



## Management Of A Severe Suicidal Quetiapine Overdose

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### Abstract

A young female presented to us with quetiapine overdose with respiratory depression and cardiac arrhythmias. Patient was managed in ICU and recovered completely. We present a case of successful management of severe quetiapine toxicity.

**Keywords:** quetiapine, overdose, QTc

### Introduction

Quetiapine is an atypical antipsychotic drug that belongs to the chemical class of dibenzothiazepine derivatives. It has been used to treat psychiatric disorders including psychotic disorders, acute mania and depressive disorders. Quetiapine acts as an antagonist at various neurotransmitter receptors in the brain. Reported signs and symptoms of an overdose are attributable to an enhancement of the known pharmacological effects of the drug. There is no specific antidote for Quetiapine and treatment protocols for overdose are not defined. Here we present a case of extreme overdose of Quetiapine and its management.

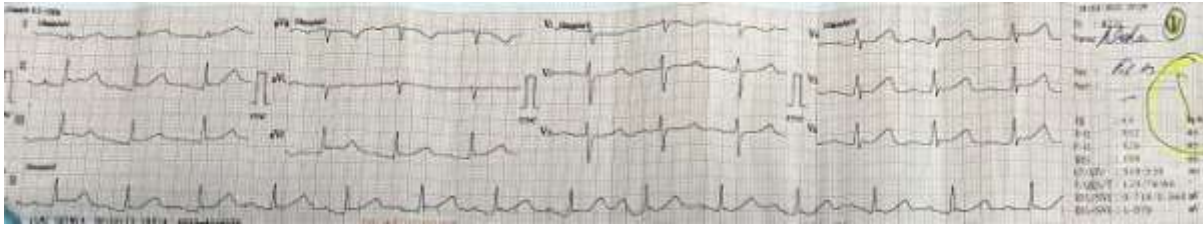
A 20-year-old female presented to the emergency department with an alleged history of consumption of around 6 grams of quetiapine in tablet formulation 4 hours back. On examination; patient was disoriented with GCS of E1 V2 M3, pupils were fixed and sluggishly reactive to light. Blood Pressure was 74/40 mmhg, Pulse rate was 52/min with saturation of 60% on room air. Random blood sugar was 123 mg/dl. Respiratory rate was 14 per minute with inadequate chest rise. Chest examination revealed crackles on

the right side. Fluid resuscitation was started; in view of GCS <8 and respiratory depression patient was intubated in ER and admitted in Intensive care unit where she was put on ventilatory support.

ECG was done which was suggestive of prolonged PR interval of 320 ms suggestive of 1<sup>st</sup> degree heart block and Qtc of 530 ms. Intravenous fluids were continued and injection amoxicillin-clavulanic acid 1.2 gm bid was started in view of aspiration pneumonia. Urine output was monitored. Blood investigations revealed Hb- 13.6 g%, Total leukocytes count-  $7.1 \times 10^3/L$ , PLT-  $209 \times 10^3/L$ . Renal and liver function tests were in normal limits. CVP line was inserted under ultrasonography guidance to measure JVP. As diuresis was the treatment of choice, injection furosemide 20 mg SOS was given as per CVP pressure and continuous cardiac monitoring was done. As GCS improved, patient was extubated the next day. A total of 6 liters of intravenous fluid was given to the patient and urine output was 4.6 liters. Patient improved symptomatically and serial ECGs revealed normalization of Qtc and PR interval

(Figure 1-4). Patient was discharged and is on regular follow up from the department of psychiatry.

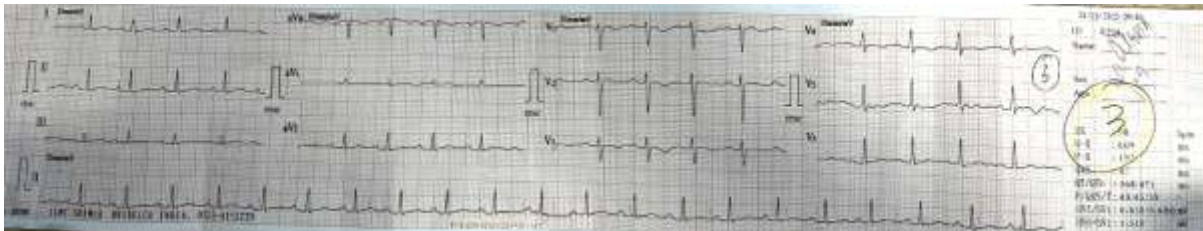
**Figure 1 (ECG at presentation):HR- 63/min,PR- 320 ms,QTC – 530 ms**



**Figure 2 ( ECG after 4 hours): HR – 80 bpm,PR – 244 ms, QTC – 496 ms**



**Figure 3 (ECG after 8 hours): HR – 98 bpm, PR – 190 ms,QTC – 470 ms**



**Figure 4 (ECG after 12 hours ): HR – 90 bpm, PR – 180 ms, QTC – 426 ms**



**Discussion:**

Overdose is broadly defined as inadvertent or deliberate consumption of larger than the usual dose of any substance, often leading to serious toxic reactions<sup>(1)</sup>.Our case satisfies this definition of overdose. Ingestion of more than 3 grams of quetiapine is known to cause severe toxicity which is characterized by hypotension, tachycardia and somnolence; as predicted by its known alpha adrenergic receptor and histamine receptor

blockade<sup>(2)</sup>. In large overdose, patients may require intubation and ventilation for associated respiratory depression<sup>(3)</sup>.In general, quetiapine overdose has been associated with increased risk of cardiovascular morbidity and mortality which is driven by metabolic abnormalities , whereas increased risk of sudden cardiac death due to ventricular arrhythmias is likely to stem from QT prolongation<sup>(4)(5)</sup>.However, apparent Qtc prolongation can be benign when it is secondary

to tachycardia. Mechanisms for Qtc prolongation are still under investigation.

There is no specific antidote, and quetiapine overdose is managed by appropriate supportive measures. These include administration of intravenous fluids and diuretics, maintaining airway and ensuring adequate ventilation and oxygenation along with continuous cardiac-monitoring.

### Conclusion

The present case, describing the consequences of a voluntary, suicidal overdose of Quetiapine, highlights the adverse effects and lethality of Quetiapine. The observed effects were explained by the known pharmacology data of Quetiapine, for which the most severe side effect is the onset of arrhythmia, coma and respiratory depression. It is clear that management of Quetiapine intoxication should include administration of intravenous fluids and diuretics, along with continuous cardiac monitoring.

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