Background

- Prescription drug abuse is on the rise. According to the Philadelphia Department of Health data in 2017, up to 26% of adults may be using benzodiazepines and/or opioids [1].
- 12% or 1/8 Philadelphians are estimated to be current benzodiazepine users and have taken one in the last 7 days. Benzodiazepine use is most common among people with household incomes below $25,000 and among the 45-54 years old age group (17.7%) [1].
- Most current users (84%) obtain benzodiazepines from health care providers [1]. However, with new policies to closely monitor controlled substances, those with dependence on benzodiazepines may turn to alternative sources (such as black market vendors) to obtain the drug.
- Street-obtained versions may be substituted or mixed with alternative products to maximize profits for vendors. unsuspecting users can be subject to life-threatening side effects.
- To clinicians caring for these patients, the composition of benzodiazepines obtained outside of a pharmacy may not easily be identifiable, making treating intoxications a challenge.

Table 1: Philadelphia Department of Public Health 2017 Estimates of Current Opioid and Benzodiazepine Adult Users

<table>
<thead>
<tr>
<th>Substance</th>
<th>Estimated Number of Current Philadelphia Adult Users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzodiazepine Use Only</td>
<td>92,000</td>
</tr>
<tr>
<td>Opioid Use</td>
<td>168,000</td>
</tr>
<tr>
<td>Opioid Use Only</td>
<td>106,000</td>
</tr>
<tr>
<td>Opioid + Benzodiazepine Use</td>
<td>62,000</td>
</tr>
<tr>
<td>No Opioid or Benzodiazepine Use</td>
<td>1,208,000</td>
</tr>
<tr>
<td>Total Population</td>
<td>1,636,000</td>
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</tbody>
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Case Report

History of Present Illness: A 45-year-old man with no significant past medical history presented with confusion, diaphoresis, and weakness of two days duration. Vitals were significant for tachycardia to 117 and high blood pressures to 220/110. Physical exam showed an anxious, diaphoretic male in mild distress. Point-of-care accucheks revealed hypoglycemia into the 30s. Despite multiple amps of glucose, he remained hypoglycemic so was started on a D5W, then D10W infusion. He admitted to snorting heroin and taking Xanax (alprazolam); both were obtained from the streets with last use 1.5 days prior to admission. He denied taking any other medications.

Labs: Urine drug screen revealed cocaine, opioids, and benzodiazepines. On admission, his insulin levels were found to be abnormally elevated (up to 2776 mU/L). He also had an elevated proinsulin (50.1 pmol/L), normal c-peptide (2.90 ng/mL), and normal beta-hydroxybutyrate (0.6 mmol/L). His HgbA1c was 7.8%.

Imaging: Abdominal MRI revealed no evidence of insulina.

Hospital Course: The patient’s blood glucose fluctuated during the initial period of his hospitalization. He was intermittently hypoglycemic several days in, with an episode to 55 mg/dL around noon on hospital day 5. There was no identifiable postprandial correlation. Eventually, his blood glucose stabilized with supportive care only; D10W was weaned off without further hypoglycemic episodes. His sulfonylurea screen came back positive for a high level of glipizide (120 ng/mL). It was determined that the Xanax the patient was taking was probably mixed with sulfonylureas. He was subsequently discharged with a referral for drug rehab.

Discussion

- Hypoglycemia is a dangerous condition that is fatal if left untreated. It can be due to exogenous insulin overdose, sulfonylurea (SU) overdose, or the presence of an insulina.
- This patient satisfied Whipple’s triad: (1) hypoglycemia (plasma glucose <50 mg/dL), (2) neuroglycopenic symptoms (i.e. weakness, dizziness, confusion, blurred vision, difficulties with concentration), and (3) prompt relief of symptoms following glucose administration, which raised the clinical suspicion for insulinoma [3]. His insulin, proinsulin, and c-peptide levels suggested excessive endogenous insulin production.
- Lab abnormalities (insulin, proinsulin, and c-peptide levels) can look similar in an insulina or a patient who has overdosed on SUs. The difference is in the SU level. A patient who otherwise has no risk factors should still be worked up for an insulina if they remain persistently hypoglycemic after several days of unknown substance ingestion.
- Our patient’s sulfonylurea screen revealed elevated glipizide levels (120 mg/mL) several days after presumed ingestion with ‘Xanax’. Given no prior history of liver or kidney disease, it was unusual for him to remain persistently hypoglycemic several days after the ingestion. His blood glucose levels eventually improved off glucose supplementation. The persistent hypoglycemia was likely due to the large amount of SUs mixed into the ‘Xanax’ he was buying.
- “Street Valium” or benzodiazepines intermixed with sulfonylureas have previously been reported in case reports with supertherapeutic glyburide levels of 1198 and 647 ng/mL [4]. To our knowledge, this is the first case reported in Philadelphia.

Conclusion

- This case illustrates the potential for unsuspected substances, particularly sulfonylureas, to contaminate street drugs.
- Clinicians should be aware of persistent hypoglycemia being a complication of drug overdose and should perform workup as appropriate.

References