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A Retrospective Study on Clinical and Para Clinical Findings of Quetiapine Toxicity Cases Admitted in Clinical Toxicology Center, Imam Reza Hospital within five years

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Abstract

Background: Quetiapine is a dibenzothiazepine-derived antipsychotic drug that has been evaluated for the management of patients with psychotic disorders. Quetiapine is associated with an increased risk of death in dementia-related psychosis in elderly patients. There is a risk of increased suicidal thoughts and behavior associated with drug treatment in patients with major depressive disorder.

Objectives: Our study aims to investigate the patients with quetiapine poisoning within 5 years.

Methods: The files of patients who were poisoned by antipsychotic drugs during the study period were collected at the poisoning department of Imam Reza Hospital. Those who reported poisoning with Quetiapine were included in the study and analyzed. The checklist was prepared in advance, and information was entered into it. Based on the normality or not of the data distribution, parametric and non-parametric tests were used, and SPSS was used to analyze the data.

Results: The number of 31 cases was related to patients who registered poisoning with Quetiapine; 15 were male (48.38%), and 16 were female (51.61%). The average age of the patients was 45.25±35.51, and the average total dose consumed was 745.85±242.65. Also (64.51%) were discharged from the hospital with full or partial recovery, and no deaths were reported. Also, the average dose consumed had a significant relationship with QTC, WBC, level of consciousness, heart rate, and outcome ($P<0.05$), while no significant relationship was observed with other variables.

Conclusion: According to the present study, Quetiapine has many side effects, the most being cardiovascular complications, which show the need for special clinical care related to the heart and blood vessels.

Keywords: Poisoning, antipsychotic, Quetiapine, Para clinical complications

1. Background

Since the discovery of chlorpromazine (CPZ) in 1952, first-generation antipsychotics (FGAs) have revolutionized psychiatric care in terms of facilitating hospital discharge and enabling the treatment of large numbers of patients with severe mental illness (SMI) in

the community (1). The management of severe mental illness (SMI) has evolved significantly with the introduction of second-generation antipsychotics (SGAs)(2). Unlike first-generation antipsychotics, SGAs have shifted treatment paradigms toward a more patient-centered approach. This approach focuses on symptom control and prioritizes key patient outcomes such as psychosocial functioning, quality of life, and overall recovery. Among SGAs, Quetiapine is widely prescribed due to its efficacy in treating schizophrenia, bipolar disorder, and major depressive disorder (3). However, its use is associated with a risk of toxicity, whether intentional (e.g., suicide attempts) or accidental (e.g., dosing errors).

Given Quetiapine's growing prescription rates, understanding the clinical and paraclinical manifestations of its toxicity is critical for timely diagnosis and management. This retrospective study aims to analyze the demographic, clinical, and laboratory findings of quetiapine toxicity cases admitted to the Clinical Toxicology Center at Imam Reza Hospital over five years. The findings will provide insights into toxicity patterns, complications, and therapeutic interventions to improve patient outcomes (4).

These drugs are no longer limited to specific Diagnostic and Statistical Manual of Mental Disorders (DSM) categories. Evidence suggests that SGAs have a better safety and tolerability profile than FGAs (5).

Also, the incidence of extrapyramidal side effects caused by treatment is lower, and there is less impairment in cognitive function and negative symptoms related to treatment. However, treatment with SGAs has been associated with a wide range of adverse effects, among which weight gain and treatment-induced metabolic abnormalities are significant concerns (6).

Among the SGAs, Quetiapine is a widely used antipsychotic drug that modulates neurotransmitter activity in the brain, contributing to the management of mental illness (7). Quetiapine, a dibenzothiazepine derivative, was initially developed as a second-generation antipsychotic agent for the treatment of schizophrenia. However, this compound shows a broad spectrum of clinical activity in several neuropsychiatric disorders.

Also, similar to several second-generation antipsychotic drugs, Quetiapine is an effective treatment for psychiatric disorders, including bipolar disorder (depression-mania), and as an adjunctive treatment for depression (8). Drowsiness, orthostatic hypotension, and dizziness are the most common side effects of Quetiapine. As with any antipsychotic drug, Quetiapine is associated with an increased risk of death in dementia-related psychosis in elderly patients.

