Case report

# Topiramate-Induced Psychosis in an Individual with Alcohol Dependence: A Case Report

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**Abstract**

**Introduction :** Topiramate, an antiepileptic drug, has been shown to reduce alcohol craving and heavy drinking and to improve abstinence among alcohol-dependent individuals [1.] We report here a case of psychosis which occurred following use of topitramate in an alcohol dependence case .Thus, this case highlights need for clinicians to become aware of this association and its subsequent severe morbidity

**Keywords:** Topiramate, Alcohol dependent, psychosis

## Introduction

Topiramate is an anti-epileptic drug. There is increasing interest in its use in a wide range of applications and therefore its use and side effects have great importance to general physician and psychiatrist. Topiramate is used in management of peripheral Neuropathies [2], radiculopathies [3], idiopathic intracranial hypertension [4] adjunctive therapy in alcohol dependence and nicotine cessation. It is a derivative of monosaccharide D-fructose and the various mechanisms of action include, inhibition of sodium conductance, decreased frequency of generated action potentials, enhanced gamma-aminobutyric acid activity, inhibition of the alpha-amino-3-hydroxy-5-methylisoxazole-4 propionic acid subtype glutamate receptor; and weak inhibition of carbonic anhydrase 5.Chronic alcohol intake is linked to decreased GABA receptor activity in the ventral tegmental area with disinhibition of dopaminergic neurons 6. Similarly, hippocampal and cortical GABA neurons projecting to the midbrain might facilitate dopaminergic neurotransmission in the midbrain at glutamate binding sites 5 such as kainate/AMPA receptors 7. The putative efficacy of topiramate in the treatment of alcohol dependence is based on reversing chronic changes induced by alcohol resulting in dopamine-facilitated neurotransmission in the midbrain.Dosageof up to 300mg per day has been effective in reducing craving in alcohol dependent patient . The true prevalence of topiramate-induced psychosis is not well established. Although there have only been a few case reports of topiramate-induced psychosis, the post-marketing anti-epileptic drug survey group found the incidence to be 1.5% in 596 patients. The risk of this side effect may be greater in the general population as studies of topiramate exclude patients with past psychiatric history, and past psychiatric history is the strongest predictor for psychiatric adverse events [8]. We present a case report of an unusual but serious side effect of topiramate. There are a small number of case reports describing topiramate-induced psychosis but the majority are in patients being treated for epilepsy [9]

## Case Report

Mr. X, a 43-year-old man farmer by occupation, was admitted to our Deaddiction Centre in Dec 2013 with a diagnosis of alcohol dependence syndrome (according to ICD-10 criteria) and presented with delirium tremens. The patient had a history of alcohol consumption for the last 17 years and he had features of tolerance, withdrawal, craving, and loss of control over drinking over the last 4 years. He presented with tremors, irritability, insomnia, and loss of appetite, auditory, visual, and tactile hallucinations, disorientation, and clouding of consciousness, all of which began after 24 hours of abstinence. He had a history of possible withdrawal seizures in the past. There was no significant history of past psychiatric morbidity.

There was a no family history of alcohol dependence. There was no family history of psychosis or mood disorder.

Laboratory findings were within normal limits. The patient was started on a detoxification regimen with lorazepam, 14 mg per day PO in tapering doses, and vitamin supplementation. His withdrawal symptoms subsided gradually over within 72 hours, with hallucinations subsiding within 24 hours. After detoxification for 14 days, the patient was started on topiramate 25 mg per day as long-term medication for alcohol dependence. After 24 hours of starting topiramate, the patient suddenly became very restless, and started complaining of auditory hallucination .He seemed very fearful and, looked anxious. He continued to hear these voices even after he was fully awake. He remained anxious, apprehensive, and distressed for the next 2 hours .He had to be sedated with intravenous haloperidol 10 mg and phenargan 25 mg. During this episode, there was no disorientation, clouding of consciousness, or tremulousness. Then topramate was stopped. After topiramate was stopped, these psychotic symptoms remitted completely within 48 hours .Patient was discharged after 72 hours of observation .He was then followed up after one wks, during that time he did not had any psychotic symptoms.

## Discussion

This case demonstrates important issues. To the best of our knowledge, this is the first report in Nepal of topiramate precipitating psychosis in a patient with alcohol dependence. In absence of other potential causes and the onset of psychosis having clear temporal association with initiation of Topiramate, this strongly suggests psychosis was related to use of Topiramate .Topiramate was originally discovered as an oral hypoglycemic, later used as an anticonvulsant and is now used as an adjunct to numerous therapies. The use of topiramate is now well established in the management of epilepsy (both as monotherapy and adjunctive therapy), migraine prophylaxis and essential tremor. There is interest in using it to promote abstinence in alcohol-dependent individuals and in the treatment of bulimia nervosa and mood disorders [1, 2.] Common adverse reactions include metabolic acidosis, ataxia, concentration difficulty, confusion, dizziness, fatigue, paresthesiae, somnolence, disturbance of memory, depression, agitation, psychomotor slowness and speech disturbance [10]. Topiramate has been hypothesized to induce psychosis as a result of its antiglutamatergic properties in the nucleus accumbens and prefrontal cortex. [8]. Brief psychosis was the most common presentation in a series of patients with epilepsy [7]. As patients with alcohol dependence syndrome show changes in glutamate receptors, especially during withdrawal [6], they may be more sensitive to the effects of topiramate. Physicians should be aware of the possibility of psychotic symptoms, even in patients without a previous psychiatric history, when prescribing topiramate. Symptoms resolve quickly with discontinuation. Physicians need to be aware of psychosis as a rare but debilitating side effect of this drug. Several predictors have been identified and a careful history, including family history, needs to be obtained prior to initiation of therapy to stratify the risk. Though it is a very rare side effect, clinicians should be aware of this risk as it can easily be mistaken for decompensation of a patient's mental health state or the emergence of a new psychiatric symptom. Perhaps the most important consideration therefore would be the patient education regarding the side effects of these widely prescribed medications. Addressing just this guarded issue by the clinicians might prevent a long term complication.

**Conflict of interest:** None declared.

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