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Case Report

Suicidal Death By Xylazine and Ketamine Mixed Intoxication

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Article Info

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Suicides,
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Occupational access,
Suicide prevention

Abstract

Suicide is a complex personal and sociological phenomenon. India accounts for a growing share of the world's suicides. The suicide rates for men and women in India were much higher than the global averages. For both sexes in India, suicide was the leading cause of death among those aged 15-39 in 2016, while globally it was the third most common cause of death for this age group. The reasons for the suicide include lack of employment, poverty, high degree of stress in academic, financial and social reasons. The methods used depends on varies from hanging, poisoning, fall from height, firearms etc. here is a case, we aimed to present a veterinary physician, who had attempted suicide by Xylazine and Ketamine injections. With this case we wanted to present in detail about the Xylazine and Ketamine fatalities and forensic implications and current scenarios regarding suicidal deaths.

1. Introduction

Suicide is a complex personal and sociological phenomenon. India alone accounts for approximately 30% of the world's suicide deaths. In 2013 according to the website, Humansphere, suicide was the most claimed reason for the deaths of more than a quarter of a million Indians. ^[1] Worldwide it has been seen that 15-35 age group has highest incidence for suicide followed by the 50 plus age group. ^[2] Research suggests that psychiatric illness constitutes a major cause for suicides. High occupational suicide rates are often linked to easy occupational access to a method of suicide. The literature on suicide has identified consistent relationships between occupation and suicide. Several occupations with the highest

suicide rates include veterinarians (ranked first), pharmacists (fourth), dentists (sixth), doctors (tenth) and farmers (thirteenth). In this case study, we aimed to present a veterinary physician, who had attempted suicide by Xylazine and Ketamine. Use of Xylazine as a suicidal agent is a rare situation. There are few reports in which it was used for this purpose by veterinary physicians or people dealing with livestock.

CASE REPORT

An adult male of 28yrs old, who is a veterinary doctor by profession found to be dead in his house along with injectable syringes around him. He has called his

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girlfriend and said he would commit suicide. His clinical history is unremarkable. Only we know that he was smoker and social alcohol user. According to the information obtained from his I.O, and he might have injected I.V and S.C himself one vial of Xylazine (500 mg) and Ketamine (1000mg) with suicidal purpose. During Autopsy, on external examination there were multiple puncture wounds (injection marks) present over back of both hands and dorsum of both feet. Internally, the organs are intact and congested. The blood and viscera along with the skin around the injected sites with control sites were preserved for chemical analysis and sent to forensic science laboratory. Chemical analysis report found to be positive for Xylazine and Ketamine hydrochloride in the sent articles along with the presence of ethyl alcohol. Quantum of alcohol is 143.8mg/100ml of blood. Cause of death is due to cardiac arrest due to Xylazine and Ketamine mixed intoxication.

3. DISCUSSION

Xylazine is a colourless, bitter-tasted, crystalline substance, which is basically used in veterinary medicine. Its chemical structure is similar to phenothiazines, tricyclic anti-depressants, and clonidine. It is a nonnarcotic drug and used as a sedative or in combination with other drugs for sedation, analgesia, or general anaesthesia in animals.³ The use of Xylazine in humans was investigated and was not approved by FDA due to permanent hypotension, bradycardia, and reduction of cardiac output, with depression of central nervous system.⁴ Use of Xylazine as a suicidal agent is a rare situation. There are few reports in which it was used for this purpose by veterinary physicians or people dealing with livestock.

Ketamine is structurally and pharmacologically similar to the recreational drug phencyclidine (PCP), sharing its potent hallucinogenic and analgesic properties. Ketamine is used as an induction and sedation agent in emergency departments. It is used in all fields of anaesthesiology, including paediatrics, critical care, cardiac surgery, outpatient sedation and for the management of acute and chronic pain. In addition

to its legitimate uses, Ketamine is also a drug of abuse (rave culture)⁵ commonly identified by street names such as Special K, Vitamin K, and K. Ketamine is primarily acquired for abuse through sources such as hospitals and veterinary surgeons. Despite the reported increased use of Ketamine as a recreational drug, relatively few fatalities attributed to Ketamine poisoning have been documented. The adult literature is even more limited since all of the overdosed cases were self-induced from recreational use and were found postmortem.⁶⁻⁸ There are evidences for the lethality of mixed-drug intoxication involving Ketamine and Ethanol⁹ and Ketamine with various rave-associated drugs.⁷ Numerous mixed-drug fatalities cite a variety of Ketamine concentrations as contributing causes of death, all of which are markedly lower than the few reports of intoxication due to Ketamine alone.⁹

In a study of several mixed drug intoxications, in which Ketamine was detected, the presence of other drugs were concluded to be the major contributing factors for the fatalities. In our case report, as there was mixed intoxication and FSL report confirmed the presence of Xylazine, Ketamine and Ethyl alcohol. So, when the intake of Xylazine was mixed with Ketamine together with the alcohol, the toxic effects and the fatality increased by synergic effect. In our case, that the deceased had received 500mg of Ketamine and 1000mg of Xylazine. The concentration of Xylazine is more and studies show the death due to Xylazine is quite common. The overdose of Ketamine result in prolonged sedation or is tolerated, as studies shows due to overdosed cases of self-inflicted from recreational use and were found postmortem. So the fatality of Xylazine is more when compared to Ketamine, however, in our case, it was due to mixed intoxication due to Xylazine, Ketamine and Ethyl alcohol.

Occupations with access to lethal means represented those that had greater access to lethal means in the course of their work, and had knowledge about how to use these lethal means to harm themselves.^{10, 11} Our study suggest that occupational access to means is an important risk factor for suicide. Factors influencing an individual's choice of suicide method are believed to include

availability, knowledge about how to use a potential suicide method, and the overall perceived cultural acceptability of the method. There has been limited research on the relationship between access to means and suicide within the employed population, and those that have been conducted have been based in specific occupational settings (e.g., police, military, doctors and veterinarians).¹²⁻¹⁴

4. CONCLUSION

To our knowledge, there are six cases of Xylazine intoxication with the suicidal purpose in the medical literature. The common characteristics of the cases who attempted suicide were dealing with veterinary medicine or livestock; Our case was the first veterinary physician who had used Xylazine with Ketamine for the suicidal purpose. Since Xylazine and Ketamine are started to be used as a narcotic substance, the probability of meeting with Xylazine-related intoxication cases is increasing. There is evidence for the lethality of mixed-drug intoxication involving Ketamine, Ethanol and Ketamine with various rave-associated drugs. With this case, we wanted to present Xylazine and Ketamine in detail, and to update, inform, and warn the emergency physicians on Xylazine and Ketamine intoxication. The findings of this study suggest the importance of controlling access to lethal methods in occupations where these are readily available, and where there is evidence that these are particularly utilized by those who die by suicide.

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