

## Oral Hydrocodone Induced Acute Psychosis in an Adult Male: A Case Report

Andleeb Rasheed, Regina Baronia, Pravesh Sharma, Terry McMahon and Saira Mushtaq\*

Texas Tech University Lubbock, Texas USA

### Abstract

Hydrocodone is an opioid derived from codeine, which has been used for many years as a short-acting analgesic combined with acetaminophen (or less commonly ibuprofen). Common and severe psychiatric side effects included mental depression, mood changes, hallucination, delirium, somnolence, agitation, and dysphoria. This is a report of a particular case that resulted in acute psychosis after immediately starting on Hydrocodone because of back pain in a 35 year old male, with no past psychiatrist history. The patient returned to his baseline mental status after the hydrocodone was discontinued. Earlier research was published about these symptoms are the ones where hydrocodone was used in combination with other drugs, but in this unique case the patient was not any other medication except the hydrocodone. This unique case showed an association between the short term use of hydrocodone and development of psychiatric symptoms. Recognition of these uncommon psychiatric side effects of hydrocodone usage will allow for early recognition of their etiology, symptoms and treatment. Psychotic symptoms induce by analgesics are not a common condition but they still remain under diagnosed and untreated.

**Keywords:** Psychosis; Hydrocodone; NSAID; Psychosis were performed

### Introduction

Opioids are the world's oldest and most common drugs to prescribe as a pain medication in short term and long term use. Hydrocodone is an opioid medication which uses as an analgesic, narcotic and antitussive properties [1,2] Hydrocodone has a half-life of 4 hours and is mainly excreted by kidney. The hepatic cytochrome P450 2D6 convert into mu agonist, hydromorphic [3]. Hydrocodone is available in a preparation by itself, in under of multiple brand names and in combination with other ingredients, including ibuprofen and acetaminophen [4,5]. There has been an increase in the prescriptions of Hydrocodone since 2007, from 121 million to 131 million in 2011 [6]. The side effects of hydrocodone are dizziness, somnolence, constipation, nausea, dyspnea and headache [7]. It has reported systemic side effects of Hydrocodone are increased musculoskeletal pain, increase glutamyltransferase increase blood cholesterol and most common psychiatric side effects included depression and Anxiety [8-10]. Withdrawal from long-term use of Hydrocodone is associated with a number of emotional and psychiatric symptoms including Anxiety, insomnia and hallucinations.

### History

Mr. X, is a 35-year-old man came to the ER, with his brother with new onset of psychosis and aggressive behavior. He reported auditory hallucination. He was threatening to kill himself and yelling at the staff. He had not been talking to his family and friends for the past three days because he believed that his family was plotting against him and wanted to kill him. On mental status examination he was aggressive and agitated, his mood was angry with inappropriate laughter at times. The physical examination was within normal limits, BP was 110/80 mmHg, Pulse 85bpm, Temp 97.6 and R/R 16. EKG showed normal sinus rhythm with no abnormality. Laboratory investigation showed white blood cell count of  $8 \times 10^9/L$ , Hemoglobin of 14 g/hematocrit of 41.3% and Platelet count  $272 \times 10^9/L$ . Cardiac markers were WNL. Finding of basic metabolic panels and Urine analysis were within normal limit. Blood Alcohol level was less than 0.8. Urine drug screen was positive for opioids. According to the brother patient had a history of back pain and he was started 7.5/325mg Hydrocodone 4 to 6 times PRN for his lower back pain a week ago. The symptoms began. 3 days before his visit to the ER and after he was prescribed on Hydrocodone. He was not

taking any prescription or over the counter medications. There was no history of ADHD, anxiety, Autism spectrum disorder, conduct disorder, or mood disorder. Regarding her developmental history patient was the product of normal pregnancy and there was no complication during and after the delivery there was no history of developmental delay, no physical and sexual abuse during childhood. He was living with his brother and there was no history of recent stressors in his life also there was no history of coma, seizures disorder and prior history of psychosis in the past. He had no known drug allergy or any known family history of any psychiatric disorder. Psychiatric team was consulted in the ER and Patient was transferred to inpatient psychiatric unit and managed on treatment with olanzapine 5 mg as needed. During the hospital course, brain imaging of the head was done and didn't show any fracture, hemorrhage or any other intracranial pathology. Since we assumed hydrocodone was one of the possible cause of psychosis, it was discontinued which led to dramatic resolution of symptoms in 36 hours. After discharged he did not require any psychotropic treatment/ or any other psychiatric intervention other than close psychiatric follow up. Patient was followed up in the clinic for 12 months and showed no symptoms of psychosis or any other mental illness.

### Discussion

There are several case reports of psychosis related to pain medications; however, these are mostly associated with NSAIDs use in patients with or without previous psychiatric diagnoses or psychosis [11-20]. There was another case of a 25 year old female with history of SLE developed an acute psychotic reaction secondary to administration of nalbuphen IV for opioid induced pruritus [21]. There are also some Case reports of psychosis published with opioid medications are related to opioid withdrawal [22,23]. There is a paucity of reports of psychosis associated

\*Corresponding author: Saira mushtaq, Texas Tech University, Lubbock, Texas USA, Tel: +1 806-742-2011; E-mail: [saira.mushtaq@ttuhsc.edu](mailto:saira.mushtaq@ttuhsc.edu)

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with hydrocodone and hydromorphone. A review of literature yielded a case report of an elderly woman using hydrocodone presenting with agitation and psychosis. She was taking a hydrocodone-acetaminophen combination with propoxyphene and dextromethorphan for analgesia. Symptoms resolved with antipsychotics and discontinuation of the former medications [24]. A retrospective study of 63 people who abused cough syrup and presented with a psychiatric diagnosis showed that 67% had substance-induced psychosis with hydrocodone being one of the most common (16%) substances found in the urine sample [25]. There was another study done in Taiwan which showed the psychotic disorder among methadone maintenance therapy is almost 6 times higher than a control group [26].

## Conclusion

This case is interesting because of the association between the short-term use of hydrocodone taken as prescribed and the development of psychotic symptoms in a young adult male with no previous psychiatric disorder. Hydrocodone has been used increasingly and considered generally safe in the treatment of acute and chronic pain. However, caution is warranted not just because of the abuse potential, but also for potential psychotic symptoms that may be associated even with short-term use of this medication. This case suggests the need for further studies on psychiatric side effects of hydrocodone. Physicians should routinely inquire about psychotic symptoms in patients taking hydrocodone. Awareness of potential psychiatric effects of hydrocodone is important as it allows for early recognition of medication-related adverse effects and appropriate management and possibly the inclusion of psychosis as a potential adverse effect.

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