

## Effect of Opium and Heroin Misuse on Chronic Motor Tic Disorder

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Tics are sudden, recurrent and stereotyped motor movements or vocalizations. Dopamine blockers are the main pharmacological agents used in the management of tics.

Opioid antagonists have been reported to have been effective in the management of tics. In this article, two patients with chronic motor tic disorder are reported, whose symptoms were disappeared by using opioid substances.

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### Introduction

**T**ic is a sudden, rapid, recurrent, non rhythmic, stereotyped motor movement or vocalization (1). Although tics are not volitional movements, some individuals can suppress their tics transiently. The prevalence of tic in children of school age is around 12-18% (2). The prevalence is 1-2% in chronic form of tic disorders (i.e. when a tic lasts longer than 1 year).

Tics, which start at 6 to 8 years of age have the best outcome and generally disappear in early adolescence (3). Transient tic disorder (which lasts between 4 to 12 months), chronic motor tic disorder, chronic vocal tic disorder and Gilles de la Tourette syndrome are different forms of tic disorders.

If a tic does not meet the criteria for specific tic disorder, it can be categorized as tic disorder not otherwise specified (1). There is a high rate of co morbidity between tic disorders and attention deficit hyperactivity disorder (ADHD) and obsessive compulsive disorder (OCD). 69% of patients with Gilles de la Tourette syndrome have co morbid ADHD and 36% co morbid OCD (2).

It seems that tic occurs when basal ganglia (especially Globus Palidus) dysfunction is present. Pulsative release of dopamine from basal ganglia and facilitatory and inhibitory effects of Globus Palidus on brain stem are preventative factors in tic production (2).

Dopamine receptor(D) blockers (especially D2 blockers) including haloperidol and atypical antipsychotic are the mainstay of the pharmacological management of tics (2). Opioid antagonists are reported to have been used for the treatment of tic disorder comorbid with ADHD (3) and treatment resistant tic disorder (4). Opioid antagonists, however, had no effect on Gilles de la Tourette syndrome (5).

We report 2 patients with chronic motor tic disorder whose tics were disappeared after abusing opium and heroin.

### Case histories

#### Case one

X, a single 19 years old male, was referred to the substance misuse department for the management of opium dependency. He had given up opium abuse for one week prior to his referral. During the first interview, he had recurrent, rapid, non rhythmic and stereotypical blinking in both eyes. He said that he has been having the symptoms since he was 9 years old. He did not have any co morbid OCD, ADHD or vocal tic. Although he had been referred to a psychiatrist in the past, he

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never used the medication prescribed for him. Based on DSM-IV-TR criteria, a diagnosis of chronic motor tic disorder was established.

In drug history, an interesting but reverse association was found between the use of opium and presence of tic disorder. It appeared that during the time he was abusing opium the tics tended to improve and disappear completely in a matter of few days. He mentioned that since 3 years ago, he had twice tried to come off opium but in both occasions the tics relapsed after 3 to 5 days of stopping the substance. There was no history of stimulant abuse.

### Case two

Y, a married 25 years old man, was referred to substance misuse department with a 5 day history of generalized bodily pain, insomnia, irritability and repetitive and compulsive movements with certain cervical pattern secondary to sudden discontinuation of heroin. The patient reported that he was unable to control the movements. During the interview he mentioned that he started to have the abnormal movements when he was 16. There was no history of stimulant abuse or any accompanying vocal tics, OCD or ADHD. He reported that he was put on haloperidol which did not eradicate the tics. Therefore, he discontinued the treatment. However, during a 9 year period of abusing opium and heroin he remained tic free. Several attempts of quitting heroin or opium resulted in a relapse of the tic disorder.

### Discussion

In our patients the chronic motor tics tended to improve during periods when they were abusing heroin or opium. In both individuals the tics were the main reason for their addiction, as any attempt in coming off the substances were resulted in a relapse of the symptoms in a matter of few days.

Considering the therapeutic effect of D2 blockers and opioid antagonists in the management of tic disorders, it seems to be feasible to deduce that the effect of opioid agonists on improving the tics in our patients

has been mediated through dopaminergic system.

### Conclusion

Although there are literature available on the complex relationship between opioid substances and dopaminergic systems (6-9), we believe future studies on the prevalence and course of tic disorders especially among patients who abuse opioid substances will lead to a better understanding of tic disorders and their pathogenesis.

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