p-ISSN: 0973-3558, e-ISSN: 0973-3566 DOI: 10.5958/0973-3566.2022.00011.6

Case Report

Gastric Decontamination In Venlafaxine Toxicity

Ishita Manral* Saurabh Sharma Manisha Jindal*** Rahul Manral**** K. V. Radhakrishna*******

*Dept of Forensic Medicine and Toxicology, Command Hospital, Kolkata, West Bengal-700023, **Dept of Internal Medicine, Command Hospital, Pune, Maharashtra-411040, ***Dept of Psychiatry, Command Hospital, Kolkata, West Bengal-700023, ****Dept of Physiology, Armed Forces Medical College, Pune-411040, *****Dept of Forensic Medicine & Toxicology, Armed Forces Medical College, Pune-411040

Article Info

Corresponding author : Ishita Manral, Asst Prof, Dept of Forensic Medicine and Toxicology, Command Hospital, Kolkata, West Bengal-700023
Email: atihsi532@gmail.com

How to cite this article : Manral I, Sharma S, Jindal M, Manral R, Radhakrishna KV. Gastric decontamination in Venlafaxine Toxicity. J Ind. Soc. Toxicolo 2022;18(2):15-18

DOI: 10.5958/0973-3566.2022.00011.6

Abstract

Acute poisoning is a widespread emergency that mandates early management decisions for optimal outcomes. Venlafaxine is an antidepressant which inhibits the reuptake of serotonin, norepinephrine and to an extent dopamine. A 32-year-old female ingested 750 mg of Venlafaxine and was rushed to the hospital within half an hour of ingestion. She experienced abdominal discomfort and uneasiness. On arrival, she had sinus tachycardia and elevated systolic blood pressure. The patient was stabilized and decontaminated with gastric lavage within half an hour of her arrival. She was admitted and managed in the intensive care unit and was discharged after an uneventful stay. This case demonstrates the timely use of gastric decontamination and its relevance in preventing toxicity.

Keywords : Gastric decontamination, Venlafaxine, overdose, affective disorder

Introduction :

Attempt to commit suicide has been decriminalized in India. It is now assumed that the patient is in need of help.[1] India has reported a total of 139,123 suicides in 2019. A 3.4 % increment in the number of suicides has occurred compared to last year.[2]

Common causes leading to suicide are Family problems, marital discord, illnesses and drug abuse being the leading cause of attempted suicide. Hanging followed by overdose and poisoning are the commonly employed means to attempt suicide. Patients with psychiatric disorders are known to attempt and consider suicide more than the remaining population. The number of women attempting suicide in India is nearly thrice that of men.[3] 10-15 % of suicidal bids are impulsive in nature.[4]

In this report, we present a case of a middle-aged married lady who was a known case of psychiatric disorder on follow-up. After an altercation with her spouse, the lady consumed an entire strip of venlafaxine and had immediate symptoms. She was known to have attempted suicide previously also.

Venlafaxine is a novel bicyclic antidepressant. It is a phenylethylamine derivative that blocks the reuptake of serotonin, norepinephrine and to a lesser extent dopamine. It is rapidly absorbed and metabolised in the liver to its active metabolite, O-desmethyl-venlafaxine, which has less noradrenergic and dopaminergic activity than the parent compound. It reaches a peak concentration in one to two hours while its active metabolite reaches a peak concentration in four to five hours.[5,6]

Case details

A 32 years old, Indian female with a diagnosis of Bipolar disorder reported to the hospital with a history of ingestion of approximately twenty tablets of Venlafaxine (37.5 mg), unaccompanied by any other

drugs in an attempt to commit suicide. Although the patient was on Tab. Lithium, she stated that she had not taken any other drugs during the day. She was otherwise on regular follow-ups with the psychiatry department of a tertiary care hospital. Within minutes of consumption of tablets, she complained of epigastric discomfort, chest discomfort and nausea following which she was immediately rushed to the tertiary care centre.

On presentation to the Accident & Emergency Department, she informed the details herself and showed the empty strips of the ingested drug. On examination, she was oriented to time, place and person and had sinus tachycardia (120/min)**(Fig 1)**, elevated systolic blood pressure (144/80 mm Hg), SpO2 at room air was 98% and the temperature was 37° Celsius. Her systemic examination was normal. She was stabilised and gastric decontamination was done. Her ECG was normal after stabilization**(Fig 2)** with QTc of 394 msec (using Bazett's method). Her serum electrolytes were within normal limits and her venous blood gas analysis showed respiratory alkalosis (pH-7.519, pO2-35 mmHg, pCO2-28.1 mmHg, HCO_3^- -22.2 mmol/L, H= 30.3 nmol/L).A nasogastric tube was placed and the patient was decontaminated with 3L of normal saline. Gastric lavage was performed on the patient and supportive care was continued. The vital signs of the patient remained stable during the procedure. She was admitted to ICU and the remainder of the hospital stay was uneventful.

