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DRUG-INDUCED HYPOGLYCEMIA WITH ANXIETY SYMPTOMS FOLLOWING CHANGE IN DIABETES MANAGEMENT

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Abstract:

Hypoglycemia is a common complication of antidiabetic treatment, but it does not always present in a typical manner[1,2]. In some patients, the symptoms may resemble psychological conditions, which can lead to confusion in diagnosis[3,12]. We report the case of a 75-year-old male with a 35-year history of type 2 diabetes mellitus, who developed repeated episodes of hypoglycemia that mainly presented as anxiety.

He had been stable on long-term metformin hydrochloride therapy for many years[6]. Recently, his treatment was adjusted by reducing the metformin dose and adding glimepiride to improve blood glucose control[7]. Soon after this change, he began experiencing symptoms such as restlessness, sweating, palpitations, and a sudden feeling of fear, especially when he had not eaten for some time[5,8]. These episodes were initially thought to be anxiety-related[12]. However, on closer evaluation, his blood glucose levels were found to be low during these episodes, confirming hypoglycemia as the cause[2,10].

Recognizing the link between his symptoms and the recent change in medication was important[14]. The dose of glimepiride was reduced, and he was advised on regular meals and self-monitoring of blood glucose[1,8]. Following these measures, his symptoms resolved completely, and no further episodes were reported.

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INTRODUCTION:

Type 2 diabetes mellitus is a long-term condition that often requires continuous treatment and regular adjustments in therapy to maintain good glycemic control[1,6]. Medications such as metformin and sulfonylureas are commonly used and are generally effective, but they are not without risks[7,8]. One of the most important complications associated with antidiabetic therapy is hypoglycemia, especially when treatment is intensified or modified[2,17].

Hypoglycemia is usually identified by symptoms like sweating, tremors, dizziness, and confusion[3,9]. However, in clinical practice, it does not always present in a straightforward manner[4,10]. In some patients, particularly those with a long history of diabetes, the symptoms may be less typical and can overlap with other conditions[5,11]. Among these, anxiety-like symptoms such as restlessness, palpitations, and a sudden sense of fear can be misleading and may be mistaken for a primary psychological issue[12,15].

Such atypical presentations can create challenges for both patients and healthcare professionals, often delaying the correct diagnosis[13,14]. This becomes even more relevant when symptoms begin soon after a change in medication, as the connection between drug therapy and clinical presentation may not be immediately recognized[14,16].

In this context, we present a case of a patient with long-standing type 2 diabetes mellitus who developed hypoglycemia presenting predominantly as anxiety following a recent modification in his antidiabetic treatment. This case highlights the importance of careful clinical assessment, awareness of atypical presentations, and the need for close monitoring during changes in therapy[1,4].

CASE REPORT:

A 75-year-old male presented with a two-week history of recurrent episodes of restlessness, sweating, palpitations, and a sudden sense of fear. These episodes were intermittent, more noticeable in the early morning and between meals, and were relieved after taking food. He described the episodes as distressing and unfamiliar, with no prior history of similar complaints.

He was a known case of type 2 diabetes mellitus for 35 years and hypertension for the past 10 years. His diabetes had been well controlled on metformin 500 mg twice daily for several years. Recently, during a routine follow-up, his treatment regimen was modified due to variable glycemic readings; the dose of metformin was reduced and glimepiride 1 mg once daily was added. He was also on amlodipine 5 mg once daily for hypertension, with good compliance. There was no history of psychiatric illness, alcohol use, or recent acute medical events. However, he reported irregular meal timings over the past few weeks.

Clinical Findings:

On presentation, the patient was conscious, oriented, and appeared mildly anxious during symptomatic periods.
Temperature: 98.4°F
Pulse rate: 96 beats/min
Blood pressure: 138/84 mmHg
Respiratory rate: 18 breaths/min
Oxygen saturation: 98%

Investigations

Capillary blood glucose measured during one of the symptomatic episodes was 58 mg/dL, confirming hypoglycemia. Further evaluation showed:
Fasting blood glucose: 72 mg/dL
Postprandial blood glucose: 118 mg/dL
HbA1c: 6.4%
Routine laboratory investigations were within normal limits:
Serum creatinine: 0.9 mg/dL
Blood urea nitrogen: 18 mg/dL
Serum sodium: 138 mEq/L
Serum potassium: 4.2 mEq/L
Liver function tests: within normal range
Electrocardiogram showed normal sinus rhythm without any acute abnormalities.

Diagnosis:

Based on the clinical history, temporal association with recent medication change, and documented low blood glucose levels, a diagnosis of drug-induced hypoglycemia presenting with anxiety-like symptoms was made, most likely related to the initiation of glimepiride.

Management:

The patient was managed conservatively with a focus on preventing further hypoglycemic episodes:
Immediate correction with oral glucose during symptomatic periods
Reduction of glimepiride dose, with consideration for discontinuation on follow-up
Continuation of metformin at an appropriate adjusted dose
Advice on dietary modifications, including regular meals and avoidance of prolonged fasting
Education regarding early recognition of hypoglycemia symptoms and prompt intake of carbohydrates
Initiation of regular self-monitoring of blood glucose
Antihypertensive therapy with amlodipine was continued unchanged, as blood pressure remained well controlled.

