

Cetirizine-Associated Delusions and Depression in an 18-Year-Old Woman

Benjamin C. Garden and Dimitry Francois, MD

Introduction: Cetirizine is a second-generation H1 histamine receptor antagonist that is commonly used for symptomatic relief of hay fever and other allergies and can be combined with pseudoephedrine hydrochloride, a decongestant. The most common adverse effects include headache, nausea, nasopharyngitis, vomiting, and coughing.

Objective: To report on an adolescent 18-year-old woman who developed delusional thinking and depression after starting treatment with cetirizine.

Case Report: We report on an adolescent 18-year-old woman who developed delusional thinking and depression after starting treatment with cetirizine. Once cetirizine was discontinued, the patient returned to her clinical baseline.

Conclusions: Physicians need to be aware of the potential psychiatric adverse effects associated with cetirizine.

Key Words: cetirizine, delusions, psychosis, depression

(*Clin Neuropharm* 2013;36: 96–97)

Cetirizine is a second-generation H1 histamine receptor antagonist that is commonly used for symptomatic relief of hay fever and other allergies and can be combined with pseudoephedrine hydrochloride, a decongestant.¹ Known central nervous system (CNS) adverse effects of cetirizine include anxiety, depression, insomnia, and paranoia.² To our knowledge, there is only one published case report of cetirizine-associated delusions.³ We now report on an adolescent 18-year-old woman who developed delusional thinking and depression after starting treatment with cetirizine.

CASE REPORT

Our case patient, an 18-year-old Hispanic woman with no psychiatric history, came to the psychiatric emergency department with a chief complaint of delusional thinking and passive suicidal ideations. She reports her symptoms arose 3 months before admission, 1 week after taking cetirizine, 10 mg daily, for allergic rhinitis. After starting the cetirizine, the patient began to have constant intrusive thoughts and delusions that included the false beliefs that she was raped and being demonically possessed. She also experienced paranoia, believing that she was being stalked and could not trust anyone. Shortly after, she felt depressed, anxious, worthless, had difficulty concentrating, poor appetite, and trouble sleeping. Two days before

presentation, the intrusive thoughts intensified, and the patient became suicidal, necessitating her admission to the hospital. The results of the patient's laboratory tests were normal. Her physical examination was unremarkable. She denied substance use or history of abuse. She and her father reported no history of mental disorders in the family. Both believed the onset of the symptoms correlated with the start of the cetirizine use. The cetirizine was stopped, and within 4 days of stopping the cetirizine, she was calm and no longer experiencing intrusive or paranoid thoughts. Her mood became euthymic, and she denied suicidal ideations. She was discharged 8 days after admission and has been followed as an outpatient with no return of delusional thoughts and depressed mood.

DISCUSSION

First-generation antihistamines, such as promethazine, chlorpheniramine, cyproheptadine, and diphenhydramine, have been known for many years to have the potential to cause psychotic adverse effects in patients.^{4–8} The cause of the acute psychosis or delirium is thought to result from a blockade of cerebral cholinergic inhibitory pathways.⁹ The data pertaining to the receptor-binding profile of cetirizine show high affinity and stereoselectivity to human H1 histamine receptors. In vivo and ex vivo animal models have shown negligible anticholinergic and antiserotonergic activity.¹⁰ Second-generation antihistamines, including cetirizine, have a limited penetration of the blood-brain barrier compared with first-generation drugs, with less CNS and anticholinergic effects.¹¹ However, cetirizine at doses of 10 mg has been reported to cause some CNS-related adverse effects, with a 17% incidence of sedation.¹ There has been only one other published case report involving cetirizine and psychotic adverse effects.³ Our patient, with the use of cetirizine, had intense delusional thoughts. She additionally became depressed and even suicidal. With the cessation of cetirizine, the symptoms abated, which correlates with the hypothesis that the medication induced the disorder. Physicians need to be aware of the potential psychiatric adverse effects associated with cetirizine.

REFERENCES

1. Sheffer AL, Samuels LL. Cetirizine: antiallergic therapy beyond traditional H1 antihistamines. *J Allergy Clin Immunol* 1990; 86(6 Pt 2):1040–1046.
2. Zyrtec package insert. Available at: http://www.pfizer.com/files/products/uspi_zyrtec.pdf. Accessed February 12 2013.
3. Reichenberg JS, Magid M, Drage LA. A cure for delusions of parasitosis. *J Eur Acad Dermatol Venereol* 2007;21(10):1423–1424.
4. Timnak C, Gleason O. Promethazine-induced psychosis in a 16-year-old girl. *Psychosomatics* 2004;45(1):89–90.

Weill Cornell Medical College, New York Presbyterian Hospital, White Plains, NY
Conflicts of Interest and Source of Funding: The authors have no conflicts of interest to declare.

Address correspondence and reprint requests to Dimitry Francois, MD,
21 Bloomingdale Rd, White Plains, NY 10605;
E-mail: dif9013@med.cornell.edu

Copyright © 2013 by Lippincott Williams & Wilkins
DOI: 10.1097/WNF.0b013e318290b9b2

5. Sharma A, Dewan V, Petty F. Acute psychosis with Coricidin cold medicine. *Ann Pharmacother*. 2005;39(9):1577–1578.
6. Blaustein BS, Gaeta TJ, Balentine JR, et al. Cyproheptadine-induced central anticholinergic syndrome in a child: a case report. *Pediatr Emerg Care* 1995;11(4):235–237.
7. Sexton JD, Pronchik DJ. Diphenhydramine-induced psychosis with therapeutic doses. *Am J Emerg Med* 1997;15(5):548–549.
8. Cowen PJ. Toxic psychosis with antihistamines reversed by physostigmine. *Postgrad Med J* 1979;55(646):556–557.
9. Kulig K, Rumack BH. Anticholinergic poisoning. In: Haddad LM, Winchester JF, eds. *Clinical Management of Poisoning and Drug Overdose*. Philadelphia, PA: W. B. Saunders; 1983:1482–1487.
10. Gillard M, Van Der Perren C, Moguilevsky N, et al. Binding characteristics of cetirizine and levocetirizine to human H(1) histamine receptors: contribution of Lys(191) and Thr(194). *Mol Pharmacol* 2002;61:391–399.
11. Snyder SH, Snowman AM. Receptor effects of cetirizine. *Ann Allergy* 1987;59(6 Pt 2):4–8.