
Although rhabdomyolysis and acute pancreatitis are uncommon complications of DKA, their coexistence poses diagnostic and therapeutic challenges. This case report describes a patient with DKA complicated by rhabdomyolysis and acute pancreatitis, emphasizing the importance of early recognition and comprehensive management to prevent adverse outcomes.

**Case Presentation:**
A 25-year-old male with a history of poorly controlled type 1 diabetes mellitus presented to the emergency department with severe abdominal pain, nausea, vomiting, and generalized weakness for two days. The patient reported a history of nonadherence to insulin therapy and excessive alcohol intake over the preceding weekend. On examination, he appeared dehydrated, tachycardic, hypotensive with a blood pressure of 90/60 mmHg, and tachypneic with a respiratory rate of 24 breaths per minute. He exhibited diffuse abdominal tenderness without peritoneal signs. Initial investigations revealed arterial blood gases with a pH of 7.12, bicarbonate ($HCO_3^-$) of 8 mEq/L, and partial pressure of carbon

dioxide ($pCO_2$) of 25 mmHg, consistent with metabolic acidosis. His serum glucose was markedly elevated at 590 mg/dL, and serum ketones were strongly positive. Pancreatic enzyme levels were elevated, with serum amylase at 450 U/L (normal <100 U/L) and serum lipase at 1,000 U/L (normal <160 U/L), indicating pancreatitis. Creatine kinase (CK) was significantly elevated at 25,000 U/L (normal <200 U/L), consistent with rhabdomyolysis, and urinalysis confirmed the presence of myoglobin. Further laboratory findings included an elevated serum creatinine level of 2.3 mg/dL (normal 0.6–1.2 mg/dL), hyperkalemia with a potassium level of 5.5 mEq/L, and hypocalcemia with a serum calcium level of 7.8 mg/dL. Based on these findings, the patient was diagnosed with diabetic ketoacidosis complicated by rhabdomyolysis and acute pancreatitis.

Intravenous fluids and IV insulin were started. Serum electrolytes were closely monitored. During hospitalization, the patient started complaining of generalized body aches and myalgias. Creatinine phosphokinase (CPK) was elevated with the lab value of 20,000 U/L along with elevated CK-MB. Serum phosphorus dropped from the initial normal to 1.5, which improved after replacement. Extensive workup to rule out infectious and inflammatory causes of myositis along with muscle biopsy was done but did not show any evidence of inflammatory or infectious myositis. Serum Amylase and Lipase were checked in the setting of persistent abdominal pain and resulted in 145 U/L and 370 U/L respectively. Abdominal imaging showed features of acute pancreatitis (AP) with fluid collection without evidence of gallstones. Meanwhile, DKA was resolved and the patient's condition improved with conservative management, then transferred to the medicine floors and was subsequently discharged with follow-up as an outpatient in the clinic.

**Conclusion:**
Given the high mortality rates associated with rhabdomyolysis and diabetic ketoacidosis (DKA), early diagnosis is crucial. Routine screening with CPK levels should be considered for patients presenting with diabetic emergencies who are at high risk. Rhabdomyolysis should be suspected in patients with diabetic emergencies and acute kidney injury, especially when common causes have been ruled out and kidney function does not improve despite appropriate treatment.

## 25ABS0106: Glycosylated Haemoglobin and Peripheral Arterial Disease: A Cross-Sectional Pilot Analysis of Ankle-Brachial Index in Patients with Type 2 Diabetes

**Dr. Sujitha Elavally**

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**Title: Glycosylated Haemoglobin and Peripheral Arterial Disease: A Cross-Sectional Pilot Analysis of Ankle-Brachial Index in Patients with Type 2 Diabetes**

Author: Dr. Sujitha Elavally, Assistant Professor, Government Nursing College, Thrissur

**Background:**
Peripheral arterial disease (PAD) is a common complication in type 2 diabetes, with chronic hyperglycemia, reflected by elevated glycosylated hemoglobin (HbA1C) levels, considered a potential contributing factor. However, evidence on the association between HbA1C and the ankle-brachial index (ABI) in the southern Indian population remains sparse. This study aimed to evaluate the relationship between HbA1C levels and ABI among patients with type 2 diabetes.

**Methods:**
A cross-sectional study was conducted on 260 randomly selected patients with type 2 diabetes. Data on demographic, clinical, and biochemical parameters, including HbA1C and ABI values, were collected. Univariate and multivariate logistic regression analyses were performed to determine the association between HbA1C and ABI categories (critical limb ischemia- 1.3)).

**Results:**
Among participants, 127 (48.8%) were male and 133 (51.2%) were female, with a mean age of 56.06 ± 8.09 years. Logistic regression analysis revealed no statistically significant association between HbA1C and ABI categories: Critical Limb Ischemia (B = -0.516, p = 0.434, Exp(B) = 0.597, 95% CI: 0.164–2.173), Moderate PAD (B = -0.201, p = 0.281, Exp(B) = 0.818, 95% CI: 0.568–1.178), Mild PAD (B = -0.178, p = 0.229, Exp(B) = 0.837, 95% CI: 0.626–1.119), and Normal ABI (B = -0.196, p = 0.152, Exp(B) = 0.822, 95% CI: 0.629–1.074). The predictive capacity of the model was low (Nagelkerke $R^2 = 0.011$).

