

A Ketamine-Induced Episode of Insight: A Case Report

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Abstract:

Schizophrenia is a chronic mental illness characterized by a constellation of symptoms, often including hallucinations, delusional thinking, and disorganization in thought and or speech, resulting in significant social or occupational dysfunction. One key factor that impairs a patient with schizophrenia to achieve and maintain wellness involves a profound lack of insight into the disease. With an improvement in insight, patients with schizophrenia are more likely to remain compliant with medication interventions and engage in active treatment modalities, including cognitive-behavioral models of change [1]. Given the predominant lack of efficacy in available long-term treatments for schizophrenia, novel mechanisms of intervention, including the use of psychedelics such as ketamine, may result in lasting improvements in insight and provide additional means of helping those with schizophrenia better understand their illness. In time it may be possible for improvements in insight to reduce the likelihood that patients with schizophrenia fail to remain compliant with medication and therapy and ultimately result in shorter and less frequent hospitalizations. The case below describes a 33-year-old male with schizophrenia who benefited from a brief and temporary improvement in insight after receiving a one-time dose of IM ketamine during a period of acute agitation shortly after being hospitalized for active psychosis.

INTRODUCTION

Schizophrenia is a psychiatric disorder characterized by chronic or recurrent psychosis, commonly associated with impairments in social and or occupational functioning [2]. Typical characteristics of schizophrenia include positive symptoms, such as hallucinations (most commonly visual or auditory) or delusions (fixed false beliefs); disorganized speech; negative symptoms (such as a flat affect or poverty of speech); and impairments in cognition (including attention, memory and executive functions). According to the DSM V, a diagnosis of schizophrenia is based on the presence of such symptoms, coupled with social or occupational dysfunction, for greater than six months in the absence of another diagnosis that would better account for one's presentation. In addition to the well-identified criteria listed in the DSM, one unique aspect of most psychotic disorders, including schizophrenia, is a lack of insight into one's illness.

Lack of insight has been traditionally viewed as a symptom, a cognitive deficit, or a defense mechanism, whereas modern accounts tend to point to impairments of metacognitive and social-cognitive abilities. These predisposing factors hinder a patients'

ability to make sense of their illness in a structured and narrative manner, which may result in further distress or social impairment [3]. [Ketamine](#), a dissociative anesthetic with a good safety profile for procedural sedation, has been used to manage the acutely agitated and violent patient in the pre-hospital and hospital settings, although studies have been relatively small [4]. Ketamine works by producing a cataleptic-like state in which a patient often dissociates from the surrounding environment by direct action on the cortical and limbic systems. The actual mechanism of action of ketamine is as a noncompetitive NMDA receptor antagonist that blocks the binding of glutamate [2]. If the use of ketamine in the treatment of an acutely agitated patient could result in the gain of insight, it may be an avenue for future studies to explore.

CASE REPORT

The patient is a 33-year-old Hispanic male with a known history of schizophrenia who was admitted to an inpatient psychiatric hospital due to worsening psychosis. The patient was taken to the hospital by his sister after experiencing increasing frequency and severity of command auditory hallucinations

(AH), telling him to hurt himself. The hallucinations had been gradually worsening over the course of several months. Three weeks prior to his admission, he broke a mirror intending to use one of the broken shards to cut his wrists. Ultimately, he was unsuccessful with this attempt as he could not fix the shard in such a way that he deemed it appropriate to cut himself. After this plan failed, he heard AH on several occasions commanding him to jump out of a window, but he did not follow through with any of these commands. In addition to command AH, he endorsed both thought broadcasting and thought insertions at the time of presentation and identified these symptoms as significant stressors. At the time of admission, the patient was thought to be taking a regimen of medication, including Celexa 20 mg QDAY, Haldol 10 mg BID, Lithium 450 mg BID, and trazodone 100 mg QHS. The patient reported that he had been compliant with his medications, but his family reported a longstanding history of non-compliance. The patient was restarted on the above regimen at the time of admission except for lithium, which was discontinued after the patient was found to have an acute kidney injury (AKI), as evidenced by an elevated creatinine.

Soon after admission, the patient was started on mirtazapine 15 mg QHS to address active issues involving the patient's low mood and decreased appetite, and his prior to admission haloperidol dose was increased to 15 mg BID for ongoing psychotic symptoms. The patient was also started on valproic acid 1000 mg QHS for mood stabilization. The patient required restraints and "as needed" medications on several occasions during his first two days of hospitalization due to agitation. On day three of his hospitalization, the patient was transferred to the main medical center due to acute agitation, low blood pressure and muscle rigidity

concerning for neuroleptic malignant syndrome (NMS).