Stroke, heart attack, and coronary artery disease are also related to the use of this drug(Quetiapine) (10).

When used even at low doses, there is a significant risk of side effects. Weight gain and metabolic disturbances, including elevated triglycerides, have been reported for low doses of Quetiapine (3).

Also, sedation during the day (hangover) is often reported (11). Other side effects observed with low-dose Quetiapine are restless legs, akathisia, dry mouth, and attention disorder (10) (. Taking high doses or long-term use of this drug can lead to serious movement problems that may not be reversible (12).

Symptoms of this condition can include tremors or uncontrolled muscle movements in a person suffering from this condition (13).

The therapeutic range of Quetiapine is between 100 ng/ml and 1000 ng/ml, and its plasma concentration reaches its maximum level within 1 to 2 hours after oral intake. Quetiapine can be life-threatening if abused or misused.

Toxicity is associated with levels greater than 1500 ng/mL, and supportive care is the mainstay of treatment (14). In acute toxicity,

measures to maintain the airway ensure adequate oxygenation and ventilation are necessary. Also, if necessary, gastric lavage and activated charcoal with laxatives are used to prevent further absorption of the drug (15). are treated with anticholinergics and hypotension with intravenous fluids and sympathomimetic agents such as A1 agonists (16).

Management or treatment of neuroleptic malignant syndrome is possible with prompt discontinuation of Quetiapine followed by symptom management (17). Also, in a case report, the patient suffered secondary quetiapine poisoning, which was characterized by a drop in blood pressure, increased heart rate, and sensory changes, and the electrocardiogram (ECG) showed a QT interval of 110 milliseconds.

After the initial failure of symptom management, the patient was successfully treated with intravenous lipid emulsions (ILEs) (a source of calories and essential fatty acids for patients who cannot tolerate enteral feeding) at a dose of 1.5 mg/kg in a maximum of two doses 15 minutes apart. Rapid improvement was observed in the patient after 30 minutes. It has been suggested that this may be due to the lipophilic nature of Quetiapine (18).

However, the acute toxicity of these drugs has not been investigated in Iran, and unfortunately, we are facing an increase in the frequency of acute poisoning with these drugs. The acute toxicity of Quetiapine, a commonly prescribed second-generation antipsychotic, was studied in the current investigation. The primary objectives of this study are to comprehensively evaluate Quetiapine toxicity by analyzing clinical presentations, including neurological, cardiovascular, and systemic manifestations, along with associated laboratory findings such as metabolic disturbances and electrocardiographic abnormalities. Furthermore, we aim to assess treatment outcomes, including recovery rates, complications, and mortality, while identifying significant risk factors linked to severe toxicity, such as ingested doses, concomitant drug use, and patient demographics. Ultimately, this study seeks to provide evidence-based insights to enhance the diagnostic and therapeutic management of Quetiapine poisoning cases. Our study aims to investigate the patients with quetiapine poisoning within 5 years.

2. Methods

This cross-sectional study examined patients hospitalized with quetiapine poisoning at the Toxicology Center of Imam Reza Hospital (AS), Mashhad University of Medical Sciences. Using a non-random sampling method, we reviewed 239 medical records of patients admitted with antipsychotic drug poisoning between March 2014 and March 2019. From these, we identified 31 confirmed cases of quetiapine poisoning. The study protocol was approved by the MUMS Ethics Committee (IR.MUMS.MEDICAL.REC.1398.453). Data were extracted using a structured checklist, with particular attention to cases occurring during a representative 6-month interval for detailed analysis. After data collection, the information was entered into SPSS software for analysis. Patients were then evaluated based on previous studies and the clinical significance of cardiovascular and hematological parameter changes. Subsequently, the relationship between quetiapine dosage and both cardiovascular factors and blood parameters was compared."

After collecting the data, it was entered into SPSS software and the patients were examined. After that, according to past studies and the importance of changes in cardiovascular factors and blood parameters, the relationship between the dosage of quetiapine and cardiovascular factors and blood parameters was compared.

Statistical Analysis

All data were analyzed using SPSS (Version 28). Continuous variables were expressed as mean ± standard deviation (for normally distributed data) or median with interquartile range (for non-normal distributions), assessed via Shapiro-Wilk tests. Categorical variables were reported as frequencies and percentages.

