OXYTOCIN ABUSE: A CASE REPORT

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ABSTRACT

This case report describes the abuse of oxytocin, a substance without known euphoric or CNS effects. The possible mechanism which resulted in its abuse is discussed.

Key Words: Oxytocin, abuse

Sociocultural factors, availability of a drug and peer influence are important in determining the type of drug to be abused in a particular community. Drug users frequently shift from one drug of abuse to another drug and also from one route of intake to another route of intake. Experimentation with a newer drug even without any knowledge of its effects is a known phenomenon among drug users. We report a case of oxytocin abuse, a substance without known euphoric or CNS effects.

D.S., a 20 years old, unmarried, illiterate, male, resident of Chandigarh is living in a Gurudwara for the last 15 years. He was gifted to Gurudwara because his parents had taken a pledge to give one child to Gurudwara if their children survived. In the company of Sewadars he learnt to consume cannabis at a young age of 10 years and has been taking it regularly since then. For last 5-6 years his consumption of cannabis increased to 15-20 gms a day. About 2 years back he also started taking tablet diazepam (25-30mg/day) on the advise of other Sewadars but stopped taking it about 2 months back. Patient did not report any withdrawal symptom (s) on discontinuation of cannabis or diazepam.

Diazepam was replaced with capsule dextropropoxyphene (proxyvon) and syrup corex (cough syrup containing codeine). He found dextropropoxyphene and corex better than diazepam. The daily intake of cap proxyvon increased from 2 to 6 caps per day. Similarly daily consumption of corex increased from 30 ml to 60 ml per day.

About a year back he started taking care of cattle where he was informed by other Sewadars about injection oxytocin (which is administered to cattle and cows for faster milk secretions during lactation) and was also informed that injection oxytocin gives a very good “kick”. He found it (oxytocin) a good substitute for cannabis as it was very cheap and easily available. Initially he started taking it via oral route by emptying the ampoule into the mouth but later on shifted to intravenous route. There were days when he was taking only injection oxytocin.

According to the patient when oxytocin is consumed through oral route, he experienced its effects within 10-20 minutes and immediately (within 1-2 min) if injected in a vein. Effects of 1 amp. of oxytocin lasts for about half an hour and for a longer duration (10-12 hours) with higher doses (2-3 amps).

Immediate effects reported were heaviness of head, palpitation, rapid breathing, decreased appetite, lethargy and occasional trembling of limbs. Mood generally became irritable and he picked up fights with friends and occasionally beat them up which he later repented.

Once the effects of oxytocin wears off he felt muscular pains and had to take capsule proxyvon or syrup corex or cannabis. Except muscular pain patient did not experience any other withdrawal symptoms.

There are no effects on sleep, speech, vision and hearing. Patient did not report any craving for injection oxytocin and there has been no evidence of tolerance.
Patient never experienced any financial difficulty as he gets money from the priests in Gurudwara. He denied any physical, familial, legal or occupational complications. Social complications were reported in the form of fights with friends under the influence of oxytocin.

On mental state examination, patient was well kempt, appeared cheerful, was cooperative and communicative. His psychomotor activity was within normal limits. He did not have any thought or perceptual disorder.

Initially his motivation to abstain was poor but became motivated during follow up. He was detoxified with symptomatic treatment for pain and insomnia and was abstinent at the last follow up after four months of detoxification.

DISCUSSION

Oxytocin is effective after administration by any parenteral route and also gets absorbed from buccal mucosa & intranasal spray. Half life varies from 5-12 mins.

Burbach et al. (1983) have reported existence of an enzyme system in the brain which converts oxytocin into a potent neuroactive peptide. This peptide is about 100 times more potent in attenuating memory consolidation in animals tested for passive avoidance behaviour, but is completely devoid of uterotonic activity (Bohus et al., 1978a; 1978b).

Oxytocin is a neurohypophyseal hormone which primarily affects contractile activity of uterine smooth muscle which is dependent on presence of oestrogen. It also acts on myoepithelium in mammary glands. This effect makes it useful for milk letdown in domestic animals. Oxytocin also causes a marked but transient relaxation of vascular smooth muscles in large doses. A decrease in systolic and especially diastolic blood pressure, reflex tachycardia, flushing and an increase in limb blood flow is observed.

In the present case the reported effects like palpitation and heaviness of head may be explained as a result of effects on blood pressure. But other effects like mood changes, feeling of lethargy, rapid breathing, decreased appetite and trembling of limbs can not be explained by known pharmacological action of oxytocin. Patient denied any effect on memory subjectively. These symptoms can not be a part of cannabis or diazepam withdrawal as patient was not dependent on these substances.

Although peripheral actions of oxytocin appear to play no significant role, neurons that contain oxytocin project to regions in the hypothalamus, brainstem and spinal cord that are known to be involved in regulation of the autonomic nervous systems (Buijs, 1983). Oxytocin has also been implicated in the modulation of memory and causes release of prostaglandins in many species. Prostaglandins when injected into cerebral ventricles cause depressant and stimulant effects on the CNS. However, there is contradictory evidence also.

Further data from animal studies as well as case studies will clarify the issue of CNS effects of oxytocin and its abuse liability.

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