

5. De Hert M, Correll CU, Bobes J, Cetkovich-Bakmas M, Cohen D, Asai I, Detraux J, Gautam S, Möller HJ, Ndeti DM, Newcomer JW, Uwakwe R, Leucht S: Physical illness in patients with severe mental disorders, I: prevalence, impact of medications and disparities in health care. *World Psychiatry* 2011; 10:52–77

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## Involuntary Movements Associated with Cetirizine Use

TO THE EDITOR: Cetirizine is approved by the U.S. Food and Drug Administration (FDA) for allergic rhinitis in all age groups (1). Published reports have described cetirizine-induced dystonic reactions in the pediatric patient population and in one adult (2–4). We present the case of an adult who developed involuntary movements associated with cetirizine use and discontinuation.

### Case Report

A 24-year-old Caucasian woman presented to the local hospital emergency department with a nose laceration she sustained from walking into a glass window after acute alcohol intoxication (her blood alcohol level was 140 mg/dL). She reported taking 10 mg/day of cetirizine for 3 months, daily valacyclovir (for herpes simplex virus 1), and depot medroxyprogesterone. She denied a history of medication side effects, denied taking more than the recommended dosage, and was not taking over-the-counter or herbal products. She denied a history of head injuries, seizures, or loss of consciousness, and she also denied treatment with psychotropic medications. Initially, results from her physical examination were unremarkable with the exception of a superficial laceration on her nose. The results of laboratory testing, including thyroid-stimulating hormone and urine toxicology, were all within normal limits or negative.

While in the emergency department, the patient developed acute involuntary “bizarre grimacing” and dysarthria. There was no evidence of oculogyric crisis, torticollis, tongue protrusions, opisthotonos, gait disturbances, or weakness in her extremities. She did not lose consciousness, and results of her neurological examination were negative. She was given intravenous diphenhydramine (50 mg), benzotropine (2 mg), and lorazepam (2 mg). Neuroimaging results of her head and spine were negative, and her dystonia had resolved by the time a neurologist arrived at her bedside.

A follow-up call 1 month later revealed that the patient had stopped taking cetirizine after she was discharged from the emergency department. She reported facial twitching on the day after discharge. Over the course of the month, she experienced two episodes of difficulty walking, hand “discoordination,” and “muscle jerks of her throat.” These episodes lasted approximately 20 minutes. An outpatient neurology consultation was arranged at the

time of the call, but it is not known whether she kept that appointment.

### Discussion

Cetirizine is a carboxylated metabolite of hydroxyzine (a piperazine histamine H<sub>1</sub> receptor antagonist) (1). Piperazines have central dopamine D<sub>2</sub> receptor blockade (5). Cetirizine's large size, lipophobic nature, and greater affinity for peripheral H<sub>1</sub> receptors are believed to reduce CNS penetration and central side effects (2). However, one positron emission tomography study of cetirizine revealed approximately 30% H<sub>1</sub> receptor binding in the cerebral cortex (1, 2). Cetirizine has negligible anticholinergic activity (6). We speculate that as a piperazine derivative, cetirizine blocked the striatal D<sub>2</sub> receptors and resulted in an acute dystonic reaction in our patient. In addition, we also speculate that our patient's 3-month cetirizine use resulted in D<sub>2</sub> receptor hypersensitivity similar to that observed in long-term antipsychotic use, with subsequent involuntary movements after its discontinuation. It is also possible that her cetirizine use and the subsequent development of involuntary movements are independent events. More research is needed to clarify cetirizine's effect on central D<sub>2</sub> receptors.

### References

1. Curran MP, Scott LJ, Perry CM: Cetirizine: a review of its use in allergic disorders. *Drugs* 2004; 64:523–561
2. Rajput A, Baerg K: Cetirizine-induced dystonic movements. *Neurology* 2006; 66:143–144
3. Esen I, Demirpence S, Yis U, Kurul S: Cetirizine-induced dystonic reaction in a 6-year-old boy. *Pediatr Emerg Care* 2008; 24:627–628
4. Fraunfelder FW, Fraunfelder FT: Oculogyric crisis in patients taking cetirizine. *Am J Ophthalmol* 2004; 134:355–357
5. Sadock BJ, Sadock VA: Kaplan and Sadock's Synopsis of Psychiatry, 10th ed. Edited by Grebb JA, Pataki CS, Sussman N. Philadelphia, Lippincott Williams & Wilkins, 2007, pp 1043–1056
6. Zyrtec (cetirizine hydrochloride) package insert. <http://daily-med.nlm.nih.gov/dailymed/drugInfo.cfm?id=2115>

