

can be misleading. In the present case, we describe a patient with Type 1 Diabetes (T1D) on SGLT2 who underwent a strict low carb diet. **Case Report** A 70-year-old female with past medical history of unspecified diabetes mellitus and primary hypothyroidism presented to emergency room complaining of nausea and dizziness of four days with decreased oral intake. She was alert and oriented, normal weight (52 kg, BMI 20 kg/m²) with stable vital signs, except for mild tachypnea (22/min). Initial labs showed serum glucose 136 mg/dL, bicarbonate 10 mmol/L (normal 20-31), anion gap of 27, venous blood gas pH 7.1, B-hydroxybutyrate 8.8 mmol/L (normal 0.02-0.27), glucosuria > 500 mg/dL, and moderate ketonuria. Screening for ethyl alcohol and ethylene glycol was negative. Lactic acid, cardiac enzymes, renal and liver function tests were normal. She was diagnosed with diabetes mellitus at age 37, on insulin since then. No alcohol use. Her new primary care physician found an A1C of 9.0% for which metformin 1000mg oral twice a day and empagliflozin 12.5 mg oral daily were added and aspart insulin was discontinued. Daily glargine remained at 20 units daily. She was advised to lose weight for which she started a keto-diet 4 weeks prior to this presentation. She had lost 15 pounds since then accompanied by polyuria and polydipsia. Upon admission, she received IV insulin and IV fluids. An endocrinology consultation was requested for euglycemic DKA secondary to SGLT2 complicated by starvation ketosis. Antibodies against glutamic acid decarboxylase were positive at 250 IU/mL (normal < 5). She was discharged on glargine, aspart insulins and oral medications were discontinued. **Conclusion** This case shows the importance of identifying the specific type of diabetes for appropriate individualization of therapy. Following a keto-diet in unrecognized T1D can trigger ketoacidosis in the setting of SGLT2 inhibitors leading to euglycemic diabetes ketoacidosis.

Diabetes Mellitus and Glucose Metabolism

DIABETES COMPLICATIONS I

Nutritional Influences on One Carbon Metabolism Exacerbate Diabetic Cardiomyopathy and Nephropathy

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Choline (Ch) exerts a key role as methyl donor in the one carbon pathway and is an essential nutrient for the optimal development and function of a number of biological systems including the cardiovascular and urinary system. Ch-deprivation has been associated with heart function impairment, insulin resistance, abnormal fat metabolism and acute kidney injury. Diabetes mellitus is a common metabolic disorder with increased prevalence in aging and diabetic patients are of higher risk to develop heart and kidney failure. This study aims to investigate the impact of dietary Ch-deprivation on cardiac and renal function in a streptozotocin (STZ) experimentally induced

diabetic setting. Twenty-four male adult Wistar rats, were randomly separated into four groups: control, choline deficient through choline deficient diet (CD), STZ induced diabetic (DM) and diabetic-choline deficient (DM+CD) group. After 5 weeks of dietary intervention, echocardiographic measurements, myocardium and kidney histological examination along with Vascular Endothelial Growth Factor-A (VEGF-A₁₆₅) and Kidney Injury Molecule-1 (KIM-1) immunohistochemistry expression were performed. DM+CD rats demonstrated an exacerbation of myocardial inflammation and fibrosis accompanied by preserved ejection fraction but with an increased left ventricular (LV) wall tension index and velocity and a decreased LV posterior wall thickness compared to DM group. VEGF-A₁₆₅ expression both in heart and kidneys was abruptly upregulated in the CD rats with a downward trend under the diabetes mellitus entity reaching significant downregulation in the renal tissue. KIM-1 expression was significantly increased under the insult of both choline deficiency and diabetes mellitus depicting a possible synergistic, though detrimental, effect compared to each condition alone.

In conclusion, five weeks of dietary choline deprivation aggravates the inflammation and fibrosis in the heart and kidneys of diabetic rats leading to organ dysfunction. The structural impairment

of the choline deprived diabetic heart with evidence of stiffness and dilation of the left ventricular cavity with preserved systolic function indicates the emergence of a new distinct phenotype of cardiomyopathy that combines features of the restrictive and dilated type at the same time. Moreover, in this setting the kidney injury gets worse implying that diabetic nephropathy might establish earlier and accelerate more quickly in choline deficiency conditions.

Diabetes Mellitus and Glucose Metabolism

DIABETES TECHNOLOGY

The Effectiveness of Insulin Pump Therapy Compared to Multiple Daily Insulin Injections in Type 1 and Type 2 Diabetes Mellitus in a Predominantly African American Population

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Compared to multiple daily insulin injections (MDI), continuous subcutaneous insulin infusion (CSII) has proven to reach target HbA1c level with less frequent hypoglycemia, be more cost-effective, and improve quality of life. However, data on the effectiveness of CSII therapy in the African American population remain limited. The primary objective of our study was to compare the effectiveness of CSII therapy in lowering HbA1c levels in patients with type 1 diabetes (T1D) and type 2 diabetes (T2D) in a predominantly African American population. The secondary objective was to identify factors that affect the effectiveness of CSII. Participants were selected randomly from a list of patients currently receiving CSII at our institution's diabetic clinic.