While more convenient and cost saving, human premixed insulin regime may increase GV due to lesser flexibility and less physiological pharmacokinetic profile. Dipeptidyl peptidase IV inhibitors (DPPIV-I) have been shown to improve GV when used for treatment of T2DM but the effects of DPPIV-I when added on human premixed insulin is limited. We therefore evaluated the changes in GV following addition of DPP IV-I among T2DM patients treated with premixed human insulin with or without metformin therapy. This was a prospective study involving adult patients with T2DM on stable doses of premixed human insulin with or without metformin for at least 3 months from two state hospitals in Malaysia. Blinded continuous glucose monitoring (CGM) were performed at baseline and following 6 weeks of adding Vildagliptin to their insulin regime. A total of 12 patients were recruited (50% male). Mean (SD) age was 55.8 (13) years with mean duration of disease of 14 (6.6) years. The addition of Vildagliptin significantly reduced GV indexes including SD 2.98 (1.17) to 2.33 (0.82), p=0.017; MAGE 6.94 (2.61) to 5.72 (1.87), p=0.018; MAG 1.60 (0.76) to 1.23 (0.48), p=0.009 and M Value 13.96 (13.01) to 6.52 (7.45), p=0.037. In addition there were improvements in terms of parameters for glycemic control. Time spent in optimal glycemic range (4-8 mmol/l) improved from 38.33 (19.69) to 58.17 (5.95) %, p=0.001 with reduction in AUC for hyperglycemia from 2.09 (1.73) to 1.06 (1.09) mmol/day, p=0.010. Hypoglycemia events were infrequent and the reduction in time spent in hypoglycemia [5.92(9.74) to 1.91 (2.54)%, p=0.191] as well as AUC for hypoglycemia [0.03(0.54) to 0.01(0.02) mmol/day, p=0.163] were found although these did not reach statistical significance. We concluded that addition of DPP IV-I to commonly prescribed twice daily premixed human insulin regime in patients with T2DM may improve GV and glycemic control and warrant further exploration.

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Diabetes Mellitus and Glucose Metabolism

TYPE 1 DIABETES MELLITUS

Fluctuating Blood Glucose in an Infant with Newly Diagnosed IPEX Syndrome

Bethany Gottesman, MD, Michael Gottschalk, MD,PHD.
UCSD/Rady Children's Hospital, San Diego, CA, USA.

SAT-664

Background: In the IPEX (immune dysregulation, polyendocrinopathy, enteropathy, X-linked) syndrome, Type 1 diabetes mellitus is the most common endocrine complication and usually occurs with a variable presentation from immediately at birth to within the first few months of life.

Clinical case: A four-month-old male presented for evaluation of failure to thrive, eczema, and diarrhea. In the ED, his glucose value was 246 mg/dL with beta-hydroxybutyrate of 0.29 mmol/L (0.00-0.30). Within eight hours and without insulin, he became hypoglycemic and required dextrose-containing fluids to maintain euglycemia; he was quickly made NPO and started on TPN due to excessive stool output. For nearly two weeks he required no insulin while receiving 84g of dextrose per day (21 g/kg/day) in TPN. He developed bloody stools on the day that he started receiving Tacrolimus and IVIG and required transfer to the ICU, and an insulin need of 1 unit/kg/day developed with this worsening of his systemic illness. After the bloody stools resolved, immunosuppression with Rituximab was initiated. Once bowel function improved, Pedialyte and formula were slowly reintroduced and for three weeks his insulin requirement varied from 0.2-0.4 units/kg/day. In his seventh week of hospitalization his insulin was discontinued due to hypoglycemia, and at the time of discharge he had been without insulin for ten days on ad lib formula feeding.

Hemoglobin A1c on admission was 10.2%, and repeat was 10.3%. A fructosamine level was obtained to evaluate the discrepancy between the initial HgbA1c and being euglycemic. It was 269 umol/L (190-270), equivalent to an approximate HgbA1c of 6.5%, suggesting that hyperglycemia resulting in an elevated HgbA1c occurred early in his life and had improved in the days to weeks prior to admission. Further testing revealed an elevated GAD-65 antibody of >250 IU/mL (<5) but normal ICA 512 and insulin autoantibody.

