

## A Case Report on the Major Depressive Disorder Occuring with the Benzodiazepine Poisoning

Authors: Dr. Sravani Muppana(1), Sunanda Kaligithi(2)

Address: 1. Zhengzhou university, Henan province, China

2. V pharm.D, Aditya pharmacy college, surampalem, Kakinada

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### I. INTRODUCTION:

Depression, also referred to as major depressive disorder (MDD), is a mental health illness marked by enduring feelings of hopelessness and sadness as well as a lack of interest in or satisfaction from activities. It's a psychological condition that can have an impact on day-to-day functioning, thoughts, and feelings. The symptoms include depressed mood, loss of interest or pleasure, changes in weight, sleep disturbances, fatigue, feeling of worthlessness and excessive guilt, difficulty in concentrating and making decisions, suicidal thoughts. Globally, the condition is thought to affect 5% of individuals. Depression can be treated with pharmaceuticals and psychological approaches. Treatment and support services for depression, however, are frequently lacking or inadequate in low-and middle-income nations. It is believed that over 75% of individuals in these countries with mental health conditions do not obtain treatment. A person can be diagnosed with major depressive disorder (MDD) if they meet five criteria listed in the DIAGNOSTIC AND STATISTICAL MANUAL OF MENTAL DISORDERS. Among these criteria is a low mood or anhedonia that interferes with social or professional functioning. To diagnose MDD, a history of manic or hypomanic episodes must be ruled out. It is possible for kids and teenagers with MDD to exhibit irritability.

Other forms of depression classified as depressive disorders in the DSM-5 include:

- Persistent depressive disorder, formerly known as DYSTYMLIA.
- Disorder of disruptive mood dysregulation.
- Disorder of premenstrual dysphoria

- Medication- or substance – induced depression.
- Depressive disorder due to another medical illness.
- Undefined depressive illness.

### CASE STUDY:

A 27-year-old female patient brought to EMR with alleged self -consumption of lorazepam ( 1.0mg) and was admitted in MICU ward in tertiary care hospital. Condition of the patient at the time of admission was drowsy with slurred speech, vomiting 4 episodes and febrile. On interviewing the care taker it was found that she had history of low mood, irritability, decreased pleasure and interpersonal issues with husband since 3months. A diagnosis of BENZODIAZEPINE POISONING WITH MAJOR DEPRESSIVE DISORDER(MDD) is made.

### VITAL DATA:

- BP: 150/100 mm Hg
- PR: 129/ min
- RR: 22/min
- TEMPERATURE: 99.8°F
- SPO2: 89 % ON ROOM AIR

Gastric lavage was done with activated charcoal in a local hospital and came to tertiary care unit in view of drowsiness.

### VIRAL MARKERS:

- HBsAG : ( Chemiluminescence) : NEGATIVE
- HIV – 1+2 SCREENING ( Ag + Ab) : NEGATIVE
- HCV – HEPATITIS C VIRUS : NEGATIVE

**LABORATORY INVESTIGATIONS:**

SL.No	INVESTIGATION METHODS	ABNORMAL LEVELS	INDICATION
	<b>COMPLETE BLOOD PICTURE</b>		
1.	Haemoglobin	9.5g/dl	Anaemia
2.	RBCCount	2.78 million/ul	Weakness, shortness of breath
3.	WBC Count	14.100 10 <sup>3</sup> /mm <sup>3</sup>	infections
4.	Platelets	110 10 <sup>3</sup> /mm <sup>3</sup>	Liver cirrhosis, folate deficiency, infections in the bone marrow
5.	ESR	25 mm/1 <sup>st</sup> hr	Kidney diseases
	<b>RENAL FUNCTION TESTS</b>		
6.	Serum creatinine	1.2 mg/dl	Infection and impairments of kidney functions
	<b>LIVER FUNCTION TESTS</b>		
7.	ALT (SGPT)-SERUM/PLASMA	22 U/L	Vit B6 deficiency, hepatitis and inflammation of liver.
	<b>SERUM ELECTROLYTES</b>		
8.	Sodium	152 mmol/L	High blood pressure
9.	Potassium	3.0 mmol/L	vomiting
	<b>BLOOD SUGAR LEVELS</b>		
10.	Random blood sugar	73 mg/dl	Slurred speech and drowsiness

**URINE EXAMINATION:**

On BENZODIAZEPINES (BZO- SPOT URINE DOA) - DETECTED

**TREATMENT CHART FOR BENZODIAZEPINE POISONING:**

Serial no	Drug name	Dose	ROA	FREQUENCY	INDICATION
1.	Inj. Pantoprazole	40mg	IV	OD(1-0-0)	Acid reflux
2.	Inj. Ceftriaxone	1gm	IV	BD(1-0-1)	Infections
3.	Tab Flumazenil	0.1mg	P/O	SOS	Respiratory depression
4.	Tab Bevon	1tab	P/O	OD(0-1-0)	Multivitamin-mineral anti-oxidant

- Inj. NS/ RL 100ml/hr iv stat
- Inj. 25% dextrose iv stat

**TREATMENT FOR MAJOR DEPRESSIVE DISORDER :**

Serial no	Drug name	Dose	ROA	FREQUENCY	INDICATION
1.	Tab. Zonalta	8mg	PO	OD(0-0-1)	Induce sleep
2.	Tab. Vortadif	8mg	PO	OD( 0-0-1)	Depression associated with bipolar disorder.
3.	Tab. Lurafic	40mg	PO	OD(0-0-1)	Major depressive disorder.