During the patient's transfer to the medical hospital, the patient received a one-time dose of 250mg (approximately 3.7 mg/kg) IM ketamine for acute agitation. The psychiatric consultation team saw him about two hours after receiving this dose of ketamine. At the time of the consulting team's psychiatric interview, the patient was sitting up in his hospital bed singing. He was mostly alert throughout the interview and was fully oriented to person, place, time, and situation. When asked about auditory hallucinations, the patient stated that he had been hearing several different voices and responded, "oh yeah," when asked if he was hearing voices that were not his own. He confirmed that the voices had been present for several weeks and that they were one of the primary reasons he ended up in the hospital.

When asked about past substance use, the patient stated that he had never taken ketamine before, either recreationally or while in the hospital. However, the patient described experiencing life "in cheat mode" because of how he felt since receiving the IM ketamine. He was not sure if he was experiencing AH at the time of the consultation interview but worried that he would start to hear things again that were not real. He went on to describe that he was quite afraid that he would not know what to do about the voices if he did hear them in the future.

After describing his AH experience, the patient asked the interviewing provider if he could explain what it was like to have schizophrenia. The patient stated that living with schizophrenia was like being in the middle of a terrible practical joke in which the patient was the target. He noted that every day he woke up and had to reassess who was in on the joke and who might be trying to make him look foolish or try to "trip him up." He then went on to describe that "it gets worse." He stated that amidst the joke, there

is an element to life in which he has great difficulty discerning who is present in his life to help him and who may come into his life to hurt or even try to kill him as the final act of the joke. The patient stated that he had been unable to describe his experience living with schizophrenia to anyone in this manner before. He was reasonably certain that his thinking had improved because of the ketamine he had received on his transfer to the hospital. The patient remained extremely pleasant and calm for the duration of the psychiatric interview and expressed remorse for acting violently at the hospital prior to his transfer.

The patient was seen the next day after he was transferred to a floor bed and had little to no recollection of the conversation from the previous day. When he was told about various details of what was discussed, including the parts about living in a practical joke, the patient stated, “that makes a lot of sense.” He was able to voice somewhat of an understanding of that metaphor and agreed that his life did feel like a practical joke at times, especially in the context of having schizophrenia. The patient continued to show significant signs of improvement and was transferred back to the acute psychiatric hospital to complete his stay. After transfer back to inpatient psychiatry, the patient continued to engage in his treatment and had no further outbursts of aggression. He was ultimately discharged home on a regimen of antidepressants and a mood stabilizer (valproic acid) and required no further “as needed” medications to address acute agitation concerns.

DISCUSSION

Ketamine is a highly controversial medication that has been in clinical use since the late 1960s. Although it is best known for its dissociative anesthetic properties, ketamine also exerts analgesic, anti-inflammatory, and

antidepressant actions, all of which have been studied in somewhat limited capacity [5]. In addition to these known properties, several small studies have shown ketamine as a viable treatment of acute agitation in patients with psychotic disorders, including schizophrenia. Furthermore, in the prehospital setting, specifically, when patients are being taken to the ED for further evaluation, ketamine has been shown to reduce agitation and may provide a safer environment in which staff and patients can coexist [6]. Given the various complications in establishing rapport with and successfully treating any agitated patient, including those with psychotic disorders, it seems logical that treatment modalities successful in reducing acute agitation could be considered for use in other novel ways to improve patient outcomes during one’s hospital stay.

It is well understood that a lack of insight into one’s illness serves as a significant barrier to achieving patient compliance and remission of disease in various illness processes. This generalization is aptly true in cases of schizophrenia and other psychotic disorders [3]. Put most simply; insight may be defined as a patient’s ability to recognize and accept his illness and engage in subsequent treatment. Those who lack insight may be at higher risk of nonadherence to treatments, impaired social and or occupational functioning, or ultimately adverse clinical outcomes. In a clinical climate seeking more definitive treatment models for long-term remission of psychotic disorders such as schizophrenia, novel approaches, such as the use of ketamine, for temporary improvement in insight may be helpful. Without current evidence of ketamine’s use as a monotherapy in treating the psychotic symptoms of schizophrenia, it is inadvisable to suggest that it be used as a reliable approach to treating the non-agitated psychotic patient when existing medication and therapeutic models have shown reliable and

reproducible results, especially in treating the positive symptoms of schizophrenia (hallucinations, delusions, and disorganized speech and thoughts) [7]. However, given that in the above case, ketamine was shown to bring on temporary improvement in insight and an overall reduction in active psychotic symptoms, future studies could seek to investigate further the implications of ketamine as a novel augmenting or adjuvant agent in the treatment of psychotic disorders including, but not limited to, schizophrenia.

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