

doi: <http://dx.doi.org/10.18203/2319-2003.ijbcp20150888>**Case Report****An unusual case of trifluoperazine induced hypoglycemia****Tarun Sharma<sup>1</sup>, Aradhna Sharma<sup>2\*</sup>, Parveen Kumar Sharma<sup>2</sup>, Dinesh Kansal<sup>2</sup>**<sup>1</sup>Department of Medicine,  
Regional Hospital, Kullu,  
Himachal Pradesh, India,<sup>2</sup>Department of Pharmacology,  
Dr. Rajendra Prasad  
Government Medical College,  
Kangra, Tanda, Himachal  
Pradesh, India**Received:** 17 August 2015**Accepted:** 10 September 2015**\*Correspondence to:**Dr. Aradhna Sharma,  
Email: [draradhnasharma@  
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and reproduction in any  
medium, provided the original  
work is properly cited.**ABSTRACT**

Hypoglycemia is a serious condition which if not diagnosed and treated urgently may cause irreversible damage to the brain and may be life threatening. There are various causes attributed to hypoglycemia, but drugs are one of the most important one of them. Various drugs are documented to cause hypoglycemia but we present a rare case report of a 52-year-old male patient with schizoaffective disorder on trifluoperazine who presented in emergency department with documented hypoglycemia and this hypoglycemic episode improved when the drug was withdrawn. When WHO causality assessment scale was applied, trifluoperazine was found as the probable cause of the episodes of hypoglycemia. Therefore, this possibility of hypoglycemia should always be kept in mind while prescribing trifluoperazine.

**Keywords:** Trifluoperazine, Hypoglycemia, Glucose homeostasis**INTRODUCTION**

Drug-induced hypoglycemia is one of the important adverse effects of many drugs and should always be included in the differential diagnosis of hypoglycemia. It should always be considered whenever patients present with altered mental status. Out of the total 23% admissions due to adverse drug reactions in a hospital, about 4.4% have been attributed to drug-induced hypoglycemia.<sup>1</sup> The most common drugs associated with hypoglycemia are quinolones, pentamidine, quinine, beta blockers, and angiotensin-converting enzyme inhibitors.<sup>2</sup> Trifluoperazine hydrochloride is a propylpiperazine derivative phenothiazine which is a conventional antipsychotic agent. It has a high affinity for D2 receptors compared to D1 receptors.<sup>3</sup> The documented adverse effects of the drug are extrapyramidal symptoms such as tardive dyskinesia, akathisia and also known to cause

postural hypotension, hyperprolactinemia, galactorrhea, sedation, weight gain, priapism and sexual dysfunction, hyperglycemia, and glycosuria.<sup>4</sup>

**CASE REPORT**

The 52-year-old male patient prematurely retired from government service at the age of 51 years and lives with his wife was prescribed trifluoperazine 5 mg twice daily for schizoaffective disorder and was continuously taking this medicine for the last 1 year. His compliance for the drug had been good, but his visits to psychiatrist had been irregular. His last clinical visit to the psychiatrist was 8 months back. For last 3 months, his wife noted that he often became restless followed by drowsiness and lethargy which was quite different from his usual symptoms. His pulse became fast during these episodes, and he was moist to

touch. These episodes had occurred 4 times in last 3 months. These episodes are usually improved when he was given some biscuits or fruits. This time, the patient again had same symptoms, but he fell unconscious. His skin became cold and moist. The patient was immediately brought to an emergency. At hospital patient minimally responded to commands. His pulse was 92/min regular; blood pressure was 96/62 mm of Hg in supine position, plantar reflex was mute, both pupils were normal in size and reactive to light. His respiratory rate was 18/min with shallow breathing and was afebrile. His past medical history was unremarkable for diabetes, hypertension, and allergies. He was also not taking any other concomitant medicines. He had taken his breakfast as usual and was not fasting. His renal function tests and electrolytes, chest X-ray, and ultrasound abdomen were normal. The significant finding was his random blood sugar that was 37 mg/dl at the time of admission to hospital. The patient was given 1 L of 25% dextrose after which there was a significant improvement in his sensorium and his parameters improved. His random blood sugar became 146 mg/dl. The rest of his stay in the hospital was uneventful. After ruling out other causes trifluoperazine was suspected, its dose was halved, and risperidone 5 mg was added. The dose of trifluoperazine was tapered over next 1-month. The patient was on follow-up for more than 2 months, and the episodes of hypoglycemia have not recurred since then. This is an unusual case report which explicitly explains the link of trifluoperazine with hypoglycemia leading to loss of consciousness. The episodes also improved after withdrawal of trifluoperazine.

## DISCUSSION

The causality assessment was done in this case using WHO probability scale.<sup>5</sup> In this case, the hypoglycemia of the patient improved after withdrawing the drug and none other cause of hypoglycemia was apparent, so the association of hypoglycemia with trifluoperazine comes out to be probable in nature. Rechallenge was not done as it was not advised by the treating physician since it is unethical to expose a patient knowingly to the adverse effects of a drug when it is not required. The exact mechanism of trifluoperazine causing hypoglycemia is not known until now but it is documented that trifluoperazine binds to calmodulin receptors and inhibits calmodulin-dependent activation of enzymes,<sup>6</sup> therefore, it may be hypothesized that it may block the stimulating effect of insulin on hexose transport and glucose metabolism thereby decreasing plasma glucose levels. In a study conducted on animal model it has been shown that trifluoperazine stimulates insulin, glucagon, and somatostatin release in a dose-dependent manner at a low glucose concentration (2.5 mM).<sup>7</sup> Mitochondrial energy metabolism inhibition is one of the most prominent effects of trifluoperazine in the liver which depends on calcium.<sup>7</sup> The exact mechanism of trifluoperazine causing hypoglycemia as seen in this case needs further studies and

evaluation. Since 1968, when this drug was introduced, it is being commonly prescribed. Case reports of trifluoperazine causing cholestatic jaundice<sup>8</sup> and angioedema<sup>4</sup> have been published, but no case report of trifluoperazine induced hypoglycemia has been documented in the literature in the knowledge of the authors.

## CONCLUSION

This is an unusual case of trifluoperazine induced hypoglycemia in the 52-year-old patient. We suggest that this possibility of hypoglycemia should always be kept in mind by the physicians while treating a patient with trifluoperazine. It is also recommended that blood glucose levels should be estimated at regular intervals in a patient on trifluoperazine.

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