

## Psychotic Symptoms During Hepatitis A Infection: A Rare Case Report from Iran

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### ABSTRACT

Psychosis, a relatively common condition that affects 3%-5% percent of the population, occurs in a variety of diagnostic contexts. Various medical conditions may lead to the development of psychotic symptoms. To date psychotic disorders due to infection with hepatitis A virus (HAV) have been rarely reported.

In this paper, we described an acute psychotic disorder in an 18-year-old male diagnosed with hepatitis A infection. He presented with complaints nausea, vomiting, fever, constipation and abdominal pain of a one week duration. The patient denied a history of substance abuse. Neurological evaluation was normal. Brain CT scan was remarkable for suspicious hyperdense lesions in the basal ganglia, however the EEG was normal. He had visual hallucinations, persecutory delusion, disorganized behavior, personality changes, sleep disturbances, and disorganized speech. A psychiatrist diagnosed the patient with psychotic disorder due to HAV and treated him with antipsychotic medications. Following the decline in liver enzyme levels and after several days, the patient became clinically well with regression of his psychiatric signs and schizophrenia-like symptoms.

We believe this may be the first reported case of an acute psychotic disorder during active HAV infection. Based on the data we have collected from several references we conclude that the most probable reason for this accompaniment is a type of comorbidity between acute psychotic disorder and HAV infection.

**Keywords:** Psychotic disorder; Hepatitis A Infection; Comorbidity

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### INTRODUCTION

Psychosis is relatively common, affecting 3%-5% of the population at some point in life (1,2). Psychosis is a disturbance in the perception of reality as evidenced by hallucinations, delusions, or thought disorganization (3).

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This disorder occurs in a variety of diagnostic contexts. Identification of different psychotic disorders is based on diagnostic criteria, as described in the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (DSM) or the World Health Organization International Classification of Diseases (ICD). These constructs and criteria are undergoing revision, with debate as to whether clear distinctions exist between some conditions (i.e., schizophrenia, schizoaffective disorder, and bipolar disorder) (4).

A large number and variety of medical conditions may lead to psychotic symptoms, including neurologic problems, endocrine dysfunctions, metabolic problems, hepatic and renal disorders, and autoimmune disorders. Treatment should focus on the primary medical condition, but antipsychotic medications are appropriate and frequently helpful (5).

Hepatitis A virus (HAV) infection is common in developing countries. Although HAV infection usually has a benign clinical course, it may on occasion cause fulminant hepatitis (6). We believe that psychotic disorders which result from an HAV infection have not been reported to date. Thus, in this paper we describe an acute psychotic disorder during active HAV infection in a young male.

### CASE REPORT

An 18-year-old male presented with a one week history of nausea, vomiting, fever, constipation, and abdominal pain. On May 24, 2011 he was admitted to a hospital with the following laboratory findings: hemoglobin (14.6g/dl); white blood cell count WBC (7700 mm<sup>3</sup>); platelet count (165,000/mm<sup>3</sup>); ESR (5mm/h); total bilirubin (11.1mg/dl); conjugated bilirubin (7.4mg/dl); albumin (4.5g/dl); aspartate aminotransferase (2222 IU/L); alanine aminotransferase (4754 IU/L); and alkaline phosphatase (566 IU/L). Surface antigen and antibodies to hepatitis B and C were negative.

He was admitted to our hospital on June 2, 2011. Upon admission he was alert and lucid, with the following vital signs: body temperature (38.0°C); heart rate (92 beats/min) and blood pressure (110/80 mmHg). There was significant jaundice of the skin and sclera. The physical examination was remarkable for tenderness and pain in the epigastrium, but no organomegaly. Laboratory findings were as follows: hemoglobin (15.5 g/dl); WBC (7400/mm<sup>3</sup>); platelet count (142,000/mm<sup>3</sup>); C-reactive protein (CRP, +1); total bilirubin (16.8 mg/dl); conjugated bilirubin (4.5 mg/dl); albumin (4.2 g/dl); aspartate aminotransferase (221 IU/L); alanine aminotransferase (1200 IU/L); alkaline phosphatase (571 IU/L); PTT (46 sec); PT (13.5 sec); and INR (1.1). Ultrasound results showed a contracted gallbladder with a thick edematous wall. No gallstones were present.