His clinical picture was consistent with IPEX syndrome, confirmed with rapid whole genome sequencing showed a pathogenic hemizygous c.1010G>A p.Arg337Gln variant in the FOXP3 gene.

A HgbA1c performed prior to discharge, eight weeks after the initial, was 6.6%. This spontaneous resolution of hyperglycemia in IPEX, with insulin needs developing only when he had worsening systemic illness as demonstrated by bloody stools, has yet to be described.

Conclusion: Hyperglycemia fluctuated in the first few months of life in a patient with IPEX syndrome, likely related to severity of systemic illness and control of enteropathy.

Adipose Tissue, Appetite, and Obesity

RARE CAUSES AND CONDITIONS OF OBESITY: PRADER WILLI SYNDROME, LIPODYSTROPHY

Phenotypic Study of Meso-Somatous (Roch-Leri) Lipomatosis

Madleen Lemaitre, resident, Master[2], Stéphanie Espiard, MD, PhD, Linda Humbert, MD, PhD, Samuel Boury, MD, PhD, Georges Lion, MD, PhD, Marie-Christine Vantyghem, MD, PhD.
Lille University Hospital, LILLE, France.

SUN-598

Background: Lipomatosis is a condition in which multiple *lipomas* are present on the body. Different entities which are accompanied by multiple lipomas include Proteus syndrome, Cowden syndrome and related disorders due to PTEN gene mutations, MEN1, benign symmetric lipomatosis (Madelung or Launois-Bensaude disease),

Dercum's Disease, familial lipodystrophy, hibernomas, epidural lipomatosis, familial angiolipomatosis, and meso-somatous lipomatosis (LMS) still called Roch-Leri lipomatosis. LMS is characterized by the presence of many discrete, encapsulated lipomas of 2 to 5 cm, painless, at the level of the trunk and forearms. The **aim** of the present study was to determine the clinico-biological phenotype of LMS, as compared to controls. **Patients and methods:** In this single-center study (NCT01784289), 18 healthy controls (C) and 11 LMS were included after examining the cohort of 76 patients referred for suspected lipodystrophic syndrome between 2009 and 2019 in the Endocrinology Department of a University Hospital. Clinical (sex, age, weight, BMI, blood pressure (BP), alcohol consumption), metabolic (fasting blood glucose (FBG) and insulin levels, lipid balance, ASAT, ALAT, GammaGT, leptin), immuno-inflammatory (CBC, lymphocyte immunophenotyping), and anthropometric (% of body fat in DEXA, steatosis and intra-abdominal / total abdominal fat ratio (IAF / TAF) in MRI) were evaluated. **Results:** The following parameters, expressed as % or median, differed significantly between LMS vs. C groups, respectively: weight 100 vs. 69kg ($p<0.01$), BMI 30.8 vs. 22.7 ($p<0.01$), systolic BP 140 vs. 115 ($p<0.01$) and diastolic BP 80 vs. 70 mmHg ($p<0.05$), gammaGT 74 vs. 18 IU / L ($p<0.01$), fasting insulin levels 7.3 vs. 4.7 microIU / mL ($p<0.05$), leptin 28 vs. 5 ng / mL ($p<0.01$), CD3 (867 vs. 1444 / mm3 ($p<0.01$), CD4 499 vs 866 / mm3 ($p<0.05$), CD8 227 vs. 546 ($p<0.05$), fat mass 41 vs. 22 ($p<0.05$). Three LMS patients had hepatic steatosis and 3 a first-degree family member with LMS. Percentage of men (63% vs. 52%, FBG, lipid levels, ASAT, ALT, CBC, IAF / TAF (0.25 vs 0.19) did not differ significantly. The number of lipomas was > 5 in 82% of LMS patients and lipomas were localized first to the forearms (82%), then the thighs (73%) and the abdomen (55%). At diagnosis, the age of LMS patients was 20 years old; 55% of the LMS patients had a BMI above 30 and 45% above 25. No patient had excessive alcohol consumption. Five had a history of auto-immuneor inflammatory disease: 1 hyperthyroidism, 1 hypothyroidism, 1 multiple sclerosis, 1 vitiligo, 1 Raynaud syndrome. **Conclusion**: LMS mainly affects overweight men and is associated with hypertension, hyperinsulinism, increased gammaGT and a decrease in CD3, CD4 and CD8 lymphocytes, suggesting an immune dysregulation, all the more so that 45% had an associated auto-immune/inflammatory disease.

