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Tigecycline Induced Hypoglycemia: A Case Report.

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ABSTRACT

Tigecycline, a broad spectrum antimicrobial agent (a glycycycline derivative), is structurally related to minocycline. Hypoglycemia has been associated with the tetracycline class of antibiotics raising concerns about tigecycline induced hypoglycemia. We describe a rare event of tigecycline induced hypoglycemia in a 65 year old female who underwent coronary artery bypass graft and was treated with tigecycline for sternal infection due to multidrug-resistance to kleibsiella and pseudomonas organism untreated with netilmycin and levofloxacin. After first dose of tigecylcine, patient showed clinical symptoms of hypoglycemia. Discontinuing tigecycline, random blood sugar levels were normalized after 48 hours. This case raises concern about a rare but critical hypoglycemic adverse effect of tigecycline.

Keywords: Tigecycline, hypoglycemia, skin and bone infection, adverse effect

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INTRODUCTION

With increasing drug resistance to carbapenems and beta lactam-Beta lactamase inhibitor combinations by gram negative organisms, there has been increased use of potent newer drugs like tigecycline in developing countries like India [1]. The fact that tigecycline covers methicillin resistant staphylococcus aureus besides gram negative acinatobacter and anaerobes, it is considered a drug of choice when mixed infections are suspected [2].

Case Presentation

A 65 year old female patient, a known case of hypertension (5 months), diabetes mellitus (5 months), recently detected hypothyroidism, underwent coronary artery bypass grafting (Aug' 10). A month later complained of painful non-healing wound at sternum and on both legs. Although the patient was treated by surgical flapping (Oct'10) by a plastic surgeon, she developed wound infection again (i.e. osteomyelitis of manubrium sterni) and was admitted at CIMS hospital with complain of poor oral intake and vomiting since 5-6 days of surgery.

Before hospitalization, swab culture showed pseudomonas aeruginosa and patient was treated with netilmycin and levofloxacin since 4-5 days. Repeat swab culture after hospitalization, showed multidrug-resistant kleibsiella and pseudomonas organism and treatment was initiated with tigecycline and doripenem. As patient was diabetic, random blood sugar levels were checked frequently and she was treated with fixed dose insulin while at homeafter hospitalization her blood sugar levels were also checked frequently. However patient's random blood sugar levels were more than 90 mg% before administration of first dose of tigecylcine. However, 6-7 hours later, RBS levels started decreasing significantly and were in the range of 30-50 mg% (as measured by glucometer) which was confirmed by pathology lab instrument.

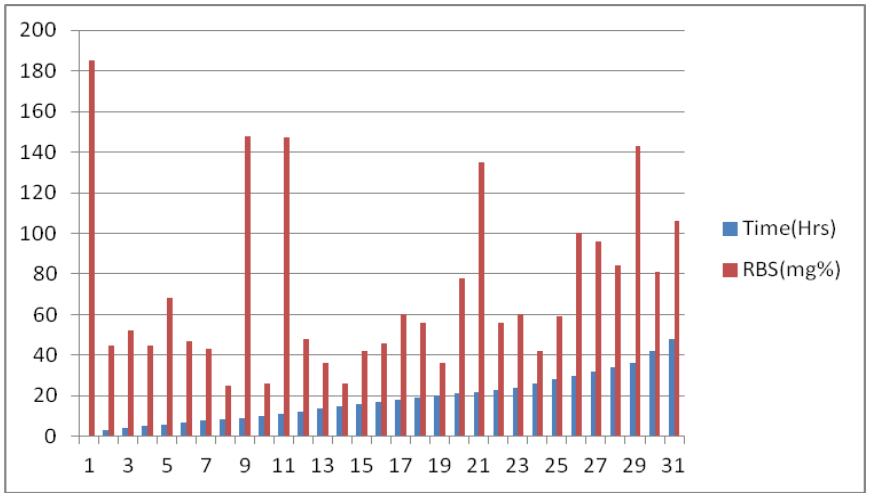

Figure 1: presented shows blood sugar levels against time where 0 time is counted from time of giving antibiotic Tigecycline and the administration of Glucagon was done first at 9 hours after tigecycline dose.

Patient had clinical symptoms of hypoglycemia, predominantly having confusion apart from tachycardia, drowsiness and limb weakness. Computed Tomography of brain did not depict any abnormalities. In addition, patient was given dextrose 25% i.v. slowly as infusion through central line to be continued over 2 days till blood sugar were normalized. Endocrinologist was consulted as her random blood sugar levels remained low on next day, also. Investigations were recomended to rule out other possibilities and Glucagon injection was also given to treat hypoglycemia. Patient's serum insulin levels (done on first day of hypoglycemia) were slightly higher (67.80 mu/ml), however serum amylase and lipase levels were within normal limits. Moreover, insulinoma was ruled out with ultrasound abdomen and computed tomography of abdomen.

Looking to case history and details it was concluded that, tigecycline was a close match for patient's hypoglycemic condition. Hence, tigecycline was stopped immediately and replaced with colistin. The tigecycline induced hypoglycemia was resolved after more than 48 hours of discontinuation, as revealed by normal random blood sugar levels later.

DISCUSSION AND CONCLUSION

Resistance to beta lactam-Beta lactamase inhibitor is on rise; there has been increased demand of carbapenems as first line therapy and next generation of drugs like tigecycline and colistin are being used [2]. Hypoglycemia incidence due to tigecycline is rare but with elderly and diabetic patient it becomes necessary to keep a watchful eye on this fatal side effect of tigecycline and restricting its use in these patients [3,4]. Tetracycline group of antibiotics have been reported to cause hypoglycemia to even nondiabetic persons also [5]. Although not very clear the possible mechanism is thought to be increased insulin sensititvity and de creased clearance of insulin from the body .

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