

> THE PATIENT

42-year-old man

> SIGNS & SYMPTOMS

- Altered mental status
- Vomiting
- Agitation

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> THE CASE

A 42-year-old man with a history of bipolar disorder with psychotic features, asthma, and chronic pain was brought to the emergency department (ED) by his father due to altered mental status, coughing, and vomiting. The patient was unable to recall events earlier in the day in detail but stated that he remembered using his inhaler for his cough, which seemed to precipitate his vomiting. The patient's home medications were listed as albuterol 90 mcg, methadone 90 mg/d, and quetiapine 100 mg.

While in the ED, the patient was tachycardic (heart rate, 102 bpm), but all other vital signs were normal. He was agitated and at one point required restraints. On exam, he had epigastric tenderness to palpation, and his lungs were clear to auscultation bilaterally.

Blood work was notable for an elevated lipase level of 729 U/L (normal range, 0-160 U/L). Complete blood count, comprehensive metabolic panel, urinalysis, chest x-ray, and alcohol levels were unremarkable. Computed tomography of the abdomen/pelvis and ultrasound of the abdomen showed excess stool and gallbladder sludge without cholecystitis.

The patient was treated symptomatically with intravenous fluids, ondansetron, and lorazepam. He was admitted with a working diagnosis of acute pancreatitis and possible acute psychosis in the setting of schizophrenia.

A few hours after presentation, the patient returned to his baseline mental status. Over the next 24 hours, his lipase level trended down to normal.

THE DIAGNOSIS

After the patient's discharge, the pharmacist from his primary care provider's office called as part of the routine post-hospital follow-up and a medication reconciliation was performed. During this call, the patient stated he had used 2 different nasal sprays prior to his ED presentation.

The pharmacist asked him to read the names of each medication. He related the first was naloxone and the second, fluticasone (neither of which was included on his medication list). Upon further questioning, the pharmacist elicited clarification from the patient that he had, in fact, taken 2 doses of naloxone, shortly after which his vomiting began.

This additional history suggested the patient's true diagnosis was acute opioid withdrawal precipitated by his accidental self-administration of naloxone.

DISCUSSION

Naloxone is a pure mu-opioid receptor antagonist that is used for opioid overdose.¹ In the past decade, in response to the opioid epidemic, naloxone has become increasingly available in the community as a way of decreasing opioid-related deaths.^{1,2} The US Food and Drug Administration recommends that all patients who are prescribed opioids for pain or opioid use disorder, as well as those who are at increased risk for opioid overdose, should be prescribed naloxone and educated on its use. Patients who received a naloxone prescription from their primary care provider have been found to have 47% fewer opioid-related ED visits.³

CONTINUED

■ **Quick effects, potential for complications.** Use of naloxone can rapidly induce opioid withdrawal symptoms, including gastrointestinal effects, tachycardia, and agitation, as well as diaphoresis, shivering, lacrimation, tremor, anxiety, mydriasis, and hypertension. Naloxone use can also lead to severe complications, such as violent behaviors, ventricular tachycardia or fibrillation, asystole, or pulmonary edema, in the period immediately following administration.⁴ These effects most often subside within 20 to 60 minutes after administration of naloxone, as the antagonist effect wears off.

■ **The treatment of naloxone toxicity** is supportive, with particular attention paid to the patient's mental and respiratory status.

■ **Our patient** was advised by his primary care physician on the proper use of all of his medications, including nasal sprays. The clinic pharmacist also met with him for an additional educational session on the proper use of naloxone.

THE TAKEAWAY

Given the widespread use of naloxone, proper education and counselling regarding this medi-

ation is crucial. Patients should be advised of what to expect after its use. In addition, physicians should always maintain updated patient medication lists, ensuring that they include naloxone if it has been prescribed for use as needed for opioid reversal, to assist in the emergency treatment of affected patients.⁵

JFP

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