Reproductive Endocrinology

CLINICAL STUDIES IN FEMALE REPRODUCTION I

Investigating the Endocrine Disorders in Women with Menstrual Disturbances in Bayelsa State, Niger Delta Region of Nigeria

Ferdinand Chukwuma Ezeiruaku, Ph.D.
Niger Delta University, Bayelsa State, Nigeria, Wilberforce Island, Nigeria.

SAT-005

Background: Many women in Bayelsa State, South-South Nigeria have been presenting with different menstrual disturbances and some with infertility problems that are associated with abnormal uterine bleeding, amenorrhea, dysmenorrhea, premature menopause (primary ovarian insfficiency) and premature syndrome (PMS). It is recognized universally that menstrual disturbances may accompany and most times, succeed endocrine disorders. **Objective:** The aim of the study was to investigate the various endocrine disorders associated with women of reproductive age experiencing different menstrual disturbances attending the different specialist hospitals in Bayelsa State, Nigeria. This is with the interest of establishing the different hormone disorders and its prevalence in these women of Bayelsa State. **Method:** A total of 1852 subjects (women with menstrual disturbances) were randomly selected using a questionnaire design containing the information of age, last menstrual date, degree of irregularity, whether on medication for any infertility problem or preventive measures and have had any form of surgery. Excluded from the study were pregnant women, women above 40 years of age, those on infertility and contraceptive medication. Analyses of the different hormones of the hypothalamic - pituitary- gonadal reproductive axis were measured using Enzyme Linked Immunosorbent Assay (ELISA). **Results:** From the study, it was observed that the menstrual disturbances were accompanied with female reproductive hormone fluctuations; with a high significant ($P<0.005$) percentage, 79.93% of the women having one form of the endocrine disorders. The study has shown that 63.17% of the studied subjects had hypoestrogenism, 38.66% had hypergonadotropic hypogonadism and a non significant ($p>0.05$) 1.35% with hypogonadotropic hypogonadism. Analysis of the results also showed 15.12% of the subjects had hypothalamic amenorrhea, 32.02% with hyperprolactinaemia and non significant value of 1.30% with hypoprolactinaemia. From the study, 10.92% of the women with menstrual disturbances studied in Bayelsa State had hyperthyroidism, 4.71% with hypothyroidism, 3.74% with T3 thyrotoxicosis and 2.37% with TBG excess. **Conclusion:** This study therefore concluded that a significant number ($p<0.05$) of women in Bayelsa State, Nigeria with menstrual disturbances are associated with endocrine disorders probably due to life style (diet, obesity), environmental factors and an underlying illness(infections, cancer and polycystic ovarian syndrome).

Thyroid

THYROID NEOPLASIA AND CANCER

Thyroid Cancer in Saudi Arabia: Clinical and Histopathological Features, Management and Outcome of a Large Series

Noha Mukhtar, MD, Lina Nasser Albalawi, MD, Sedra Mazi, MD, Hadeel Salah Aljamei, MD, Roqyah Fadel, MD, Lama Ghassan Amer, MD, Tarek Elsayed, MD, Bayan Saeed AlQarni, MD, Layla Alnasser, MD, Faisal Alanazi, MD, Ahmed Almatar, MD, Ashwag Sultan Alqahtani, MD, Balsam Saeed Bohlega, MD, Yosra Moria, MD, Ali Alzahrani, MD.
King Faisal Specialist Hospital and RC, Riyadh, Saudi Arabia.

MON-531

The incidence of differentiated thyroid cancer (DTC) is increasing worldwide. Most of the available data came from Western populations. Therefore, data from other populations