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.

References

(1) Gerry Rayman. Glycaemic control, glucose variability and the triangle of diabetes care. *Br J Diabetes* 2016;16(Suppl1):S3-S6

(2) Boris P. Kovatchev. Metrics for glycaemic control - from HbA1c to continuous glucose monitoring. *Nat Rev Endocrinol*. 2017 Jul;13(7):425-436

(3) Kalra S, Balhara YP, Sahay BK, Ganapathy B, Das AK. Why is premixed insulin the preferred insulin? Novel answers to a decade-old question. *J Assoc Physicians India*. 2013 Jan;61(1 Suppl):9-11

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.

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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),