Discussion :

For every suicide, there are many more people who attempt suicide. A prior suicide attempt is the single most important risk factor for suicide in the general population. Attempt to suicide has been decriminalized in our country. It is assumed that the patient is in agony and is in need of help from professionals. India has reported a total of 139,123 suicides in 2019. A 3.4% increment in the number of suicides has occurred compared to last year. Due to restrictions laid down by the pandemic of COVID-19 an increased incidence of suicide and attempts have been seen in recent times.[1,2,3,7]

West Bengal stands third in the reported number of suicides in India after Maharashtra and Tamil Nadu.[2,7] Family problems, disease, drug abuse and marriage-related issues are the most common cause of people attempting suicide. Marriage-related issues, dowry issues, infertility and illness are common causes in females who attempt suicide.[7-10] In this case, it was the existent psychiatric illness with altercation which precipitated the event. The male-female ratio is 70.2:29.8. Overdose and poisoning are the common methods employed in 26% of patients attempting suicideas in this case. The most common drugs employed for self-poisoning in adults include analgesics, sedatives, hypnotics, anti-depressants, cardiovascular drugs and anticonvulsants.[7-10] 67% of people with suicidal behaviour had an underlying major depressive disorder, 55% had an alcohol addiction, 26% have personality disorders and 12% had a bipolar affective disorder. Bio-psychosocial disorder, depression, schizophrenia and bipolar disorders are major causes that lead to death by suicide. The spectra in Affective disorder vary between Major depression and Mania. For disorders like depression and anxiety, therapies are directed at modulating the neurotransmitters by drugs including selective serotonin reuptake inhibitors, mixed norepinephrine and serotonin reuptake inhibitors, reversible inhibitors of monoamine oxidase inhibitors, tricyclic antidepressants and atypical antidepressants. Venlafaxine is one such drug used in the treatment.[7-11] 10-15 % of suicidal bids are impulsive and the rest can be prevented through timely intervention and appropriate psycho-social therapy. Aggravated by interpersonal conflicts, it is a common cause of attempted bids which are impulsive in nature. In our case, the patient had previously also attempted suicide.[4]

Venlafaxine is a novel antidepressant referred to as Serotonin Noradrenaline Reuptake Inhibitor, because it inhibits the uptake of both NA and 5-HT but, in contrast to older TCAs, does not interact with cholinergic, adrenergic or histaminergic receptors or have sedative property. It was first introduced in 1993 and in 1997 it got the approval for extended-release formulation. Trials have shown it to be as effective an antidepressant as TCAs. It has dual unique action wherein it is a potent inhibitor of the reuptake of serotonin and norepinephrine at central nervous system terminals and it lacks significant affinity for muscarinic, cholinergic, adrenergic and histaminergic receptors. A faster onset of action and action in resistant cases is claimed.[5,6,10,11] It has been useful in affective disorder, Mood changes, and hotflashes in menopausal syndrome and eating disorders. 92% of a single dose is absorbed. The absolute bioavailability is 45%. Renal elimination is the primary route of excretion. It reaches a peak concentration in one to two hours while its active metabolite reaches a peak concentration in four to five hours. It has the potential for cardiovascular toxicity with alteration in blood pressure as noted in this case. Central nervous system

toxicity has also been documented though in our case patient had a GCS of 15/15 and had no bouts of confusion or altered sensorium. Amongst the known side effects of the drug, seizures, dysphoria, anxiety, mydriasis, sweating, tremor, tachycardia and clonus are known to be delayed by sixteen hours. In this case, an immediate manifestation of anxiety and chest discomfort with nausea lead the family and patient to seek medical attention.[5,6,10,11]

Toxidromes are constellations of symptoms commonly encountered with certain drug classes including anticholinergics, cholinergic, opioids and sympathomimetics. Among non-SSRI antidepressants, venlafaxine has one of the highest risks of QT prolongation in overdose, with the associated risk of sudden cardiac death caused by Torsades de pointes. Massive ingestion of more than 8g may be particularly susceptible to cardiac toxicity (our patient ingested about750 mg).[5,6,10,11] The mechanism of cardiac toxicity is not entirely understood, but two theories have been suggested. It inhibits sodium channels in ventricular myocytes in a concentration-dependent manner resulting in myocardial stunning. The second theory is excess adrenergic stimulation, resulting in myocardial stunning like Takotsubo Cardiomyopathy.[12]

The goal of gastric decontamination is to prevent the absorption of the toxin. Ongoing treatment of unstable patients with toxic medication ingestion should focus on correcting hypoxia and acidosis while maintaining adequate circulation. The purpose of airway management and breathing support in a person who has been poisoned is to correct hypoxia and acidemia while preventing aspiration.[13] Gastric lavage is a commonly used method of gastrointestinal decontamination in developing countries where antidotes are infrequently available and advanced care support may be available in limited centres. It should be taken early on in the clinical course; within the first hour as per recommendations after ingestion for maximal benefit.[14] In this case, the patient did not have any contra-indications like repeated vomiting, non-intact gastrointestinal tract, hemodynamic instability or high risk of aspiration. Thus, we initiated gastric decontamination early on in her clinical management.

