e-ISSN: 2249-7625 Print ISSN: 2249-7633



International Journal of

Pharmacy Practice & Drug Research

www.ijppdr.com

Case Report

A RARE CASE REPORT OF LEVOFLOXACIN INDUCED HYPOGLYCEMIA IN A TERTIARY CARE TEACHING HOSPITAL, TIRUPATHI, ANDHRA PRADESH, INDIA

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ABSTRACT

Fluroquinolones are commonly prescribed antimicrobial agents for both community and hospital acquired infections. Some of its side effects include nausea, vomiting, headache, diarrhoea and insomnia. Few drugs among these Fluroquinolones are banned due to adverse drug effects. Hypoglycemia is a rare but devastating complication associated with Levofloxacin. Hypoglycemia related to Fluroquinolones is a rare entity. Early diagnosis and treatment can reduce morbidity and mortality.

Keywords: Levofloxacin, Hypoglycemia, Pneumonia, Fluroquinolones.

INTRODUCTION

Levofloxacin a broad spectrum fluroquinolone, is a commonly prescribed antimicrobial for many bacterial infections. This case report highlights rare case of hypoglycemia in a 53 year old female patient with past history of hypertension and chronic kidney disease who presented to our general male medicine ward with history of fever and dry cough since 3 days [1].

The patient was diagnosed to have community



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acquired pneumonia and started on antibiotic injection Levofloxacin 500mg once daily. On the third day of admission, patient suddenly developed headache and became anxious, confused with tachycardia and tachypnoea. Patient was found to be having hypoglycemia (GRBS- 58mg/dl). Suspected to be having Levofloxacin induced hypoglycemia, hence Levofloxacin was stopped and hypoglycemia was managed with multiple boluses of 100ml 25% dextrose. This case report highlights the rare cause of hypoglycemia caused by Levofloxacin. High suspicion about this rare side effect and stopping of the Levofloxacin along with symptomatic treatment can reduce morbidity and mortality.

CASE STUDY

A 53year male patient history of hypertension and chronic kidney disease came to department of general medicine with history of fever and dry cough since 3 days. On examination patient was conscious, on auscultation, basal crepts and occasional rhonchi heard on right side. Other systemic examinations were within normal limits. Arterial blood gas analysis showed pH-7.36, PO2-155, PCO2-36, and HCO3-24. Serum electrolytes, liver function test and kidney function tests were normal.

Diagnosed to be having community acquired pneumonia and started on injection Levofloxacin 500mg once daily along with gastric ulcer prophylaxis and was shifted to ward for further management. On third day of admission, patient suddenly developed headache and became anxious, confused with tachycardia and tachypnoea. Immediately 100ml 25% dextrose was infused. Still patient had refractory hypoglycemia hence patient was transferred to MICU for further management.

In MICU patient received another 2 doses of 25% dextrose (100mL each) followed by infusion of the same at 30ml/hour. Suspected to be having Levofloxacin induced hypoglycemia, hence Levofloxacin was stopped. Blood glucose (128mg/dl) stabilized to normal on fourth day. Later patient was managed with azithromycin and shifted to ward and the patient was discharged from the hospital.

LAB PARAMETER	OBSERVED VALUE	NORMAL VALUE
Pulse rate	88 beats /min	60-100 beats/min
B.P	144/96mmHg	120/80 mmHg
Temperature	100 F	98.6 F
Sp02	94% on room air	95-100%on
Blood glucose	123 mg/dL	140 mg/dL
Haemoglobin	11.4gm/dL	14-16gm/dL
WBC	8700cells/cumm	10,000/cumm
Platelets	2.2lakhs/cumm	1.5-4.5
GRBS	59mg/dl	72-99

Table 1. Other lab parameters

DISCUSSION

Levofloxacin is a broad spectrum antibiotic of the fluroquinolone group. It is used as a sole agent or in combination with other antibiotics in number of systemic bacterial infections (respiratory tract infection, urinary tract infection, cellulitis, prostatitis, tuberculosis and plague). Hypoglycemia is one of the rare side effects of Levofloxacin. It is usually seen within first 3 days of Levofloxacin therapy, but rarely seen even within 24 hours [2]. Exact frequency of hypoglycemia is not known, but in one study it is about 0.08% (0.55% in diabetics and 0.04% in non diabetics). The mechanism of hypoglycemia is thought to be related to release of insulin from the islet cells of pancreas [3, 4] by blocking ATP sensitive potassium channels. Among Fluroquinolones, gatifloxacin has the greatest inhibitory potential. Risk factors for hypoglycemia include patients taking sulfonylureas, insulin and quinine simultaneously or having acute renal failure. The association between Levofloxacin and hypoglycemia can be evaluated using Naranio's Probability Scale [5]. In our case, the score was +6 which signifies a probable association between Levofloxacin and hypoglycemia. Treatment is just stopping of the Levofloxacin and simultaneous administration of dextrose. In one patient with refractory hypoglycemia a single dose of intravenous octreotide (50mcg) [6] was administered. Levofloxacin induced hypoglycemia is a rare but potentially treatable cause. Early diagnosis and treatment can reduce morbidity and mortality.

CONCLUSION

This case emphasizes the occurrence of hypoglycaemia consequently upon levofloxacin use, an adverse reaction that has been described with almost all members of the quinolone family of antibiotics. As compared to most of the previous reports, our case study illustrates that even patients without a history of diabetes or oral hypoglycaemic agent use, can manifest this lifethreatening side-effect. Taking into consideration the frequency of fluoroquinolones use in the hospital and ambulatory setting, clinicians should be cognizant of this potential adverse effect in non-diabetic patients treated with levofloxacin, and they should look out for symptoms of hypoglycaemia and monitor blood glucose levels more frequently, especially early in the course of therapy. The association between Levofloxacin and hypoglycemia can be evaluated using Naranjo's Probability Scale [5]. In our case, the score was +6 which signifies a probable association between Levofloxacin and hypoglycemia.

Treatment is just stopping the Levofloxacin and simultaneous administration of dextrose. In one patient with refractory hypoglycemia a single dose of intravenous octreotide (50mcg) [6] was administered. Levofloxacin induced hypoglycemia is a rare but potentially treatable cause. Early diagnosis and treatment can reduce morbidity and mortality.

ACKNOWLEDGEMENT

We acknowledge management of the Sri Venkateswara Institute of Medical Sciences & Sri Padmavathi Medical College Hospital for Women, Tirupati, Andra Pradesh, India for their valuable support.

CONFLICT OF INTEREST

Nil

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Cite this article:

Saranya T, Heena Kauser A, Sunil Kumar E, Robin George. A Rare Case Report Of Levofloxacin Induced Hypoglycemia In A Tertiary Care Teaching Hospital, Tirupathi, Andhra Pradesh, India. *International Journal of Pharmacy Practice and Drug Research*, 2019;9(2):62-64. DOI: <u>http://dx.doi.org/10.21276/ijppdr.2019.9.2.9</u>



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