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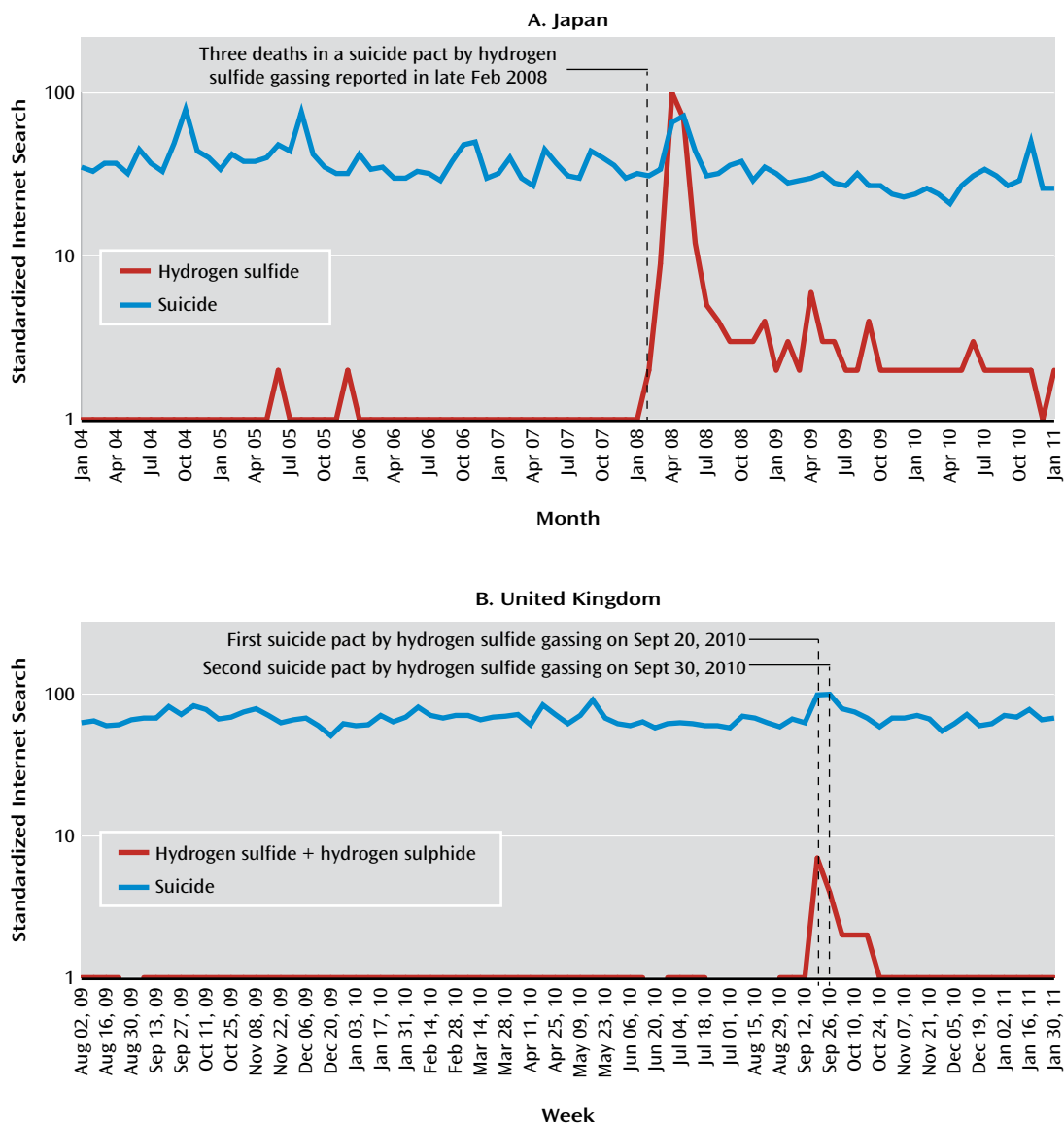
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## Internet Searches for a Specific Suicide Method Follow Its High-Profile Media Coverage

TO THE EDITOR: Widespread media coverage of specific methods of suicide may lead to copycat deaths and could initiate changes in the popularity of particular methods. At-risk individuals may use the Internet to research particular methods of suicide (1, 2), and a person's choice of method can influence case fatality (3). However, there is little research into the impact of news reports of suicide on subsequent Internet search activity.

