



RECURRENT PSYCHOSIS RELATED TO METHAMPHETAMINE

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Abstract: Background: Methamphetamine abuse and methamphetamine induced psychosis is a growing problem in the world especially in Asian countries. **Objective:** To describe the amazing result of ECT (Electro Convulsive Therapy) in the treatment of methamphetamine induced repeated psychosis. **Results:** ECT especially double ECT (two sessions of ECT in the same session of anesthesia) has an excellent outcome not only in the treatment of methamphetamine-induced psychosis, but also in the management of withdrawal symptoms and craving. **Conclusion:** Double ECT can be beneficially employed in this serious condition.

Key words: Methamphetamine; Psychosis; Double ECT; Single ECT

Introduction: In recent decades research investigators and health policy makers have expended more attention and time to the prevalence, prevention and management of mental disorders (1-9) including addiction disorders, especially stimulants abuse (10-13). In Iran health authorities and also mental health researchers pay more attention to mental problems and substance related disorders including methamphetamine and other amphetamine derivatives (14-23).

Previously, amphetamine derivatives such as ecstasy and methamphetamine was illegally smuggled in from the west, but in these times it is illegally synthesized and produced in Iran in 'underground' laboratories. The methamphetamine synthesized and prepared in Iran is of greater power and is usually associated with psychosis. A single occurrence of abuse has been associated with paranoid and persecutory delusions and hallucinations. Methamphetamine produces a common and ordinary state of well-being accompanied by raised energy, physical activity and wakefulness (24). Prolonged use often ends to driven drug abuse, long-term health consequences, severe dependency, decreased weight, memory deficits, unstable affect, deregulated mood, increased aggression, poor concentration, increased

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Received on: March 2016

Accepted after revision: March 2016

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violence, hallucinations, delusions, and poor impulse control (25, 26).

Methamphetamine is abused globally. In the United States, 18 million people over age 12 have tried methamphetamine during their life (25). As with any abused substance, meth addiction is a chronic relapsing disorder meriting the need for effective pharmacotherapies to aid the prevention of relapse.

According to DSM-IV criteria we ourselves made a **reliable and valid scale** to assess the withdrawal symptoms of methamphetamine dependency (23).

Patient Presentation: We describe a patient with methamphetamine induced repeated psychosis who responded positively to double ECT.

Mr. AD was a 42-year old married jobless man with third grade education of guidance school (middle school), living in Shiraz city of Fars province in Iran. He had not history of psychosis in his family. He didn't report any history of past personal psychiatric or medical history. AD had been a regular smoker of tobacco and opium and also an irregular abuser of heroin, cooked dross and methadone since 20 years prior to first admission (PTA). Since 6 months PTA, he began methamphetamine smoking every day. From that time, he gradually became restless, insomniac and aggressive. Few months later he developed poor appetite, poor sleep, poor function, paranoid delusions and hallucinations (auditory and visual). Because of these problems, he was brought to psychiatric emergency room, then was admitted in psychiatric ward. We did perfect physical and neurological examinations, however we could not find any abnormal results. Laboratory tests including screening tests for markers of serology for HIV and hepatitis were performed which showed no abnormal findings. Urine drug screening tests were positive for methamphetamine and morphine, but the results of other drugs of abuse including benzodiazepines, cocaine, cannabis, ecstasy, tramadol, methadone and buprenorphine were negative.

According to DSM-IV criteria, and also complete medical, psychiatric, and substance use history he was diagnosed as "methamphetamine induced psychosis with onset during intoxication"

At the time of admission, we began haloperidol and increased the dosage to 30 mg/d for treatment of psychosis and also buprenorphine 8 mg/d for reduction of opioid withdrawals. About two week later, due to haloperidol unresponsiveness, and serious situation of the patient, we began ECT.

Patient was monitored and interviewed daily for improvement of psychotic symptoms.

He was also monitored and interviewed for methamphetamine withdrawal symptoms, 3 times a day (morning, afternoon, evening).

Patient received 3 sessions of ECT per week and sessions were in the even days (Saturday, Monday, Wednesday).

After receiving 11 sessions of single ECT his psychiatric symptoms subsided significantly.

He was discharged after six weeks of admission without any evidence of significant psychiatric problem.

AD was in good condition for few months, then he gradually began to smoke methamphetamine and opium. Two weeks prior to second admission, he developed severe anxiety, insomnia, persecutory delusions, auditory hallucination and visual hallucination and was admitted in psychiatric ward.

We did exact neurological and physical examinations, however we did not find any abnormal results. Laboratory tests including screening tests for viral markers were done which showed no abnormal findings. Urine drug screening tests were positive for methamphetamine and morphine only.

According to DSM-IV criteria, and also psychiatric, medical and substance use history he was diagnosed as "methamphetamine psychosis with onset during intoxication"

At the time of admission, we began olanzapine 20 mg/d for treatment of psychosis and buprenorphine 8 mg/d for reduction of opioid withdrawals. Several days later, due to medication unresponsiveness, and serious situation of the patient, we began double

bilateral ECT (2 sessions of ECT in the same session of anesthesia with interval of 5 minutes between 2 sessions of ECT).

ECT induces neurotransmitters balance in the brain and causes improvement much faster than medications. Each convulsion usually lasts 30 seconds.

ECT inhibits positive symptoms such as aggressive behavior, restlessness, hallucination, hyper talkativeness and hyperactivity. ECT stimulates and evokes negative symptoms such as depressed mood, low activity, low energy and withdrawn behavior.

After receiving eight sessions of double ECT (overall 16 sessions of single ECT) his psychiatric symptoms subsided significantly.

In addition he reported more withdrawal symptoms and craving in previous admission while he was receiving single ECT than the present admission while he was receiving double ECT.

He was discharged after three weeks of admission without any significant psychotic symptoms.

Discussion: This case study indicates that ECT could be very helpful in treating methamphetamine induced repeated psychosis.

Patient also experienced more withdrawal symptoms and craving in his previous admission when he received single ECT than the current admission that he received double ECT.

ECT balances neurotransmitters dysregulations in the brain and induces improvement more speedy than medications. ECT keep down symptoms such as restlessness, hyperactivity, hallucination, hyper talkativeness and aggressive behavior. ECT activates symptoms such as low appetite, low energy, depressed mood and low activity.

ECT use in these situations have been published lately (27-33). However, a systematic prospective study of ECT in psychosis is yet to be published, and this presentation is a significant addition to the literature. We should mention that double ECT continues to be used with excellent results in these kinds of patients.

Conclusion: ECT might be used in the management of this serious condition which can represent a risk to life.

We can conclude that ECT especially double ECT is an excellent alternative option in the therapy of methamphetamine induced repeated psychosis, therefore this report can indicates a novel finding.

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