For comparative analyses:

1.Independent t-tests were used to compare quantitative variables (e.g., quetiapine dosage effects on QTc interval, blood pressure) between groups, following confirmation of normality and homogeneity of variance (Levene's test). **2. Mann-Whitney U tests** were applied for non-normally distributed continuous data. **3.Chi-square/Fisher's exact tests** analyzed categorical variables (e.g., gender, arrhythmia incidence).

Rationale for Parameter Selection:

Cardiovascular markers (QTc, troponin, BP) and hematological parameters (WBC, electrolytes) were prioritized based on:

- Known quetiapine toxicity mechanisms (sodium channel blockade, K+ efflux inhibition)
- Clinical relevance to life-threatening complications (torsades de pointes, shock)
- Previous literature documenting their prognostic value in antipsychotic overdose (e.g., Isbister et al., 2013)

Statistical significance was set at $p<0.05$ (two-tailed). Effect sizes (Cohen's d for t-tests, Cramér's V for chi-square) were calculated where applicable.

3. Results

This study was conducted on patients hospitalized with Quetiapine. At first, 239 cases admitted to the toxicology center of Imam Reza Teaching Hospital, Mashhad University of Medical Sciences were investigated between 2014 and 2019. Of these, 31 cases were related to patients who registered poisoning with Quetiapine.

Data analysis shows that 15 patients were male (48.38%) and 16 were female (51.61%), with no significant difference between them.

Also, the lowest age of those poisoned with Quetiapine was 15, and the highest age was 68 years. The average age was 33.51 ± 15.25 years. In addition, the lowest dose consumed was 180, the highest was 3600 mg, and the average total dose consumed in the patients was 745.85 ± 242.65 mg.

This study investigated psychiatric problems based on the psychiatrist consultation sheet. Out of the total number of 31 cases, a total of 18 (56.06%) cases had a psychiatrist's consultation sheet. From the total of 18 cases, there are 9 (50%) patients with MDD (Major Depressive Disorder), 2 (11.11%) patients with BMD (Bipolar Mental Disorder), five patients (27.77%) with adjustment disorder, and patients with psychotic spectrum disorders. Cluster B personality disorders were observed in 1 case (5.55%) each (Table 1).

Clearly state that while initial screening included all antipsychotic poisonings, the analysis focused specifically on quetiapine cases due to its unique cardiovascular risk profile" or "being the most frequently encountered atypical antipsychotic in overdose cases.

1. "Higher prevalence of poisoning with this drug in the study population". 2. "Quetiapine's Unique Cardiovascular Toxicity Profile". 3. "Greater clinical significance of overdose complications from this medication" In examining the presence of drugs other than Quetiapine (antipsychotic and non-antipsychotic), the data showed that in a total of 31 cases, 19 cases had the desired information, 10 (52.63%) of antipsychotic patients and 9 (47.36%) patients. have taken non-antipsychotic drugs (Table 2).

Table 1. Percentage of psychiatric problems

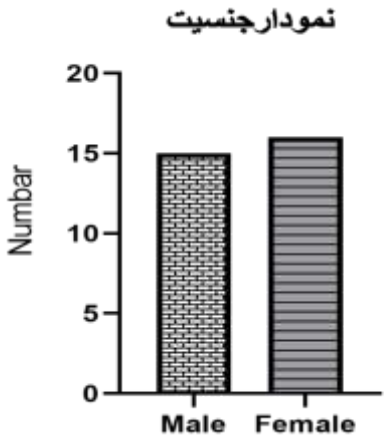
Psychiatric problems	number	percentage
MDD	9	50
BMD	2	11.11
Adjustment disorder	5	27.77
Psychotic spectrum disorders	1	5.55
Cluster B personality disorders	1	5.55
Total	18	56.06

Table 2. Percentage of Antipsychotic and Non antipsychotic drugs

Medicines except quetiapine	number	percentage
Antipsychotic	10	52.63
Non-antipsychotic	9	47.36
total	19	61.29

The results of the survey showed that 21 (64.51%) patients with poisoning had partial or complete recovery, and 10 (32.25%) patients were discharged from the hospital with personal consent (Table 3).

The data analysis revealed that out of all patients, 15 were male (48.38%) and 16 were female (51.61%), with no statistically significant difference between the groups ($p > 0.05$) (Graph 1).