Outcome and Follow-Up
On follow-up after one week, the patient reported complete resolution of symptoms. No further episodes of anxiety or hypoglycemia were noted. Blood glucose levels remained stable with the modified treatment plan and adherence to dietary advice.

DISCUSSION:

This case highlights how hypoglycemia, a well-known complication of diabetes treatment, does not always present in a typical or easily recognizable way[1,3]. Instead of classic symptoms like confusion or dizziness, this patient mainly experienced anxiety-like features such as restlessness, palpitations, sweating, and an unexplained sense of fear[5,12]. For both the patient and healthcare providers, this can be misleading, often creating the impression of a psychological issue rather than a metabolic problem[12,15].

From a real-world perspective, this situation reflects what many elderly patients with long-standing diabetes go through[20,21]. After years of stable treatment, even a small change in medication can significantly affect how their body responds[17,19]. In this case, the addition of glimepiride—a sulfonylurea known to increase insulin secretion—played a key role[8,22]. While effective for lowering blood glucose, it also carries a higher risk of hypoglycemia, especially in elderly patients and those with irregular eating patterns, as seen here[18,19].

Another important aspect is how easily hypoglycemia can be misinterpreted as anxiety[12,13]. The overlap of symptoms—such as palpitations, sweating, and nervousness—can delay correct diagnosis[11,15]. This emphasizes the need for clinicians to think beyond surface symptoms and consider metabolic causes, particularly when symptoms occur in relation to meals or medication changes[4,14].

This is where the clinical pharmacist plays a crucial role in patient care:
A clinical pharmacist is often the first to identify potential drug-related problems, especially during medication changes[24]. In this case, reviewing the patient's therapy would highlight that adding glimepiride increases hypoglycemia risk[8,22].

They help in assessing risk factors, such as advanced age, long duration of diabetes, and irregular meal intake—all of which were present in this patient[18,20].

Clinical pharmacists provide patient-centered education, ensuring the patient understands:
The importance of regular meals
Recognizing early symptoms of hypoglycemia
Immediate actions to take (e.g., consuming glucose)[24,27]

They guide dose optimization, suggesting dose reduction or alternative therapies to minimize risks[20,24].

They promote self-monitoring of blood glucose (SMBG) and ensure the patient knows how and when to check levels[1,10].

Importantly, they act as a bridge between the patient and physician, helping in early detection and prevention of adverse drug reactions[24].

In this case, once the connection between symptoms and hypoglycemia was recognized, simple interventions—such as reducing the glimepiride dose, improving dietary habits, and educating the patient—led to complete resolution of symptoms[8,23]. This shows that timely identification and intervention can significantly improve patient outcomes without the need for complex treatments[27].

Overall, this case underlines the importance of:
Recognizing atypical presentations of hypoglycemia
Carefully monitoring patients after therapy modifications

Ensuring a multidisciplinary approach, where the clinical pharmacist plays an active role in optimizing therapy and enhancing patient safety

By focusing on the patient's experience and integrating clinical expertise, healthcare professionals can avoid misdiagnosis and provide more effective, personalized care.

Elderly patients (≥65 years) are the most vulnerable.
Reduced kidney function → drugs like glimepiride stay longer in the body

Decreased counter-regulatory response → body doesn't correct low sugar quickly
Irregular eating habits → common in elderly, increases hypoglycemia risk
Polypharmacy → multiple drugs increase chances of interactions
Hypoglycemia unawareness → symptoms may be atypical (like anxiety, as in your case)
In these case
The patient is 75 years old, which strongly supports that:

The age group itself is a major risk factor
The atypical presentation (anxiety-like symptoms) is more common in elderly patients

Drug-induced hypoglycemia is most commonly observed in elderly patients (≥65 years), particularly those on sulfonylureas, due to altered pharmacokinetics, comorbidities, and irregular dietary patterns[18,19,25].

CONCLUSION:

This case reminds us that not all medical problems present in obvious ways. What seemed like anxiety in this elderly patient was actually the body's response to low blood sugar after a recent change in diabetes medication. For the patient, these episodes were confusing and distressing, highlighting how easily such symptoms can be misunderstood in real life.

It also shows how even small adjustments in treatment can have a big impact, especially in older adults who may have irregular eating habits and long-standing diabetes. Recognizing the connection between symptoms and medication was the key turning point that led to simple yet effective changes—adjusting the drug dose, ensuring regular meals, and educating the patient.

The role of the clinical pharmacist is especially important in such situations. By carefully reviewing medications, identifying risks, and guiding patients on how to manage and monitor their condition, clinical pharmacists help prevent complications before they become serious. Their involvement ensures that treatment remains both safe and effective.

Ultimately, this case emphasizes the importance of looking beyond symptoms, listening to the patient's experience, and working as a team to provide personalized care. With timely intervention and proper guidance, what initially appears complex can often be managed in a simple and reassuring way, leading to better outcomes and improved quality of life for the patient.

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