**Conclusion:**
No statistically significant association was found between HbA1C levels and ABI among patients with type 2 diabetes. While HbA1C remains crucial for glycemic control, its role as an independent predictor of PAD risk using ABI requires further investigation through larger longitudinal studies.

## 25ABS0107: Risk Profiling for Diabetic Foot Ulcers: A Cross-Sectional Study Using Inlow's 60-Second Foot Screen Tool

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**Title: Risk Profiling for Diabetic Foot Ulcers: A Cross-Sectional Study Using Inlow's 60-Second Foot Screen Tool**

Author: Mrs. Sheeba Mathew, PhD in Nursing, Government College of Nursing, Thrissur

**Background:**
Diabetic foot ulcers (DFUs) are a major complication in type 2 diabetes, leading to infection and amputation. Early identification of risk factors using reliable screening tools is crucial for prevention. This study aimed to identify key predictors for DFU risk using the validated Inlow's 60-Second Diabetic Foot Screen.

**Method:**
A cross-sectional study was conducted with 260 randomly selected patients with type 2 diabetes and no active foot ulcers. Data on demographics, clinical history (e.g., duration of diabetes, dyslipidaemia, heart disease, CKD, diabetic retinopathy, and previous foot ulcers), and lifestyle factors (exercise, foot care) were collected. The Inlow's 60-Second Foot Screen categorized patients into five risk levels. Statistical analysis included univariate and multinomial logistic regression.

**Results:**
The study included 127 males (48.8%) and 133 females (51.2%) with a mean age of 56.06 ± 8.09 years. Multinomial logistic regression revealed significant associations with DFU risk for the variables. History of foot ulcer (B = 0.383, p = 0.001, Exp(B) = 1.466, 95% CI: 0.214–10.067), CKD (B = 3.797, p < 0.001, Exp(B) = 44.546, 95% CI: 0.000–.c), Diabetic retinopathy (B = -2.011, p = 0.010, Exp(B) = 0.134, 95% CI: 0.029–0.621), Dyslipidaemia (B = -1.222, p = 0.048, Exp(B) = 0.295, 95% CI: 0.057–1.533). The overall model was significant ($\chi^2(240) = 303.14$, p 0.05).

**Conclusion:**
History of foot ulcers, CKD, diabetic retinopathy, and dyslipidemia are significant predictors of DFU risk. Routine risk assessments using tools like Inlow's 60-Second Foot Screen are vital for the early identification of high-risk patients.

## 25BAS0108- IRON HOMEOSTASIS IN MACROPHAGES: IS IT INVOLVED IN THE DEVELOPMENT OF INFLAMMATION IN ADIPOSE TISSUE AND SUBSEQUENT INSULIN RESISTANCE?


**Dr. Anji Anura**

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**Title: Iron Homeostasis in Macrophages: Is it Involved in the Development of Inflammation in Adipose Tissue and Subsequent Insulin Resistance?**

Authors: Dr. Anji Anura, Suchita Chase, Titus D. K, Paul Trinity Stephen D, Beulah Roopavathana, Joe Varghese, Molly Jacob

**Background:**

Iron content and inflammation in adipose tissue have been suggested to play a role in the pathogenesis of insulin resistance. Adipose tissue macrophages (ATMs) have been implicated in initiating and perpetuating local inflammation. The iron content of ATMs may play a critical role in polarizing ATMs towards a pro-inflammatory phenotype. However, little is known about iron homeostasis in ATMs in those with diabetes mellitus.

**Aim:**

To determine how iron homeostasis in ATMs is affected in those with diabetes mellitus.

**Materials and Methods:**

Participants were patients aged 18-60 years, with and without diabetes mellitus, who underwent elective abdominal surgeries. Subcutaneous adipose tissue (SAT) and visceral adipose tissue (VAT) samples were obtained from them. ATMs (and M1 and M2-like subtypes) isolated from these samples were studied by flow cytometry. Gene expression of transferrin receptor 1 (TfR1), iron content and reactive oxygen species (ROS) in these cells were also determined.

**Results:**

In the VAT from those with diabetes, infiltrating leucocytes were significantly more than in control patients, with the iron content in the ATM and M1-like macrophages tending to be higher. TfR1 expression also tended to be higher in the M1-like macrophages. ROS levels were higher in both M1- and M2-like macrophages in VAT from the diabetic patients than in the control patients. No significant differences were seen in the SAT between the groups.

**Conclusions:**

VAT from patients with diabetes showed evidence of inflammation and alterations in parameters linked to iron metabolism in the ATMs.