

CASE REPORT

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Hallucinations with Zolpidem and Fluoxetine in an Impaired Driver

ABSTRACT: A 54-year-old male was observed driving erratically. The subject displayed both horizontal and vertical nystagmus and poor balance on field sobriety tests (FST's). Further observations included slow movements, breathing, and speech, extremely poor coordination, lack of convergence, and pupils with slow reaction to light. The subject related he was seeing roadway lines doubled and felt a hallucinogenic effect. Breath alcohol results were negative. Blood tests found zolpidem and fluoxetine in addition to hydrocodone at therapeutic levels. This case is presented as an example of hallucinogenic effects from the combination of zolpidem and serotonin reuptake inhibitors.

KEYWORDS: forensic science, forensic toxicology, zolpidem, fluoxetine, hallucinations

Zolpidem (Ambien) is a hypnotic used within the last decade for the treatment of insomnia. The drug is administered orally in 5 or 10 mg doses before bedtime. Peak plasma concentrations of zolpidem as high as 272 ng/mL were observed after a 10 mg dosage, with a half life of up to 3.8 h (1). Fluoxetine (Prozac) is a serotonin reuptake inhibitor used as an antidepressant in the United States for the past 15 years. Fluoxetine may be administered in oral doses of 20 mg per day, with an increase up to 80 mg per day if needed.

Zolpidem alone has been reported to impair a person's ability to safely operate a motor vehicle (2) and to cause hallucinations when combined with serotonin reuptake inhibitors (3). Zolpidem has also been shown to produce no symptoms in 33 of 35 acute exposure subjects (4). Fluoxetine co-administration was found to cause only a minor increase in the elimination half-life of zolpidem in women. There was "no evidence of an additive effect in psychomotor performance" in that study, while hallucinations were found to be an infrequent (greater than 1 in 1000, but less than 1 in 100) occurrence in a separate study of 3660 individuals (5). A study of 27 young men also found no adverse effects from this combination of drugs over a 17-day period with zolpidem taken once prior to beginning the study and once after the last fluoxetine dose (6).

Fluoxetine is widely prescribed and less likely to impair an individual's driving ability. Baselt (7) found chronic usage to cause minor performance decrement to healthy individuals in a laboratory setting, and no impairment of ability in actual driving studies.

Case History

A 54-year-old male physician was observed driving erratically at 1930 h. The subject was driving slower than other traffic and weaving. His vehicle repeatedly hit the center divide and continued

on. The driver did not yield to either lights or siren, and only pulled over after the officer used his vehicle's public address system.

The driver had glassy eyes, slurred speech, and slow movements. The officer noted the subject to be very unsteady on his feet. At this point, the subject related that he missed two days of Prozac (fluoxetine), so he took three 20 mg pills at 1630 ("to catch up"). The subject also admitted Vicodin (hydrocodone) and Viagra (not tested for) usage at 1300, no admission of zolpidem was made. The subject displayed both horizontal and vertical nystagmus and poor balance on FST's. Further observations included slow respiration rate and slow speech; extremely poor coordination, lack of convergence, and pupils with slow reaction to light. The subject related he was seeing roadway lines doubled and felt a hallucinogenic effect.

Results and Discussion

Breath alcohol results were negative. Blood tests on a sample collected at 2130 found zolpidem (100 ng/mL), fluoxetine (25 ng/mL), and norfluoxetine (90 ng/mL) in addition to hydrocodone (8.8 ng/mL) at therapeutic levels.

Zolpidem has been shown in repeated studies to not significantly impair the psychomotor abilities of subjects taking zolpidem when tested after a good night's sleep (8,9). Impairment by zolpidem alone has been consistently seen when less than 5 h have elapsed since time of last dosing (10). Studies have also shown no significant accumulation of the rapidly eliminated zolpidem in plasma over a seven-day testing period (8).

From this information, it can be concluded that this individual recently ingested an unknown amount of zolpidem. The observations of the individual were consistent with those reported in the literature for someone under the influence of zolpidem (11). This case is presented as an example of a reasonable combination of commonly prescribed drugs, and their potential hallucinogenic outcome. Hallucinations with a combination of zolpidem and serotonin uptake inhibitors have been reported to last from less than 30 min to 7 h (3).

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