

An unusual case of drowsiness

Preet Shah*; Nishtha Nagral; Vijay Dhakre; Fali Poncha

*Preet Shah

Department of Medical Gastroenterology, Jaslok Hospital and Research Centre, Mumbai, India

Abstract

An 83 year old gentleman with multiple co-morbid conditions presented with drowsiness and gait imbalance with a normal neurological examination. A detailed battery of investigations failed to explain his clinical features. Hence a toxicology screen was sent, which revealed elevated levels of Benzodiazepines in his urine. On detailed history we found that he had inadvertently been taking Alprazolam prescribed to his wife instead of the Carvedilol. He recovered spontaneously.

Keywords

toxicology; alprazolam; carvedilol; hypothyroidism; benzodiazepines

Abbreviations

CABG: Coronary Artery Bypass Grafting; BZD: Benzodiazepine; IHD: Ischemic Heart Disease; PSA: Prostate Specific Antigen; TSH: Thyroid Stimulating Hormone; AST: Aspartate Transaminase; ALT: Alanine Transaminase; BUN: Blood Urea Nitrogen; EEG: Electroencephalogram; MRI: Magnetic Resonance Imaging; LVEF: Left Ventricle Ejection Fraction; MR: Mitral Regurgitation

Introduction

The drug history is indispensable during the evaluation of the patient. It is important to physically examine the medication pack, rather than merely enquiring about the drugs, as there can be varying levels of errors. The patient must be educated to consume the drug only after checking the generic name, and not on the basis of a particular physical appearance, and the patients need to be educated on this.

Case Presentation

An 83 year old gentleman presented with a day's history of drowsiness, imbalance on walking, and inability to sit. He was a known case of Diabetes Mellitus, Hypertension, and Ischemic Heart Disease (all since the past 35 years), with a history of CABG surgery 20 years back. He had a previous episode of atrial fibrillation (for which he was on Amiodarone, which had led to hypothyroidism), and gave a history of loud snoring at night. His hypothyroidism was under control. He used to consume 30 mL of alcohol (usually spirits) daily at night, and he also smoked tobacco in a pipe.

On examination, he was conscious, and was following all commands, was able to make an appropriate conversation, but would fall asleep within seconds if left alone. He was easily arousable from sleep.

His Pulse was 64/min, Blood pressure was 124/70 mm Hg. His respiratory rate was 14/minute and his oxygen saturation was 96% (room air). Neurological examination showed absence of pronator drift, normal power in all 4 limbs, absence of cerebellar signs and neck stiffness, and his plantars were flexor bilaterally. Examinations of other systems were within normal limits.

Patient's sugars remained low (~90-100 mg/dL) pre & post meals in spite of skipping the insulin doses. In view of patient's symptoms and clinical state a diagnosis of Obstructive Sleep Apnoea was strongly considered and he underwent a sleep study which confirmed the diagnosis.

He was managed with IV fluids and reduction in Insulin doses. However, the cause of his drowsiness remained unexplained. Suspecting intoxication by some unknown drug or contamination of his tobacco, a toxicology screen was sent, which showed significant levels of Benzodiazepines (BZDs) (91 ng/mL) (cut-off being 200 ng/mL) in the urine.

The patient had never been prescribed Benzodiazepines.

His family members were asked to get the container in which he had stored his medications. There were 4 tablets which had been used from the Alprazolam pack, and those from the Carvedilol pack were completely unused. On further questioning, he revealed that his wife, a case of Parkinson's Disease, had been prescribed BZDs.

He had been taking Carvedilol for his IHD, the color of these tablets, was deceptively similar to the commonly prescribed BZD Alprazolam (Alprax), which was also found in the same container (Figure-1).

The patient, since 2 days prior to admission, had inadvertently been taking the similar-colored Alprazolam twice a day (which was actually supposed to be the Carvedilol). He had taken 4 tablets of Alprazolam (0.5 mg each tablet) over 2 days. His wife had already previously consumed 4 tablets from the Alprazolam pack, hence 8 tablets are missing from the Alprazolam pack.

Discussion

Several medication pairs have been confused based on similar appearances or sounds [1]. 21.1% of preventable adverse drug events are related to errors in patient adherence. Examples of identified errors in patient adherence included taking another person's medication [2].

