

Drug-Induced Secondary Hypertension by Quetiapine Prescription in an Elderly Patient with Anxiety Disorder

Reza Bidaki^(1,2), Mohsen Zabihi⁽³⁾, Mohadeseh Asadi⁽⁴⁾

Letter to Editor

Date of submission: 2021-Aug-11 Date of acceptance: 2022-Nov-12

Introduction

Prescription of antipsychotic drugs is critical since they may cause hemodynamic changes, including hypertensive crisis, which is particularly important in patients with cardiovascular diseases. Quetiapine is an atypical antipsychotic approved for the treatment of schizophrenia, bipolar disorder, major depressive disorder, and anxiety disorder.¹ The exact mechanism of action of this drug is unknown, but it is assumed that it antagonizes D2 and HT2-5 receptors. It may also have antagonizing effects on α 2-5, α 1, H1, D1, and HT1a receptors.^{2,3}

Quetiapine has been reported to cause hypertension^{3, 4} which occurred in the case presented here. A 67-year-old married woman suffering from insomnia for about two months was referred to the psychiatrist one month ago and was prescribed Gabapentin 100/Hs and Quetiapine 12.5 mg Hs. After 24 hours, she suddenly had palpitation and high blood pressure.

Depression is common in patients with uncontrolled hypertension which may interfere with blood pressure control. Depression screening in patients with hypertension is a simple and cost-effective tool to improve outcomes.⁵

Both depressed and hypertensive patients experience increased sympathetic tone and increased secretion of adrenocorticotrophic

hormones and cortisol. Therefore, the interaction between depression and hypertension is pathophysiologically acceptable.^{5, 6}

The symptoms were controlled with sublingual captopril, but they often recurred in the afternoon. The blood pressure has been under the control for 20 years by a cardiologist and her Electrocardiogram (ECG) was normal. In the recent visit, these drugs were continued for up to 10 days; moreover, considering potential drug allergy, the drugs were discontinued and clonazepam 1 mg tablet was administered ¼ BID.

Next, the sleep state was improved, though a heart rate of up to 85 per minute and elevated blood pressure (up to systolic blood pressure of 16) occurred often in the afternoon.

Biochemical tests were normal and the nephrologist didn't report major abnormal findings (Table1). The patient was diagnosed with slightly elevated renin due to taking Losartan 50 in the morning and at night.

How to cite this article: Bidaki R, Zabihi M, Asadi M. **Drug-Induced Secondary Hypertension by Quetiapine Prescription in an Elderly Patient with Anxiety Disorder** ARYA Atheroscler 2022; 18(6): 2493.

1- Department of Psychiatry, Research Center of Addiction and Behavioral Sciences, Shahid Sadoughi University of Medical Sciences, Yazd, Iran

2- Diabetes Research Center, Shahid Sadoughi University of Medical Sciences, Yazd, Iran

3- Department of Pharmacology, Faculty of Pharmacy, Shahid Sadoughi University of Medical Sciences, Yazd, Iran

4- Department of Pharmacology, Faculty of Pharmacy, Shahid Sadoughi University of Medical Sciences, Yazd, Iran

Address for correspondence: Mohadeseh Asadi; Student of Pharmacy, Department of Pharmacology, Faculty of Pharmacy, Shahid Sadoughi University of Medical Sciences, Yazd, Iran., Phone number: 09305101154.

Email: mohadeshasadi1377@gmail.com

Table 1. Summary of case study results (no significant changes were observed in the results; the ECG was normal).

Parameter	RBC × 10 ⁶ /microliter	Hb g/dl	MCH pg	Hb A ₁ C %	Renin Activity ng/ml/hr	Aldosterone Pg/ml
Patient Result	4.21	13.1	31.1	5.6	5.2	15.74
Reference Range	4.5-5.1	14-17.5	27-32	Nondiabetic:<5.7	0.06-4.69	14.6-174

Years ago, she used citalopram for courses that suited her and improved her feelings. She stopped taking the drug due to raised intraocular pressure (RIOP) 8 months ago and underwent a trabeculectomy for glaucoma 6 months ago. However, taking Quetiapine in this case raised suspicion of high blood pressure. In addition, this is not the only case of this complication have been reported. Similarly, improved severe bradycardia and hypotension were reported in a 72-year-old Japanese woman by reducing the dose of quetiapine.³

Hypotension is a common side effect of quetiapine. To the best of our knowledge, this case report is among the few clinical cases of high blood pressure caused by quetiapine.

The combination of gabapentin and quetiapine may have caused hypertension; it may also have occurred due to the use of gabapentin. However, quetiapine is more likely to cause hypertension.

In case of a hypertensive crisis after taking quetiapine, the drug should be stopped and blood pressure should be monitored. Anti-hypertensive agents should be considered if necessary. It is important to know which antihypertensive agents to be used in case of a remarkable blood pressure rise.

It is recommended that physicians, pharmacists, psychiatrists, and health care providers monitor the side effects of Quetiapine. Also, quetiapine should be prescribed under close supervision in patients with cardiovascular diseases or the elderly, and the patient's blood pressure should be carefully monitored.

Discussion

The authors declare sincere thanks to the patient who participated in this study.

Author's Contribution

R.B, M.Z, and M.A prepared substantial contributions to the conception or design of the work.

Consent Form

The patient's written informed consent was obtained.

Conflict of interest

The authors declare no conflict of interest.

Funding

The present study was not funded.

Ethical Code

By the research ethics committee of Shahid Sadoughi University of Medical Sciences with the ethics code of IR.SSU. REC.1400.171.

References

1. Goldstein JM. Section Review-Central & Peripheral Nervous Systems: Pre-Clinical Pharmacology of New Atypical Antipsychotics in Late-Stage Development. *Exp Opin Investigat Drugs* 1995; 4(4): 291-8.
2. Goldstein JM, Arvanitis LA. ICI 204,636 (Seroquel™): a dibenzothiazepine atypical antipsychotic. Review of preclinical pharmacology and highlights of phase II clinical trials. *CNS Drug Rev* 1995; 1(1): 50-73.
3. Nakamura M, Seki M, Sato Y, Nagamine T. Quetiapine-induced bradycardia and hypotension in the elderly—a case report. *Innovat Clin Neurosci*

- 2016; 13(1-2): 34.
4. Nielsen J, Graff C, Kanters JK, Toft E, Taylor D, Meyer JM. Assessing QT interval prolongation and its associated risks with antipsychotics. *CNS Drugs* 2011; 25(6): 473-90.
 5. Rubio-Guerra AF, Rodriguez-Lopez L, Vargas-Ayala G, Huerta-Ramirez S, Serna DC, Lozano-Nuevo JJ. Depression increases the risk for uncontrolled hypertension. *Experiment Clin Cardiol* 2013; 18(1): 10.
 6. MJ M. Harvey RA, Champe PC. *Antifungal Drugs*. Lippincotts Illustrated Reviews: Pharmacology. 2nd Ed. Lippincott Williams and Wilkins. Philadelphia 2000: 337-43.