On the first day of his admission to our hospital, we prescribed livergol (tablet, qid), metronidazole (250 mg TDS) Ursobil (tablet, qid), and lactulose (syrup, 10 cc, TDS). On the second day, the patient showed psychiatric signs of agitation with visual and auditory hallucinations, and self-talking. His beliefs were odd and others were concerned for him. The patient was paranoid with regards to others and he spoke about imaginary things. There was no history of substance abuse. Neurological evaluation was normal. Brain CT scan was remarkable for suspicious hyperdense lesions in the basal ganglia. His EEG was normal. A psychiatrist diagnosed the patient with acute psychotic disorder

according to DSM-IV-TR criteria. He was treated with risperidone (1 mg, Hs) with no side effects observed. Over the next several days, the patient became clinically well with resolution of his psychiatric signs. The patient experienced no further delusions or hallucinations. On the eighth day following admission, he was discharged. Laboratory results were as follows: total bilirubin (9.9 mg/dl); conjugated bilirubin (6 mg/dl); aspartate aminotransferase (58 IU/L); alanine aminotransferase (209 IU/L); and alkaline phosphatase (503 IU/L). His final diagnosis was viral hepatitis attributed to HAV. With decline of liver enzyme serum levels, psychiatric symptoms include delusion, hallucination, perplexity and sleep disturbances were been subsided.

### DISCUSSION

Despite several reports of psychotic disorders with other types of hepatitis, we believe there is either no other reported case or at least not a significant number of reports of psychotic disorders and HAV.

The prevalence rates of psychiatric disorders are higher in patients with hepatitis C virus (HCV) infection in the US, in addition the prevalence of HCV infection in patients with severe mental illness may be as high as nine times that of the general US population(7). Psychosis that has been reported in patients with HCV is mostly a side effect of therapy. Psychiatric disorders have been reported in HCV patients and Psychotic disorders has least prevalence rate in HCV(8). Thus, in patients who have psychiatric disorders the treatment for HCV can cause a flare up of psychiatric problems (8). However, in one study the following conclusion has been presented: "Patients with a pre-existing psychiatric diagnosis do not have a specific vulnerability to interferon-alpha-induced psychiatric adverse effects"(9). We may conclude from this data that although HCV may cause psychiatric disorders due to either its pathophysiology or treatment side effects, other cases may solely be a result of the comorbidity of these two diseases.

Since there are few reports and information regarding psychotic disorders and HAV, we cannot be certain about the relationship between these two disorders in this patient. Therefore we have considered the following possibilities: i) the psychotic disorder in this patient was due to side effects of treatment for his HAV; ii) HAV might have caused the psychotic disorder during its pathophysiology; or iii) the psychotic disorder was an undiagnosed incidental comorbidity, unrelated to HAV. However, our literature review papers did not provide any information regarding psychiatric side effects of treatment for HAV.

On the other hand, hepatic encephalopathy which causes neuropsychiatric symptoms is mostly seen in fulminant hepatitis, a rare finding in acute HAV. In HAV fulminant hepatitis is mostly seen in older adults and those with underlying chronic liver disease, including chronic hepatitis B and C. Fulminant hepatitis has other symptoms that are more significant and mostly life threatening (6). In the current case it would be almost impossible for this patient to have hepatic encephalopathy since his symptoms presented suddenly and lasted for less than one month, after which he recovered completely. Most cases of brief psychotic disorder occur as a reaction to a very disturbing event, however in this case, we did not find any obvious stress-related event. Schizophrenia and schizophreniform have similar signs but last more than one month. Delirium is a differential diagnosis, however delusions in delirium despite psychotic disorders are non-systematized and disorganized. Non-systematized and disorganized delusions mean that delusions aren't fixed, meaningful and determinant. Our patient was alert and oriented, therefore we ruled out the possibility of a delirious state. After his enzyme levels decreased, the psychiatric signs subsided, therefore we have concluded that HAV (It is named in DSM-IV as title General medical condition) was a probable etiology for this phenomenon.

Finally the last probability, an incidental comorbidity of acute psychotic disorder and HAV was possible,

however in one study 1983 Hepatitis A and B markers were determined in 714 patients and 291 staff members of a psychiatric institution for adults (10). One interest oints is decline of liver enzyme serum levels and psychiatric symptoms simultaneously and parallel. This matter reinforce our guess for ethiological relationship between HAV infection and psychotic disorder. It could have been caused by other factors such as the higher rate of drug abuse among psychiatric patients and the sanitary situation of that institute. Nevertheless since we do not have enough information about our patient's past history we cannot be certain about any comorbidities. We assume that the patient may have had a history living in unsanitary conditions in conjunction with an HAV infection ,but we didn't find history for any drug or substance use. However according to the above information it seems that this is most likely scenario.

We have presented the case of a patient who showed psychotic symptoms during his HAV infection. We believe this may be first reported case of acute psychotic disorder during active HAV. Based on the data we have collected from several references we have concluded that the most probable reason for this scenario is the possibility of comorbidity between acute psychotic disorder and HAV. Physicians should be aware that organic problems can imitate or induce psychiatric disorders.

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