

Death from spurious Lorazepam used for Robbery: A rare case report

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ABSTRACT

Stupefying people for robbery, rape or kidnapping by criminals are now increasing in our society. The criminals make friendship during journey by train or bus and then give some food, drinks or tea mixed with stupefying agents. The victim soon falls into a deep sleep and later on wakes up to find his belongings lost. But sometimes these may result in fatality, i.e., death of the victim. A 40 yr old man had admitted his son for fever in paediatrics ward. During his stay in the hospital, some unknown persons made friendship with him & gave some biscuits at night resulting in deep sleep. On the next day morning, he was found in a stuporous condition and all his valuables like cash, mobile were robbed away. Then he was shifted to medicine ward for treatment. After two days of treatment, he succumbed to death. On autopsy, features of poisoning was found.

Keywords: stupefying; robbery; rape; kidnapping; deep sleep; poisoning

INTRODUCTION

Poisoning is one of the most hazardous public health problems in India & so also in Odisha, causing significant morbidity & mortality. Recent World Health Organisation (WHO) estimates suggest that more than 3 million cases of acute poisoning occur worldwide annually, the majority being caused by organophosphorus compounds used for agricultural purposes in developing countries like India.¹ Mostly, these type of poisoning are suicidal in nature but poisoning in travelers are alarmingly increasing now-a-days which are homicidal in nature. Unfortunately, no statistical data of transport poisoning is available in India.

The robbers stupefied passengers in the buses, trains, auto rickshaws, taxis by offering foods & drinks mixed with stupefying agents resulting in drowsiness & unconsciousness. These types of cases are common in bus stands & railway stations. Generally, men are the most common victims as they are more outgoing, extroverts & can be easily approached unlike women who are introverts and shy in nature, remain inside home & do not take anything from strangers or talk with any unknown person. The stupefying agents used by the robbers are datura, cannabis, chloral hydrate, benzodiazepines, etc.^{2,3,4}

CASE - REPORT

A four month old baby was brought to the paediatrics department of our hospital at for fever on 10th September 2014. On the night of 12th September 2014, while he was sleeping outside the ward, he came across three unknown persons who cleverly made friendship with him and then managed to give him some biscuits at about 11pm. When the victim fell asleep after 1 hour, they robbed him of his money and mobile. On next day morning, he was found in a stuporous condition and then shifted to medicine ward for treatment. He succumbed after two days of treatment for which autopsy was conducted in department of forensic medicine & toxicology. During autopsy, no external injury in any form was detected. The conjunctiva was congested and pupils were dilated. A thin film of subarachnoid haemorrhage was present on both sides of the occipital lobes of the brain. Multiple pin-point subepicardial haemorrhages were present on the posterior surface of the heart. The stomach contained 50ml of yellowish coloured fluid without emitting any particular odour. The mucosa of stomach was edematous and congested with multiple patches of submucosal haemorrhages. The routine viscera were collected and

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sent to SFSL for chemical analysis. Tissues from brain, lung, liver and kidney were collected and sent to pathology department for histopathological study.

DISCUSSION

Histopathology report of brain showed dilated and congested blood vessels. Lungs showed features of pulmonary edema. The liver showed focal hepatocellular degeneration with sinusoidal dilation and edema. Kidney showed features of tubular necrosis with areas of congestion and hemorrhage. All were exactly the features of ingestion of certain acute poisonous or toxic substance. Chemical analysis of routine viscera from SFSL detected "Benzodiazepine" group of drug. So opinion as to the cause of death of the deceased was given due to the intake of certain "Benzodiazepine" group of drugs.

All the three accused were arrested and produced for examination to our department. Some marketed cream biscuits, Ativan [2mg] tablets and Fevikwik gum were recovered from them. During their interrogation, they revealed an interesting story about the incident. The composition of Ativan tablet is lorazepam. They revealed that, usually they would grind about 8-20 Ativan tablets into powdered form and then add some water to form a paste. After opening one end of biscuit packet, they would separate the two parts of first or second biscuit. Then they used to admix the paste over the cream of the biscuit and then again keep the two parts of those biscuits as such inside the packet by applying Fevikwik gum at the margins of the biscuits. They stupefy the victim by giving first or second biscuit that contain the Ativan tablet paste and take other biscuits by opening the biscuit packet in front of the victim. Within half an hour to one hour of ingestion of these biscuits, the victim would go to deep sleep. After that, they would rob all the money and other valuable articles of that victim. On that fateful night, two of the accused came to paediatrics department in search for fresh robbery and then accidentally came across the victim. They cleverly made friendship with him, acting as patient's attendants. They managed to give some cream biscuits admixed with the powdered form of 8 Ativan tablets. After one hour, the victim went to deep

sleep and then they all managed to rob his valuables including cash, mobile, etc.

