

Recurrent NSAIDs-induced Hypoglycemia in a Nondiabetic Patient

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ABSTRACT

Hypoglycemia is defined by a low blood glucose level associated with clinical symptoms. Hypoglycemia may be related to treatment of diabetes, but also to drugs, alcohol, critical illness, cortisol insufficiency including hypopituitarism, insulinoma, bariatric or gastric surgery, pancreas transplantation or glucagon deficiency, or may be surreptitious. Some hypoglycemic episodes remain unexplained, and a proper drug history should be sought. Though various drugs have been implicated as a cause of hypoglycemia; herein, we report a case of recurrent nonsteroidal anti-inflammatory drugs (NSAIDs)-induced hypoglycemia in a nondiabetic patient.

Keywords: NSAIDs, hypoglycemia, diabetes

Hypoglycemia is most commonly caused by insulin or insulin-producing drugs used to treat diabetes mellitus or by exposure to other drugs, including alcohol. However, a number of other disorders, including critical organ failure, sepsis and inanition, hormone deficiencies, non-beta-cell tumors, insulinoma and prior gastric surgery, can cause hypoglycemia.¹

Hypoglycemia may be documented by Whipple's triad: (1) symptoms consistent with hypoglycemia; (2) a low plasma glucose concentration measured with a precise method and (3) relief of symptoms, after the plasma glucose level is raised. The lower limit of the fasting plasma glucose concentration is normally ~70 mg/dL, but lower venous glucose levels occur normally, late after a meal, during pregnancy and during prolonged fasting (>24 h).

Neuroglycopenic manifestations of hypoglycemia are a direct result of central nervous system glucose deprivation. These features include behavioral changes, confusion, fatigue, seizure, loss of consciousness, cardiac arrhythmias and if hypoglycemia is severe, death.

Neurogenic (or autonomic) manifestations of hypoglycemia result from the perception of physiologic changes caused by the central nervous system-mediated sympathoadrenal discharge that is triggered by hypoglycemia. They include adrenergic symptoms, such as palpitations, tremor and anxiety, as well as cholinergic symptoms, such as sweating, hunger and paresthesias.²

Severe hypoglycemia can cause serious morbidity and increase the risk for serious cardiovascular events and mortality during and after the initial hypoglycemic episode. It should be managed as a medical emergency.³

CASE REPORT

A 60-year-old normotensive, nondiabetic, euthyroid female developed sudden onset drowsiness, palpitations and profuse sweating at home, her blood pressure (BP) was 160/90 mmHg and random blood sugar (RBS) was found to be 47 mg/dL. She was given some sugary syrup and brought to hospital next morning where her plasma glucose by lab came out to be 54 mg/dL, serum cortisol - 40 µg/dL, serum insulin - 142.1 uIU/mL and C-peptide - 9.4 ng/mL.

Her glycated hemoglobin (HbA1c) was 5.6% and there was no positive family history of diabetes. She underwent ⁶⁸Ga-DOTA-NOC PET-CT to localize an insulinoma, but it was normal. The patient reported taking diclofenac 50 mg tablet for headache following which she developed low sugar. She gave history of developing low sugar levels in the last 5 to 6 years whenever she took mefenamic acid or etoricoxib tablet.

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CASE REPORT

The same symptoms were reproduced again the next morning after the patient took an identical dose of diclofenac. After taking the same dose again that afternoon, she developed the same symptoms, with greater intensity and lost consciousness. Her blood glucose level was 27 mg/dL. The patient recovered fully soon after receiving intravenous glucose. She stopped taking NSAIDs and has not experienced further hypoglycemic episodes.

DISCUSSION

Hypoglycemia may occur in certain endocrine disorders, such as hypopituitarism, Addison's disease or myxedema; in disorders related to liver malfunction, such as acute alcoholism or liver failure and in instances of end-stage chronic kidney disease. When hypoglycemia is a primary manifestation developing in adults without apparent endocrine disorders, the diagnostic possibilities include hyperinsulinism, due to either pancreatic B-cell tumors, iatrogenic or surreptitious administration of insulin or sulfonylurea. A number of medications apart from the sulfonylureas can occasionally cause hypoglycemia. Common offenders include the fluoroquinolones such as gatifloxacin and levofloxacin, sulfonamides, tramadol, topiramate, pentamidine, quinine, angiotensin-converting enzyme (ACE) inhibitors, beta-adrenergic blocking agents and indomethacin.⁴

Sone and colleagues have reported a case of ibuprofen-related hypoglycemia in a patient receiving sulfonylurea.⁵ Most of the previous case reports of nonsteroidal anti-inflammatory drug (NSAID)-induced hypoglycemia have been in diabetic patients already taking sulfonylureas, where it was proposed that NSAIDs may

block K (ATP) channels in insulin secreting beta cells through an extracellular mechanism and thus increases insulin secretion leading to hypoglycemia.⁶ But our patient was nondiabetic and developed hypoglycemia to various NSAIDs, which has never been reported before.

CONCLUSION

Hypoglycemia is uncommon in people who are not being treated for diabetes mellitus and, when present, the differential diagnosis is broad. This case report reinforces the importance of taking a thorough history and being aware of various drugs that can cause hypoglycemia to prevent unnecessary diagnostic tests.

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New Campaign to Identify TB Cases Launched in Uttar Pradesh

Uttar Pradesh: The government has launched a campaign to identify tuberculosis (TB) cases in the state with a special focus on the 15th of every month, known as "Nikshay Diwas". On the 15th, all health facilities in the state will provide screening and testing for the suspected cases. ASHA workers will run a door-to-door campaign on the day and try to identify suspected cases.

Principal Secretary of Medical and Health Affairs, Dr Partha Sarthi Sen Sharma, stated that apart from ASHA workers, Anganwadi workers, ANMs and community health officers (CHOs) can play vital roles in the campaign. Patients, once identified, will also get medicine. In the campaign, ASHA workers will bring suspected cases to the nearest health and wellness centers, and CHOs will conduct primary tests by making a provisional ID of the suspected case. According to the symptoms, the tests will include HIV and diabetes. Additionally, ASHA workers will ensure the bank details of the patients, once identified and registered, are entered into the Nikshay portal so that Rs. 500 per month of financial assistance is sent to the bank account of the patient or beneficiary. (Source: <https://health.economictimes.indiatimes.com/news/policy/up-campaign-to-identify-tb-cases/96274793>)

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