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**Diabetes & Glucose Metabolism**

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**Chlorthalidone-Induced Diabetic Ketoacidosis.**  
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**Introduction:** A variety of pharmacological agents affect glucose homeostasis resulting in hypo- or hyperglycemia. Several antihypertensives, including thiazide diuretics, are implicated in hyperglycemia.

**Clinical Case:** A 56 years old African American male with a history of type 2 diabetes mellitus, hypertension, and hyperlipidemia presented to the emergency department with diabetic ketoacidosis 3 weeks after initiation of chlorthalidone. His HbA1c at the time of chlorthalidone initiation was 6.8%. On presentation, his serum glucose was 870 mg/dL, beta-hydroxybutyrate was 34.70 (0.02–0.27), and HbA1c was 15.5%. The patient received aggressive IV fluid resuscitation and insulin infusion. Twenty hours later, DKA resolved and subcutaneous insulin was started. He was discharged home on MDI of insulin and chlorthalidone was discontinued. Metformin was restarted while insulin was tapered and stopped. Of note, the patient was diagnosed with diabetes mellitus 7 years before this presentation after an episode of DKA. After his first DKA, LADA was ruled out. His C-peptide level was intact and he was switched from MDI of insulin to metformin. The patient was maintained on metformin 1000 mg twice daily for 7 years with his HbA1c ranging from 6.1% to 6.4%. One year after his second DKA episode, he was still on metformin monotherapy with HbA1c of 6.8%. This is a case of DKA-prone diabetes and we believe that the use of thiazides precipitated his second episode due to the temporal relation and the lack of other contributing factors. There are several suggested mechanisms for thiazide diuretic-related hyperglycemia and other metabolic adverse effects. Genome Wide Association Study (GWAS) identifies the HMGCS2 locus to be associated with chlorthalidone induced glucose increase in hypertensive patients. Journal of the American Heart Association, 7(6), e007339.

**Conclusion:** Thiazide diuretics can worsen diabetes control in diabetic patients and may even lead to hyperglycemic emergencies, such as DKA in susceptible individuals. Patients should be closely monitored for some time after initiation of such medications to avoid hyperglycemia and related complications.


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