Lorazepam is a highly potent, intermediate-acting 3-hydroxy benzodiazepine drug. It was first introduced in 1977. Its systematic name (IUPAC) is 7-Chloro-5-(2-chlorophenyl)-3-hydroxy-1,3-dihydro-2H-1,4-benzodiazepine-2-one.^{5,6} Ativan tablets are available as 1mg, 2mg or 4mg in market. Different routes of administration of Ativan tablets are oral, intramuscular, intravenous, sublingual and transdermal. The half-life of lorazepam is 9-16 hours.⁶ Bioavailability of lorazepam is 85% of the oral dose.^{6,7} It is metabolised in the body by hepatic glucuronidation and excreted through renal system.^{6,9} It has six intrinsic benzodiazepine effects like anxiolysis, anterograde amnesia, sedation or hypnosis, antiepileptic, antiemesis, muscle relaxation. But in elderly and debilitated patients, the metabolism of benzodiazepine drugs are metabolised slowly; slower clearance leading to accumulation and enhanced effects. Alcohol mixed with lorazepam increases its impairment. But in liver or kidney diseases, lorazepam has minimal effects.

We have gone through different books of Pharmacology and FMT but nowhere particular toxicity doses of lorazepam are written. Toxicity doses of BZDs are only written in FMT books. According to textbook of Comprehensive Medical Toxicology by V.V. Pillay, even 2gm of diazepam, has not resulted in death. In the textbook of FMT by Krishan Vij, as many as 70 tablets are unlikely to produce anything more than mild effects. In the Essentials of FMT by K.S.N. Reddy, fatal dose of BZDs are 100-300 mg/kg BW. So a large dose of lorazepam or BZDs tablets are required to cause toxicity or death of a patient. But in this present case, the accused had confessed that they had administered only 8 Ativan tablets [2mg]. So, a victim ideally would have never died with this small amount of lorazepam, i.e. 16mg. Further, some pharmacology books have written that intermediate-acting BZDs like Flunitrazepam, Flurazepam and Temazepam have higher acute toxicity as compared to Diazepam, Lorazepam, Clonazepam.

Lorazepam is a schedule IV drug under the Controlled Substances Act in the US and internationally under the United Nations Convention on Psychotropic Substances.¹⁰ So it has low tolerance and dependence potential.

Lorazepam toxicity/overdose causes mental confusion dysarthria, anterograde amnesia, hangover effects, paradoxical reaction, drowsiness, hypotonia, ataxia, hypotension, hypnotic state, coma, cardio-vascular depression, respiratory depression and death.^{6-9,15}

Similarly, contraindications of lorazepam uses are allergy/hypersensitivity, severe respiratory failure, ataxia, acute narrow angle glaucoma, sleep apnea, myasthenia gravis, pregnancy and breast-feeding.⁶

⁹ Benzodiazepines have wide therapeutic index and taken alone in overdose rarely cause severe complications or fatalities.¹² More often than not, a patient who inadvertently takes more than the prescribed dose will simply feel drowsy and fall asleep for a few hours. Benzodiazepines taken in overdose in combination with alcohol, barbiturates, opioids, tricyclic antidepressants or sedating antipsychotics, anticonvulsants, or antihistamines are particularly dangerous.¹⁴ In addition the elderly and those with chronic illnesses are much more vulnerable to lethal dose with benzodiazepines. Fatal overdoses can occur at relatively low doses in these individuals.^{12,15-17} We took the past history of the deceased from his relatives and came to know that he was a diabetic patient but proper treatment history was unavailable. All textbooks of medicine are silent about the effects of Lorazepam/BZDS overdose in diabetic patients, so also no article was found regarding this.