Though attempted suicide has been de-criminalised by the Mental Health Act of 2017, section 309 IPC still exists in the Constitution of India. Thus, even though the patient is in need of psychiatric assessment, the doctor is not wrong if he initiates a medico-legal case after stabilising the patient and initiating all necessary management modalities.[1]

Conclusion :

Optimal patient care in toxicity is an individual case approach. Timely interventions and promoting awareness among healthcare workers improve their risk assessment strategies and management plans.

Conflict of Interest: Nil

Source of Funding: None to declare

Figure 1 : ECG before initiation of treatment

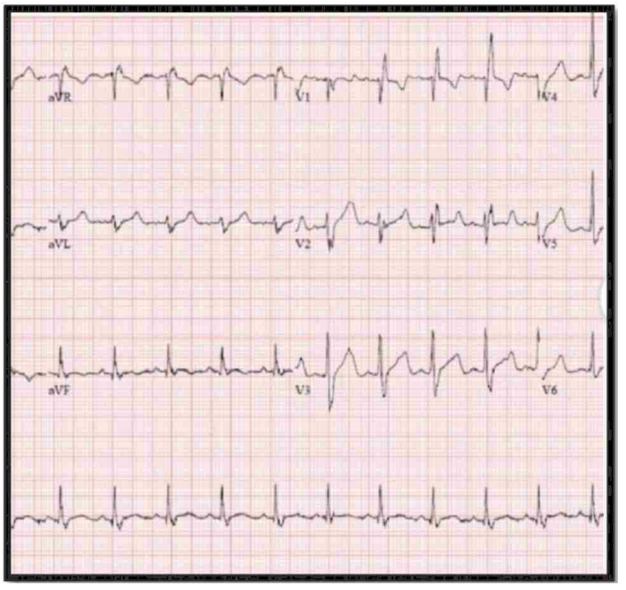
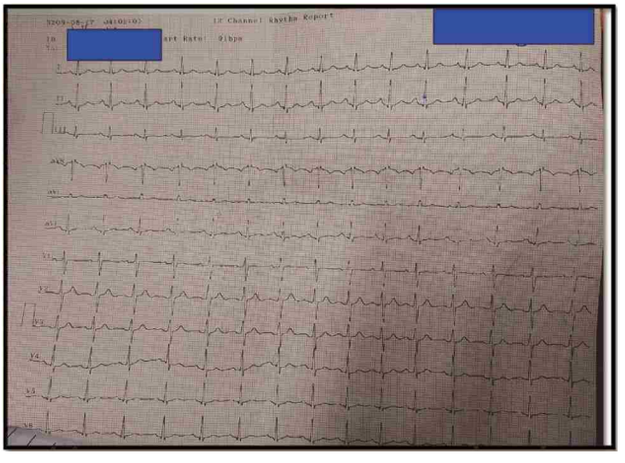


Figure 2 : ECG after stabilising the patient



References

1. Mental Healthcare Act, 2017 [Internet] Available from: http://www.prsindia.org/uploads/media/Mental%20Health/Mental%20Healthcare%20Act,%202017.pdf
2. World Health Organization. Global Health Observatory (GHO) data: Suicide rates (per 100 000 population). Available from: https://www.who.int/gho/mental_health/suicide_rates/ en/, accessed on September 28, 2019.
3. National Crime Records Bureau. Accidental deaths & suicides in India 2015. Available from http://ncrb.gov.in/StatPublications/ADSI/ADSI2015/adsi-2015-full-report.pdf.
4. India State-Level Disease Burden Initiative Suicide Collaborators" Gender differentials and state variations in suicide deaths in India: the Global Burden of Disease Study, 1990–2016. Lancet Public Health. 2018; (published online Sept 12.)
5. Tripathi KD. Essentials of medical pharmacology. 5th edn. Jaypee Brothers Medical Publishers; 2004.
6. Alfred martin, AHC Chun. Physical pharmacy. 5th edn. Lippincott Williams and Wilkins.1994.
7. Dsouza DD, Quadros S, Hyderabadwala ZJ, Mamun MA. Aggregated COVID-19 suicide incidences in India: fear of COVID-19 infection is the prominent causative factor. *Psychiatry Res.* 2020:113145.
8. Accidents & Suicides. [Internet] Available from: https://ncrb.gov.in/sites/default/files/adsi2020_Chapter-2-Suicides.pdf
9. Suicidal ideation and attempts among men who inject drugs in Delhi, India: psychological and social risk factors.Soc Psychiatry PsychiatrEpidemiol. 2014;49: 1367-77.
10. Singh B, Ahuja N. Book review on Pharmaceutical Experimental Design. *Int J Pharm.* 2000;195:247–8.
11. Government of India. Ministry of Health and Family Welfare. Delhi: Controller of Publication; 1996. Indian Pharmacopoeia; p. 736
12. Vasudev R, Rampal U, Patel H et al. Selective Sertonin Norepinephrine Reuptake inhibitors induced Takotsubo Cardiomyopathy. N Am Med Sci. 2016;8:312-5
13. Bateman DN. Gastric decontamination--a view for the millennium. Emergency Medicine Journal. 1999;16(2):84-6.
14. Jones AL, Volans G. Management of self poisoning. BMJ. 1999;319(7222):1414– 18.

• • •