## II. RESULTS:

### Clinical presentation:

The patient, a 27-year-old female presented with the symptoms indicative of lorazepam poisoning including the drowsiness, slurred speech, vomiting and fever.

### Psychiatric history :

The patient exhibited a history of low mood, irritability, decreased pleasure and interpersonal issues with her husband spanning three months, suggesting a coexisting MDD.

### Diagnostic assessment:

A comprehensive diagnosis of benzodiazepine poisoning, coupled with major depressive disorder, was established through the clinical presentation and psychiatric history.

## III. DISCUSSION:

### 1. Association between the disorders:

The interplay between the benzodiazepine poisoning and major depressive disorder can be complex. Benzodiazepines, like lorazepam, are central nervous system depressants that can cause sedation and respiratory depression. When misused or consumed in excessive amounts, they can contribute to a range of physical and cognitive impairments, such as the drowsiness and slurred speech as observed in this case.

On the other hand, MDD involves low mood, irritability and decreased pleasure. The emotional distress associated with the MDD might lead the individuals to seek relief through the substances like benzodiazepines. In this case the patient's history of interpersonal issues with her husband adds another layer, as relationship difficulties can contribute to depressive symptoms and potentially influence substance use as a coping mechanism.

Furthermore, the sedative effects of the benzodiazepines could intensify feelings of lethargy and hopelessness in someone already experiencing depressive symptoms. The interaction between these two conditions may create a vicious cycle where benzodiazepine use, intended to alleviate emotional distress, exacerbates depressive symptoms and vice versa.

### 2. Underlying causes:

Several underlying factors may contribute to both the MDD and substance abuse, such as benzodiazepine poisoning. Understanding the relationship between the mental health issues and

substance abuse involves considering various interconnected factors:

- **SELF MEDICATION:**

Individuals with untreated or undiagnosed mental health disorders like MDD, might turn to substances like benzodiazepines to alleviate the emotional pain or distress. The sedative effects of these drugs may provide temporary relief from depressive symptoms.

- **NEUROBIOLOGICAL FACTORS:**

Shared neurobiological mechanisms may contribute to the both conditions. For instance, disruptions in neurotransmitter systems, especially those involving serotonin and gamma-aminobutyric acid (GABA) are implicated in both depression and benzodiazepine dependence.

- **ENVIRONMENTAL STRESSORS:**

Stressful life events, including interpersonal issues as seen in this case, can contribute to the development of both major depressive disorder and substance abuse. Relationship problems, financial stress or other life challenges may trigger these conditions.

- **DUAL DIAGNOSIS:**

The co-occurrence of Major depressive disorder and substance abuse is known as dual diagnosis. The complex interaction often involves a bidirectional relationship, where substance abuse may worsen depressive symptoms and vice versa creating a cycle that can be challenging to break.

- **COPING MECHANISMS:**

Individuals facing emotional pain and distress may resort to substance use as a coping mechanism. However, this strategy often leads to a paradoxical effect, as a short-term relief is replaced by long-term negative consequences, including the exacerbation of the mental health issues.

### 3. Psychosocial factors:

Long-term follow-up and ongoing psychiatric care are crucial components in the comprehensive management of a patient with dual diagnoses of major depressive disorder (MDD) and benzodiazepine poisoning.

- **PREVENTING RELAPSE:**

The interconnected nature of MDD and substance abuse implies a potential for relapse. Continued psychiatric care provides a structured

and supportive environment for individuals to navigate challenges, learn coping mechanisms and reduce the risk of returning to the maladaptive behaviours.

• **ADDRESSING THE COMORBIDITIES:**

Patients with dual diagnoses often present with comorbid conditions or evolving mental health needs. Ongoing psychiatric care allows for the identification and management of new or emerging issues, ensuring a comprehensive and holistic approach to the health care.

• **ENCOURAGING LIFE STYLE CHANGES:**

Sustainable recovery often involves adopting healthier life style choices. Long term follow-up allows the health care providers to promote or reinforce positive behaviour including stress management, exercise and social engagement which can contribute to overall well-being.

**IV. CONCLUSIONS:**

The multifaceted diagnosis emphasizes the need for health care professionals to adopt a holistic perspective. This approach involves recognising the intricate interactions between the benzodiazepine poisoning and MDD, considering underlying contributing factors, and tailoring a comprehensive treatment plan and addresses the patient's mental health and physical well-being.

This tailored treatment plan addresses the immediate medical needs associated with benzodiazepine poisoning while providing ongoing

psychiatric support for MDD. The integrated approach aims to promote a sustained recovery.

Emphasizing the importance of long-term follow-up and ongoing psychiatric care is essential for maintain the gains achieved during initial treatment, preventing relapse and promoting the well-being of an individual.

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