Graph 1: Gender Distribution of Patients Hospitalized Due to Quetiapine Poisoning
The minimum age among quetiapine-poisoned

Table 3. Percentage of outcomes

Outcome	Number	Percentage
Partial or complete recovery	21	64.51
Discharged by personal consent	10	32.25
total	31	100

In addition, the review of the files and analysis of the results showed that 10 (32.25%) of the total files contained sufficient information for urine toxicology. The results of the examination of this number of files showed that out of all the patients with information, 7 (70%) patients had drugs other than antipsychotics, and 3 (30%) patients had antipsychotic drugs (Table 4).

In the investigation of cardiovascular factors in patients with quetiapine poisoning, the results showed that the lowest QTc recorded in patients with quetiapine poisoning was 361 milliseconds, the highest was 513 milliseconds, and the average of all patients was 458.58 milliseconds.

In examining the patients' QRS, the results showed that the highest recorded QRS was 70 milliseconds, the lowest was 40 milliseconds, and the total average was 47.9 milliseconds. Also, the results of HR1 (heart rate based on the emergency sheet) and HR2 (heart rate based on the history sheet) showed that the lowest HR1 and HR2 were 68 and 60 per minute, respectively, and the highest were 125 and 140 per minute. The average of all patients in HR1 and HR2 equals 94.93 and 86.32 per minute.

In addition, the patients' lowest SYSTOLIC and DIASTOLIC pressures are 85 and 60 mmHg, respectively; the highest are 175 and 98 mmHg, and their average is 111.93 and 77.03 mmHg.

The lowest recorded heart rate (RR) was 14, the highest was 23, and the average was 17.13 (Table 5).

Table 4. Percentage of urine toxicology

Urine toxicology	number	percentage
Antipsychotic	3	30
Other drugs	7	70
total	10	32.25

The results related to hematology and serum findings show that the lowest and highest

recorded hemoglobin levels are 10.7 and 16.9 g/dl, respectively, and the average is 13.68 g/dl. Also, checking the number of white blood cells showed that the lowest was 4800 and the highest was 10700 per microliter. Its average shows 7660 cells per microliter (Table 4).

In examining blood platelet count, the lowest and highest recorded values were 121,000 and 470,000 per milliliter, respectively. Also, its average was 227.38/ml (Table 5).

In addition, the results of the creatine phosphatase enzyme test showed that the lowest enzyme level was 39 U/L, the highest was 145 U/L, and the average was 71.5 U/L (Table 6)

Table 5. Mean and standard deviation of cardiovascular indicators

Variable	minimal	maximal	Mean and standarddeviation
QTc	361	513	458.58±56.23
QRS	40	70	47.09±2.65
HR1	68	125	94.93±14.25
SYSTOLIC	85	175	111.93±10.54
DIASTOLIC	60	98	77.03±6.45
HR2	60	140	86.32±6.51
RR	14	23	17.13±6.24

The measurement results showed that the lowest, highest, and average temperatures of patients with quetiapine poisoning were 36.2, 37.8, and 36.69 degrees Celsius, respectively.

Investigations regarding the duration of hospitalization showed that 19 (61.29%) patients were hospitalized for 1 day, 8 (25.80%) patients were hospitalized for 2 days, and 4 (1.24%) patients were hospitalized for 3 days. Also, the average duration of hospitalization in all poisoned patients was recorded as 1.51 ± 0.2 (Table 7 - Graph 2)

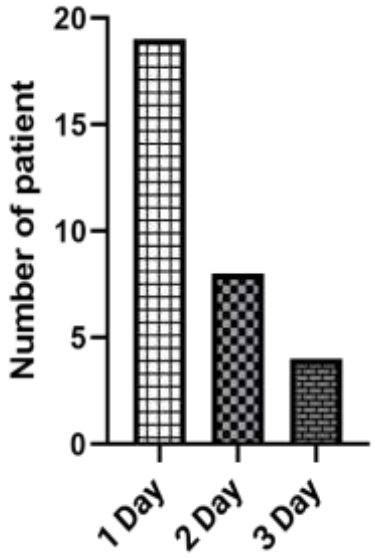
Table 6. average of blood and serum factors