We investigated the effect of media coverage of suicides by hydrogen sulfide gassing on trends in Internet searches in two

**FIGURE 1.** Trends in Internet Searches Using the Terms “Suicide” and “Hydrogen Sulfide” (or “Hydrogen Sulphide”) on Google in Japan, January 2004–January 2011, and in the United Kingdom, August 2009–January 2011<sup>a</sup>



<sup>a</sup> The month or week with the highest number of searches is assigned the value 100, and other months/weeks are scaled accordingly.

countries. In Japan, news reports of three deaths using this method in late February 2008 were followed by more than 200 hydrogen sulfide suicides during the subsequent 4 months (4). This epidemic was thought to be fueled by information on the Internet about making the gas. In the United Kingdom, extensive media coverage on September 20, 2010, of a suicide pact using this method was followed by a second hydrogen sulfide suicide pact within 10 days and another in February 2011.

We investigated search volume patterns from Google searches (<http://www.google.com/insights/search>) using the terms “suicide” and “hydrogen sulfide” (or “hydrogen sulphide”), filtering for Japan from January 2004 to January 2011 (Figure 1A) and for the United Kingdom from August 2009 to January 2011 (Figure 1B). The searches were performed in Japanese and English. Google provides a relative figure based on search activity for the study period but does not provide

absolute numbers of searches. The month or week in the selected period with the highest number of searches is assigned the value 100, and other months/weeks are scaled accordingly.

In Japan, online searches for “hydrogen sulfide” increased 50 times in April 2008 after the initial media reports in February 2008, surpassing the search volume for “suicide” (Figure 1A). In the United Kingdom, the number of online searches for “hydrogen sulfide” did not increase as much as they did in Japan, but the searches nevertheless rose by more than nine times in the week of the suicide pact reports compared with the previous 4 weeks (Figure 1B). The search volume for “hydrogen sulfide” in this period was only 7.1% of that for “suicide,” which also increased by 57% in the week of the suicide pact reports compared with the previous 4 weeks.

These data suggest a striking impact of media coverage of an unusual method of suicide on Internet searches relating to

that method. It is too early to determine whether differences in the relative changes in Internet searching between Japan and the United Kingdom, and likely cultural differences in attitudes toward suicidal behavior, will be reflected in the numbers of copycat suicides in the two countries, as U.K. suicide data for this period will not be available for 2 years. However, only two subsequent suicide pacts using hydrogen sulfide have been reported by the media in the United Kingdom, suggesting a smaller effect. The Internet may provide a real-time barometer of the impact of media reporting.

#### References

1. Prior TI: Suicide methods from the Internet. *Am J Psychiatry* 2004; 161:1500–1501
2. Biddle L, Donovan J, Hawton K, Kapur N, Gunnell D: Suicide and the Internet. *BMJ* 2008; 336:800–802
3. Elnour AA, Harrison J: Lethality of suicide methods. *Inj Prev* 2008; 14:39–45
4. Morii D, Miyagatani Y, Nakamae N, Murao M, Taniyama K: Japanese experience of hydrogen sulfide: the suicide craze in 2008. *J Occup Med Toxicol* 2010; 5:28

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### Expression of Concern

The February 2003 article “Parahippocampal Volume Deficits in Subjects With Aging-Associated Cognitive Decline” by Johannes Pantel, M.D., Ph.D., et al. (*Am J Psychiatry* 2003; 160:379–382) which was accepted for publication September 6, 2002, reported results identical to those published in the September 2002 issue of *Nervenarzt* (“Strukturelle zerebrale Veränderungen bei Probanden mit leichter kognitiver Beeinträchtigung Eine MR-volumetrische Studie”; *Nervenarzt* 2002;73:845–850). This duplicate publication is a violation of our editorial policy which states that all submissions must represent original material, cannot have been published previously, and are not being considered for publication elsewhere.

Robert Freedman, M.D., Editor

Michael D. Roy, Editorial Director