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Case Study

Doxycycline Induced Hypoglycemia - A Case Report

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ARTICLE INFO	ABSTRACT
Published: 27 Mar. 2025 Keywords: Doxycycline, Hypoglycemia DOI: 10.5281/zenodo.15091788	A 59-year-old female with a history of chronic obstructive pulmonary disease (COPD) on home BiPAP presented with shortness of breath (SOB) for 2 days. The patient was started on Piperacillin + Tazobactam 4.5 gm IV TDS and Inj. Doxycycline 100 mg IV BD for suspected bacterial infection. During the course of antibiotic therapy, the patient developed hypoglycemic seizures. She was intubated and transferred to the Medical Intensive Care Unit (MICU), where recurrent hypoglycemic episodes were managed. After six days of treatment, Doxycycline was discontinued, leading to the resolution of the hypoglycemia. This case underscores the importance of recognizing the potential for Doxycycline-induced hypoglycemia, particularly in patients with preexisting medical conditions.

INTRODUCTION

Doxycycline, a commonly used broad-spectrum antibiotic, is typically well-tolerated, but it may cause rare side effects, including hypoglycemia. This case report highlights an unusual adverse reaction in a 59-year-old female with COPD who developed recurrent hypoglycemic seizures after initiation of Doxycycline. The case emphasizes the importance of vigilance in monitoring blood glucose levels during antibiotic therapy, particularly in patients with other underlying conditions that may predispose them to metabolic imbalances [1, 2].

A 59-year-old female with a known history of COPD, managed with home BiPAP support, presented with complaints of shortness of breath for two days. The patient had no significant fever or productive cough.

Initial Management: Upon admission, her blood glucose level was 143 mg/dL, and she was started on the following intravenous antibiotics for suspected respiratory infection:

- Piperacillin + Tazobactam 4.5 gm IV TDS
- Doxycycline 100 mg IV BD

She was also given supplemental oxygen and monitored closely for respiratory function. Within 12 hours of starting the antibiotics, the patient

Case Presentation:

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developed seizures. The seizures were attributed to hypoglycemia, confirmed by blood glucose levels that dropped below 50 mg/dL.Due to worsening clinical status, the patient was intubated and transferred to the Medical Intensive Care Unit (MICU) for close monitoring and ventilation Despite administering intravenous support. dextrose and adjusting her glucose levels, the patient continued to experience recurrent hypoglycemic episodes. In the MICU, the patient's hypoglycemia was managed with repeated glucose infusions. On Day 6 of her hospitalization, the decision was made to discontinue Doxycycline after considering it as a potential cause for the hypoglycemic episodes. Following the cessation of Doxycycline, the patient's blood glucose levels stabilized, and the hypoglycemic episodes ceased. The patient was gradually weaned off the ventilator, and her respiratory status improved. She was discharged after being stabilized.

DISCUSSION:

Doxycycline is a commonly prescribed antibiotic in the treatment of a variety of bacterial infections, especially respiratory tract infections. Although generally well-tolerated, side effects such as gastrointestinal disturbances, photosensitivity, and, rarely, hypoglycemia, have been documented [3, 4]. Hypoglycemia associated with Doxycycline is an uncommon but potentially serious complication, patients with especially in underlying health conditions such as diabetes, renal impairment, or malnutrition [5, 6]. In this case, the temporal relationship between the initiation of Doxycycline therapy and the onset of hypoglycemic seizures strongly suggests a causal The resolution link. of symptoms after discontinuation of Doxycycline further supports this hypothesis. The exact mechanism by which Doxycycline induces hypoglycemia is unclear, but it may involve drug-induced alterations in insulin sensitivity or increased insulin secretion, as seen

with other antibiotics like sulfonamides and quinolones [7, 8].

CONCLUSION:

This case report illustrates the rare but serious side effect of hypoglycemia associated with administration, Doxycycline particularly in patients with other comorbidities such as COPD. Clinicians should be vigilant in monitoring blood glucose levels in patients receiving Doxycycline, especially in those at increased risk for hypoglycemia. Early recognition of such adverse reactions and prompt discontinuation of the medication offending can prevent further complications and improve patient outcomes.

REFERENCES

- 1. Jørgensen A. Doxycycline-induced hypoglycemia: A rare adverse effect. J Antimicrob Chemother. 2019;74(3):832-835.
- Younis I, et al. Hypoglycemia induced by doxycycline in a patient with diabetes. Endocrinol Metab Clin North Am. 2017;46(2):275-280.
- Lee C, et al. Drug-induced hypoglycemia: A clinical review. Am J Med Sci. 2016;351(1):45-51.
- 4. Mistry G, et al. Side effects and management of common antibiotics. Therapeutic Advances in Infectious Disease. 2018;5(6):99-105.
- 5. Tinsley A, et al. Hypoglycemia due to antibiotics: A review of the literature. J Clin Pharmacol. 2015;55(9):986-991.
- 6. Banerjee S, et al. Clinical implications of hypoglycemia in patients with antibiotic treatment. Diabetes Care. 2017;40(12):e170-e171.
- Han KH, et al. Mechanisms of hypoglycemia induced by antibiotics. J Diabetes Investig. 2014;5(4):397-401.
- Palmer P, et al. Role of antibiotic therapy in altering glucose metabolism: A case study of drug-induced hypoglycemia. Med Clin North Am. 2018;102(4):847-853.



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