Variable	minimal	maximal	average
Hemoglobin	10.7	16.9	13.68±1.2
WBC (white blood cell count)	4800	10700	7.66±2.2
PLT (platelet count)	121	470	227.38±2 0.25
CPK (Creatine phosphatase enzyme)	39	145	71.5±12.2

The results of the examination of the level of consciousness data based on the "AVPU" criterion showed that 14 (45.16%) patients with level 1 consciousness (patients with full consciousness (A)), 6 (19.35%) patients with level 2 consciousness (answered the questions (V)), 2 (6.45%) patients had consciousness level 3 (patient responds to pain (P)) and 9 (29.03%) patients had consciousness level 4 (unconscious (U)) (Table 8 - Graph 3).

Table 7. Average length of hospitalization

variable	Duration of hospitalization	Average
1 day	19	1.51±0.2
2 days	8	1.51±0.2
3 days	4	1.51±0.2

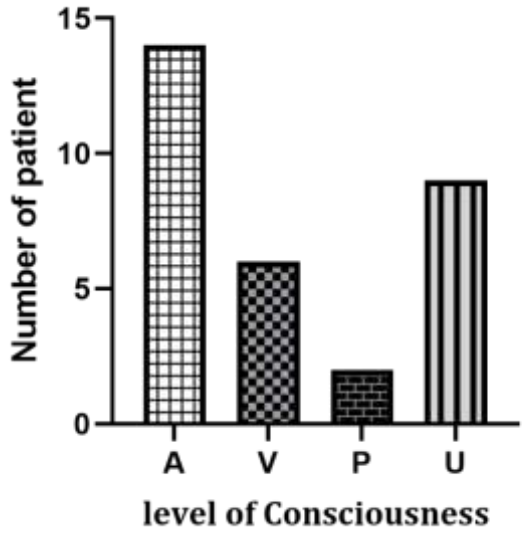


Graph 2: number of days of hospitalization

In examining the average dose consumed with some variables of the study, the analysis showed that the average dose consumed had a significant relationship with QTC, WBC, level of consciousness, heart rate, and outcome (P<0.05), while with other variables such as age, gender no significant relationship was observed (Table 9**).**

Table 8. present level of consciousness based on the AVPU criteria

Level of consciousness	number	percent
A	14	45.16
V	6	19.35
P	3	6.45
U	9	29.03



Graph 3. level of consciousness based on the AVPU criteria

Table 9. The relationship between some variables with the dosage

variable	P-Value
age	P>0.05
sex	P>0.05
convulsions	P>0.05
QTc	P<0.01
QRS	P>0.05
HR1	P<0.01
SYSTOLIC	P>0.05
DIASTOLIC	P>0.05
HR2	P<0.01
RR	P>0.05
Hemoglobin	P>0.05
WBC	P<0.05
PLT	P>0.05
CPK	P>0.05
Level of consciousness	P<0.05
temperature	P>0.05
psychiatric problems	P>0.05

4. Discussion

This study was conducted on patients hospitalized with Quetiapine. Of all the patients, 15 were male (48.38%) and 16 were female (51.61%).

The average age of the patients was 45.25±15.51, and the average total dose consumed in the patients was 745.85±242.65. Also (64.51%) were discharged from the hospital with complete or partial recovery, and no deaths were reported. The lowest QTc recorded in patients with quetiapine poisoning was 361 milliseconds, the highest was 513 milliseconds, and the average of all patients was 458.58 milliseconds. In the QRS analysis of the patients, the highest recorded QRS was 70 milliseconds, the lowest was 40 milliseconds, and the total average was 47.9 milliseconds.

Also, the HR1 (heart rate based on the emergency sheet) and HR2 (heart rate based on the history sheet) showed that the average of all patients in HR1 and HR2 was 94.93 and 86.32 per minute. In addition, the lowest Systolic and Diastolic pressures of the patients were 85 and 60 mmHg, respectively; the highest were 175 and 98 mmHg, and their average was 111.93 and 77.03 mmHg, and the average heart rate was 17.13. Also, the average duration of hospitalization in all poisoned patients was 1.51 ± 0.2.