CONCLUSION

Generally, poisoning due to lorazepam is associated with very minimal mortality. These drugs are readily available anywhere in India without any medical prescription. So BZDs are frequently used to commit suicide but now-a-days, these are increasingly used to stupefy the people by mixing these drugs in cold drinks, tea, some food items during the journey for the purpose of robbery. The diagnosis of these travel-related poisoning or stupefaction and so also in identifying the offending agents are often very

difficult. In most of the cases, the victims are found in an unconscious condition. So diagnosis and treatment of these cases are often challenging to physicians. Strict legislation be formed by the government to prevent selling of drugs especially the neuropsychotropic drugs without medical prescription. Separate toxicology ward and toxicological analytical laboratory be set up in each medical colleges and hospitals for quick diagnosis and better treatment. Social mobilization and awareness should be conducted in community about safe travel and possible health hazards during travel.

CONFLICTS OF INTEREST

Declared none

REFERENCES

1. World Health Organization [Internet]. Geneva: WHO Recommended Classification of Pesticides by Hazard and Guidelines to Classification, Inc.; c2000-01 [updated 2001; cited 2015 May 30]. Available from: <https://books.google.co.in/books?id=8p1WNFEA7P4C&pg=PA256&lpg=PA256&dq=WHO/PCS/01.4&source=bl&ots=L LsM53Fg26&sig=mGID48AFupGJQ0WQ9HsoKDAcS bM&hl=en&sa=X&ei=mKWgVf2vH0mqywO5tL2YC w&ved=0CCQQ6AEwAQ#v=onepage&q=WHO%2FP CS%2F01.4&f=false>.
2. Pillay VV. Modern Medical Toxicology. 4th ed. New Delhi: Jaypee Publishers; 2013: p.201-2.
3. Reddy KSN. The Essentials of Forensic Medicine & Toxicology. 32nd ed. Hyderabad: Om Sai Graphics; 2015: p.564.
4. Vij K. Textbook of Forensic Medicine & Toxicology. 5th ed. New Delhi: Elsevier publication; 2011: p.510.
5. Wikipedia, the free encyclopaedia [Internet]. Lorazepam. c2015 [updated 2015 May 28; cited 2015 May 30]. Available from: <https://En.wikipedia.org/wiki/Lorazepam>.
6. Goodman, Gillman. The Pharmacological Basis of Therapeutics. 12th ed. China: Mc Graw Hill-Medical; 2011: p.458-65.
7. Katzung, Masters, Trevor. Basic & Clinical Pharmacology. 12th ed. China: Mc Graw Hill-Medical; 2012: p.377-87.
8. Rang HP, Dale MM, Ritter JM, Flower RJ, Henderson G, Rang, Dale. Textbook of Pharmacology. 7th ed. Spain: Elsevier Churchill Livingstone; 2012: p.533-38.

9. Richard A. Harvey, Whalen K. Lippincott Illustrated Reviews Pharmacology. 6th ed. New Delhi: Wolters Kluwer (India) Pvt. Ltd.; 2015: p.124-25.
10. Green L. List of psychotropic substances under international control. 23rd ed. Vienna: International Narcotics Control Board; August 2003;p.7.
11. Robed MA, Hasan SM, Ali M. Poisoning while travelling by. Internet Journal of Tropical Medicine 2007; 5(1). 52-54.
12. Gaudreault P, Guay J, Thivierge RL, Verdy I. Benzodiazepine poisoning. Clinical and pharmacological considerations and treatment. Drug Saf 1991;6(4): 247-65.
13. Welch TR, Rumack BH, Hammond K. Clonazepam overdose resulting in cyclic coma. Clin Toxicol 1977;10 (4): 433-6.
14. Charlson F, Degenhardt L, McLaren J, Hall W, Lynskey M. A systematic review of research examining benzodiazepine-related mortality. Pharmacoepidemiol Drug Saf 2009;18 (2): 93-103.
15. Sunter JP, Bal TS, Cowan WK. Three cases of fatal triazolam poisoning". BMJ 297 1988; 6650: 719.
16. Brødsgaard I, Hansen AC, Vesterby A. Two cases of lethal nitrazepam poisoning. Am J Forensic Med Pathol 1995;16 (2):151-3.
17. Reidenberg MM, Levy M, Warner H, Coutinho CB, Schwartz MA, Yu G, Cheripko J. Relationship between diazepam dose, plasma level, age, and central nervous system depression. Clin Pharmacol Ther 1978; 23 (4): 371.