People belonging to the geriatric age group often suffer from a complex combination of chronic diseases, because of which they're prescribed several medications. The long list of medicines, in addition to their age related slowing mental faculties is what makes them especially susceptible to medication errors.

In this case, the patient, on account of many comorbidities was also on a large number of medication regimens. One of these was Carvedilol, an alpha + beta adrenergic blocker, prescribed to him for his ischemic heart disease. The other drug which the patient mistook Carvedilol to be was Alprazolam, a benzodiazepine used as a sedative, hypnotic, anxiolytic and anti-epileptic, which was prescribed to the patient's wife and is absolutely unrelated to Carvedilol.

Pill manufacturers take into account 4 different parameters while designing a pill:

(1) Shape (Round/ Oblong/ Oval/ Triangle/ Square/ Rectangle/ diamond/ Pentagon/ Hexagon),

(2) Colour (White/ Off white/ Clear/ Gray/ Black/ tan/ Brown/ Red/ Pink/ Orange/ Red/ Peach/Yellow/Green/Blue/Purple)

(3) Form (Tablet/ Capsule/ Other)

(4) Scoring (None/ Single/ Partial/ Multiple)

The similar colour of the tablets accounted for the patient's clinical scenario in this case, which might not have occurred had the other above parameters been taken into account. This is not an uncommon situation since many patients often identify a drug by its physical appearance, rather than the generic name, and instead of consuming the drug from its packing, often empty all the drugs from the packing into a container, for easy administration. This may lead to wrongly consuming a different and unrelated drug, especially if the physical characteristics are similar to the original drug. The patient routinely emptied his tablets into different compartments of a pill container. This practice perhaps contributed to the medication error.

Thus, it is advised that patients abort this practice of removing the drugs from the packing into a container, and instead consume the drug one by one as per the dosing requirements.

Shrank et al described the following comprehensive list of practical instructions on medication labels [3].

1. Use explicit text to describe dosage and interval in instructions.
2. Use a universal medication schedule (UMS) to convey and simplify dosage and use instructions.
3. Organize labels in a patient-centered manner.
4. According to need, include indication for use.
5. Simplify language, avoiding unfamiliar words or medical jargon.
6. Improve typography, use larger, sans serif font.
7. When applicable, use numeric versus alphabet characters.
8. Use typographic cues (bolding and highlighting) for patient content only.
9. Use horizontal text only.
10. Use a standard icon system for signalling and organizing auxiliary warnings and instructions.

Figure



Figure 1: To the left are the unused Carvedilol tablets, whereas to the right are the used Alprazolam tablets, which the patient had been inadvertently consuming.

Table

TEST (normal range)	RESULT
Vitamin-B12 (200-900 pg/mL)	940.9 pg/mL
PSA (0-4 ng/mL)	0.32 ng/mL
Free T3 (2.3-4.2 pg/mL)	2.42 pg/mL
Free T4 (0.8-1.8 ng/dL)	1.09 ng/dL
TSH (0.3-5 u/mL)	9.09 u/mL
Arterial ammonia (9-33 µmol/L)	23.5 µmol/L
Ionized calcium (4.5-5.3 mg/dL)	4.9 mg/dL
Serum magnesium (1.7-2.6 mg/dL)	1.9 mg/dL
Sodium (135-145 mmol/L)	138 mmol/L
Potassium (3.5-5 mmol/L)	4.1 mmol/L
Chloride (95-105 mmol/L)	100.5 mmol/L
BUN (5-20 mg/dL)	20.3 mg/dL
Creatinine (0.7-1.5 mg/dL)	1.5 mg/dL
Total Bilirubin (0.2-1.3 mg/dL)	0.8 mg/dL
AST (5-40 IU/L)	23 IU/L
ALT (5-40 IU/L)	30 IU/L
Serum Albumin (3.5-5 gm/dL)	3.9 gm/dL
Urinalysis	No pus cells, red blood cells or albumin (normal)
Urine culture	No growth
EEG	Normal
MRI Brain	Normal
Echocardiography	LVEF 40-45% with thin and akinetic proximal posterior wall, with hypokinetic distal inter-ventricular septum. Grade 1 MR. Left Ventricle Diastolic Dysfunction.