Peridy et al. (2019) conducted a retrospective study analyzing quetiapine-poisoned patients reported to the Western France Poison Control Center between 2007-2017. Among 372 quetiapine intoxication cases, severity was graded as Grade 0 (asymptomatic): 75 cases

Grade 1 (mild): 133 cases, Grade 2 (moderate): 85 cases, Grade 3 (severe): 79 cases.

Five fatalities were reported. The most frequent manifestations were neurological (sedation, coma) and cardiovascular (tachycardia, hypotension), with 79.8% involving intentional overdose. A dose ≥1500 mg and co-ingestion of other drugs (n=302) increased severity risk, particularly benzodiazepines and antidepressants. The authors emphasized Quetiapine's potential for severe toxicity (with no specific antidote available) and cautioned clinicians about prescription risks, especially in polypharmacy scenarios (19). Consistent with these findings, our study similarly demonstrates Quetiapine's cardiovascular complications.

Case Report (Müller et al., 2009)(20):

A 32-year-old female (62 kg body weight) presented with severe quetiapine poisoning (36,000 mg ingestion in a suicide attempt). Key

clinical manifestations included Coma without arterial hypotension, Tachycardia (HR: 120-140 bpm), Hyperglycemia (glucose: 210 mg/dL), Transient hypothyroidism, QTc prolongation (520 ms), Notably, the patient's mental status rapidly improved within hours post-ingestion. QTc prolongation and tachycardia spontaneously resolved spontaneously by hospital days 2 and 3, respectively, without medical intervention.

Clinical Implications: This case highlights Quetiapine's potential for Hemodynamic instability requiring ICU-level monitoring, Rapid neurological deterioration necessitating early intubation for airway protection, Self-limiting cardiotoxicity (QTc/tachycardia) with delayed resolution, The authors concluded that all acute quetiapine overdose cases requiring hospitalization should be managed in intensive care units due to the risk of sudden clinical decompensation.

The results related to hematology and serum findings showed that the average hemoglobin was 13.68 g/dl, and the average number of white blood cells was 7660 cells per microliter. In examining blood platelet count, the lowest and highest recorded values were 121 and 470 per milliliter, respectively. Also, its average was 227.38 per ml. In addition, the creatine phosphatase enzyme test results showed that the lowest enzyme level was 39 U/L, the highest was 145 U/L, and the average was 71.5 U/L.

The average dose consumed had a significant relationship with QTC, WBC, level of consciousness, and outcome ($P<0.05$), while no significant relationship was observed with other variables such as age, sex, etc.

In 2019, Peridy et al., in a retrospective study, examined patients with quetiapine poisoning reported by the Poison Control Center of Western France between 2007 and 2017. There were 372 cases of quetiapine poisoning. There were 75 cases with zero severity (grade 0), 133 cases with mild severity (grade 1), 85 cases with moderate severity (grade 2), and 79 cases with high severity (grade 3). Five deaths are mentioned in this collection. The most common symptoms observed were neurological and cardiovascular (drowsiness, Coma, tachycardia, and hypotension). Of these, 79.8% involved suicide. The assessed dose was 1500 mg or more, and 302 cases of drugs other than Quetiapine were identified as increasing acute toxicity. In particular, concomitant use of benzodiazepines and antidepressants was associated with high-intensity Quetiapine. The authors stated that Quetiapine may lead to severe toxicity for which there is currently no specific treatment. Patients and doctors should be aware of this issue when prescribing Quetiapine, especially in combination with other drugs, and to deal with cases of poisoning (13).

Similar to the previous study, it was shown in our study that Quetiapine causes cardiovascular problems.

In a case report presented by Müller et al. (2009), the patient was a 32-year-old woman (62 kg body weight) with high-dose quetiapine poisoning (36,000 mg) who attempted suicide. Symptoms related to intoxication were Coma without hypotension, tachycardia, hyperglycemia, and transient hypothyroidism. Also, the QTc interval increased on average. The patient's mental status improved rapidly within a few hours after administration, and prolonged QTc and tachycardia resolved on the second and third days of hospitalization, respectively, without further intervention. This case presents the potential for hemodynamic instability and sudden deterioration of the level of consciousness, necessitating close monitoring and early intubation to protect the airway. The author concluded that all patients with acute quetiapine overdose who require hospitalization should be admitted to the intensive care unit (14).

