Case Report
J Immunol Clin Microbiol. 2020;5(2):82-84

J Immunol Clin Microbiol

Delirium Following Oral Single-Dose Biperiden

Umut Eryiğit[*1]

1 Doğal Sağlık Private Clinic, Trabzon, Turkey.

Abstract

Anticholinergic drug use is one known cause of delirium. Biperiden which is an anticholinergic drug is shown to cause delirium in experimental studies and some case reports. But these reports shows great amount of biperiden use or parenteral therapy. In this case we report a patient developing delirium following a single oral dose of 2 mg biperiden. Although the pathophysiology of delirium is uncertain, we think that the cause of delirium in this patient was biperiden blocking the M1 receptors in the cerebral cortex and striatum.

Keywords: *Anticholinergic, biperiden, delirium*

Introduction

Delirium is a neurocognitive syndrome involving numerous symptoms, including widespread cognitive disorders, mood changes, hallucinations, delusions and sleep disorders. It generally develops suddenly and is reversible with treatment of the underlying condition. Although the mechanism involved in the development of delirium is not fully known, several structural and functional states and drug intakes can give rise to it (1). Anticholinergic drug use is one known cause of delirium. We report a patient developing delirium following a single oral dose of biperiden, an effective anticholinergic drug.

Case report

A 57-year-old woman was brought to the emergency department due to agitation, restlessness, sleeplessness, talking to herself and hallucination. On arrival at the emergency department, she was agitated, overactive, spoke to herself and was unable to recognize her relatives. She was non-cooperated at the examination, and disorientation of time, place and person were present. In terms of vital findings, body temperature was 37.6 C°, arterial blood pressure 140/100 mm Hg, heart rate 120/min, and respiration rate 10/min.

***Corresponding Author:** Umut Eryiğit, Doğal Sağlık Private Clinic, Trabzon, Turkey. **Phone:** +90 553 912 31 60 **E-mail:** eryigitumutacil@gmail.com **Received:** Sep, 2019. **Accepted:** May, 2020.

Blood sugar, Complete blood count, Kidney (blood urea nitrogen: 13 mg/dl, creatinine: 0.9 mg/dl), liver (ALT 32 U/L; AST:28 U/L) and thyroid function tests (TSH: 3.41 IU/mL; free T3: 3.36 pg/mL; free T4: 0.82 ng/dL) and electrolytes (sodium: 142.0 mEq/L; potassium: 3.85 mEq/L; chloride 107.2 mEq/ L; and calcium, 8.7 mg/L) were at normal ranges. No illicit drug was determined at urine toxicology analysis. No pathological finding was observed at the tomography of the brain or magnetic resonance imaging. Anamnesis revealed that she had previously attended psychiatric check-ups due to delusions and that her medications had been altered at the most recent check-up, two days previously. At that latest check-up, she had been prescribed paliperidone 9 mg (Invega 9 mg tablet) and biperiden 2 mg (Akineton 2 mg tablet) tablets. The patient's symptoms started 3 hours after taking these, initially in the form of disorientation to place and time. They subsequently persisted in the form of hyperactivity, sleeplessness and hallucinations. On the first day, after taking these drugs, she experienced palpitation and trembling and was unable to sleep. Her relatives contacted her psychiatrist, who informed them that this condition was the normal course of her disease. The patient was then brought to the emergency department when her hyperactivity, agitation and sleeplessness worsened, she began experiencing visual delusions and her incoherent movements worsened. Since her current symptoms occurred after taking biperiden, we suspected biperiden-related anticholinergic side-effects. We attempted to perform a mini-mental test, but this was not possible due to non-compliance. Biperiden therapy was discontinued, the patient was given 5 mg haloperidol therapy. She was able to sleep comfortably after haloperidol, and the mini-mental test was performed the next day. The patient scored 28 on the mental test (24-30 normal) and was discharged from the emergency department with a recommendation of haloperidol drops. Her cognitive functions remained normal at follow-up and no abnormal findings were observed.

Discussion

Delirium is a generally reversible and temporary clinical condition. The patient can recover completely if the underlying cause is treated. Drugs are one cause of delirium, particularly anticholinergic drugs (2). Animal studies have shown that delirium-like findings can occur with biperiden use. Tamura et al. reported behavioural changes such as agitation, hyperactivity, excessive sniffing and excessive eye movements in all rats given intraperitoneal biperiden at a dose of 40 mg/kg (3). Case reports have been published in the literature after high-dose oral and intramuscular use in humans. Hewer et al. reported delirium-like conditions in two patients who used doses of 60 mg and 200 mg for the purpose of suicide (4). Martinez et al. reported that a biperiden-addicted male patient increased his dosage over 3 months to a daily maximum of 50 mg and was subsequently brought to the hospital with an anticholinergic condition (5). The interesting aspect of our case is that agitation, sleeplessness and disorientation to place occurred after a single 2 mg oral dose (0.025 mg /kg) of biperiden. Palpitations, trembling, hyperactivity and visual hallucinations began following a second dose. Although the patient's relatives spoke to the patient's psychiatrist, her progression to delirium was neglected. Although her condition at first presentation to the emergency department was reminiscent of delirium, a metabolic or infectious agent was first thought to have caused the delirium. When all values at laboratory tests and imaging were determined as normal, biperiden was identified as the cause of the delirium. Although the pathophysiology of delirium is uncertain, we think that the cause of

delirium in this patient was biperiden blocking the M1 receptors in the cerebral cortex and striatum.

Conclusion

In conclusion, since anticholinergic drugs are very frequently used, medication history must be taken in detail from patients presenting to the emergency department with symptoms of delirium. It should be remembered that biperiden can cause delirium in therapeutic doses.

Ethics Committee Approval: NA
Informed Consent: NA
Peer-review: Externally peer-reviewed.
Conflict of Interest: No conflict of interest was declared by the author.
Financial Disclosure: The author declared that this study has received no financial support.

References

1. Wilber ST, Ondrejka JE. Altered Mental Status and Delirium. Emerg Med Clin North Am. 2016;34(3):649-665.
2. Rojo-Sanchis AM, Velez-Diaz-Pallares M, Munoz Garcia M, Delgado Silveira E, Bermejo Vicedo T, Cruz Jentoft A. Anticholinergic burden and delirium in elderly patients during acute hospital admission. Rev Esp Geriatr Gerontol. 2016;51(4):217-220.
3. Tamura Y, Chiba S, Takasaki H, Tabata K, Ishimaru Y, Ishimoto T. Biperiden-induced delirium model in rats: a behavioral and electroencephalographic study. Brain Res. 2006;1115(1):194-199.
4. Hewer W, Biedert S. Delirium syndrome in biperiden poisoning. Fortschr Neurol Psychiatr. 1988;56(4):133-136.
5. Espi Martinez F, Espi Forcen F, Shapov A, Martinez Moya A. Biperiden Dependence: Case Report and Literature Review. Case Reports in Psychiatry. 2012;2012:3.

QMEL
Medicine & Publishing

Published by The QMEL®.org
Medicine & Education & Library