

CIPROFLOXACIN INDUCED HYPOGLYCAEMIA-A RARE CLINICAL ENTITY

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ABSTRACT

Numerous pharmacological agents have been commonly used in diabetes mellitus patients, with the potential to alter serum glucose levels. Some of these commonly used drugs associated with hypoglycaemia, other than anti diabetic drugs, like ACE inhibitors, β -blockers, Quinolones; Salicylates etc.^[1,2] This is a case report of drug-induced hypoglycaemia due to quinolones. Ciprofloxacin (Quinolones) is a very common antibiotic prescribed by clinicians in day-to-day practice; however, awareness about the uncommon side effects like hypoglycaemia is poor.^[2] This is case of a 42-year-old female who is a known case of DM for last 12 years on basal bolus insulin regimen with normal renal function and hypothyroidism. She had no prior episodes of hypoglycaemia while taking the same Insulin doses. She underwent a cataract surgery after which she was started on tab ciprofloxacin 500mg BD along with other symptomatic eye drops. On the 3rd day after discharge, she developed symptomatic severe hypoglycaemia (58mg/dl). Next day she herself reduced the dose of insulin which again leads to a similar episode of severe hypoglycaemia. After her OPD visit next day, a careful review of medications was done at diabetic clinic and Ciprofloxacin was stopped.

KEYWORDS: DM-Diabetes mellitus, Ciprofloxacin, Insulin, Hypoglycaemia.

Case History: A 42-year-old female who was a known case of type 2 diabetes mellitus for last 15 years, and was currently on basal bolus regimen for last 3 months, with 40 units of regular insulin in 3 divided doses and 26 units of Lantus with normal renal function. She also had hypothyroidism for last 8 years and was on thyroid supplementation for the same (50microgram/day). She has had no prior episodes of severe hypoglycaemia while taking the same Insulin dose. She underwent phacoemulsification for cataract under local anaesthesia. She was started on tab ciprofloxacin 500mg BD and other symptomatic eye drops after the surgery. She was continued on basal bolus regimen for diabetes, tab ciprofloxacin and other symptomatic treatment after surgery, and discharged. She was compliant to her diet and insulin as before without any change in quantity or quality of food. On the 3rd day she developed sudden onset dizziness and sweating while she was working at home. Her daughter checked her blood sugar which was found to be 58mg/dl. She immediately took some sugar and symptomatically felt better. She decreased her Insulin dosage the subsequent day but her symptoms recurred and her daughter recorded a RBS of 61 mg/dL again. Her symptoms improved with sugar intake. On her visit to the diabetic OPD next day, a careful review of medications was done and Ciprofloxacin was stopped. Thereafter, no similar episodes were reported during the

subsequent follow up visits, in spite of continuation of the same dose of parenteral Insulin.

Key Message: - Hypoglycaemia associated with the use of quinolones can be persistent and severe and often warrants its discontinuation for optimum management.^[2,3]

DISCUSSION

In addition to glucose-lowering agents, many commonly used non-antidiabetic drugs has been reported to cause or contribute to drug-induced hypoglycaemia, even in individuals without diabetes^(1,2). Furthermore, as people age and their number of comorbidities and medications increase over time, they expose themselves to an exponential risk for possible drug interactions or cumulative adverse effects that may result in asymptomatic or symptomatic hypoglycaemia.^[2] Thus, thoroughly reviewing a patient's medication history is essential, and drug-associated causes should always be included in the differential diagnosis of hypoglycaemia until ruled out by other causes.^[2]

Quinolones is a very common class of antibiotics which is prescribed in day to day practice for covering gram negative bacterial infections of the genitourinary, gastrointestinal and respiratory tracts. Gatifloxacin is one

amongst the most common drugs which is associated with severe hypoglycaemia, because of which it is withdrawn from the market. A study that analysed the levels of insulin in cultured hamster pancreatic islet cells exposed to Gatifloxacin for a short period suggested that fluoroquinolones stimulate the release of insulin by blocking K⁺/ATP-dependent channels in the membrane of pancreatic cells, thereby triggering hypoglycaemia. Furthermore, because quinolones are excreted primarily by the renal route, patients with renal insufficiency may be at higher risk for developing hypoglycaemia if accumulation occurs, particularly in the elderly.^[1,2]

Although Hypoglycaemia associated with Ciprofloxacin is rare but awareness about this can prevent significant morbidity in diabetic patient.

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