In 2008, Ngo et al. analyzed a 5-year retrospective case series (2002 to 2006) to describe the clinical effects and outcome after

acute quetiapine overdose in adults by examining the California Poison Control System database for adult patients with acute quetiapine overdose. Patients were excluded from the study if they were taking other drugs at the same time. They found 945 cases that met the analysis criteria. Suicide accounted for 87% of cases. The patients' ages ranged from 18 to 84 years, averaging 35. There were three deaths, all with Coma, tachycardia, and respiratory problems. Clinical manifestations included drowsiness (76%), coma (10%), seizures (2%), tachycardia (56%), hypotension (18%) and respiratory depression (5%). They concluded that the consequences of acute quetiapine overdose include Coma, respiratory depression, and hypotension and that these complications are more common than overdoses of other antipsychotics as a group (15).

A retrospective review was published 2018 by Lee et al., which reviewed data from patients taking Quetiapine in Australia from 2000 to 2016. The data showed a 6-fold increase in the number of quetiapine-related calls during the period, most of which were related to overdose (77%). Overdose and abuse calls increased 6-fold and 6.6-fold, respectively. A 7.4-fold increase in quetiapine-related deaths was recorded for the same period.

Similarly, Australian data showed that quetiapine prescriptions had increased 285-fold since 2000. There was a significant relationship between increasing prescription with overdose and suicide attempts (16).

Ninčević et al. 2016 described a case with a complex clinical presentation that recovered without any complications. The unique features of this case included symptoms of neuroleptic malignant syndrome with rhabdomyolysis and acute renal failure as a sequel of intoxication following a suicidal overdose of Quetiapine. Although the patient recovered completely without residual symptoms, we should always keep in mind that quetiapine overdose may be associated with Coma, respiratory depression, hypotension, QT prolongation, and neuroleptic malignancy. The authors stated, which shows that quetiapine overdose needs careful monitoring in a special care environment (17).

Quetiapine is misused due to its anxiolytic and hedonic effects and is associated with suicide. Patients reported misuse of Quetiapine due to its euphoric, sedative, and mind-altering effects (16).

In the present study, no death due to quetiapine consumption was reported, but death after quetiapine overdose has been reported in other studies, and it is often stated that patients have taken other drugs as well. The factors that probably contributed to the death of a 52-year-old patient are a history of cardiac dysrhythmia and high blood pressure (18).

Therefore, before prescribing Quetiapine, doctors should thoroughly check the other drugs used and the patient's heart health status.

The present study can show us an overview of the clinical symptoms of quetiapine poisoning patients, which can help in improving the management of quetiapine poisoning patients and reduce mortality. Nevertheless, this poisoning will continue until appropriate scientific policies are adopted to prevent quetiapine poisoning.

Although quetiapine poisoning is preventable, people with underlying diseases are at greater risk and need more serious care.

5. Conclusion

Quetiapine is associated with several potentially dangerous side effects. Nurses, pharmacists, and physicians should communicate and collaborate to monitor patients taking this medication. They should also pay special attention because no specific treatment exists for this. In our study, we showed that there was a significant relationship between quetiapine overdose, white blood cell count, QTC, tachycardia, and the duration of hospitalization.

This shows that quetiapine poisoning requires proper care, especially cardiovascular care.

Also, acute use of Quetiapine in adults can be associated with convulsions, Coma, and even death, and the possibility of these side effects increases after excessive use of Quetiapine.

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Availability of data and materials: The dataset analyzed during the current study is available upon reasonable request from the corresponding author.

Conflicts of interests: The authors have no relevant conflict interests to declare.

Consent for publication: not application**.**

Ethics approval and consent to participate: The Ethics Committee of Mashhad University of Medical Sciences approved the study (IR.Mums.Medical.REC.1398.453). The study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki. writing Informed consent was also obtained. Confidentiality of participant information was strictly maintained, with no personal identifiers (such as names or surnames) entered into the software. All individuals were assigned a unique project code, and analyses were conducted based on these anonymized identifiers. The primary investigator retained the original data until project completion and article publication, ensuring data security throughout the study.

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Author contributions: Authors MSH, BD and ZA T designed the study. MSH, BD andZA participated in the conception of the study. MSH and BD managed and conducted thestatistical analyses and interpreted the data.All authors have read and approved the final manuscript.

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