

Vilazodone May Cause Sodium Channel Blockade in Overdose

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Background:

- Vilazodone (VIIBRYD®) is a recently FDA approved antidepressant (Figure 1)
- Vilazodone is both a 5-HT_{1A} partial agonist and selective serotonin reuptake inhibitor
- Few cases of overdose reported symptoms consistent with serotonin syndrome
- None of the reported cases provide confirmatory serum levels
- No cases describe cardiac toxicity

Hypothesis:

- Vilazodone toxicity may cause sodium channel blockade in overdose

Methods:

- Single patient chart review of a 15-year-old boy who intentionally ingested 780 mg of vilazodone in a suicide attempt
- Three hours after ingestion, the patient developed agitation, tachycardia, clonus, and lower extremity hyperreflexia consistent with serotonin toxicity
- An electrocardiogram obtained 9.5 hours after ingestion demonstrated evidence of sodium channel blockade with a QRS of 130 msec (Figure 2)

Figure 1. Vilazodone Structure

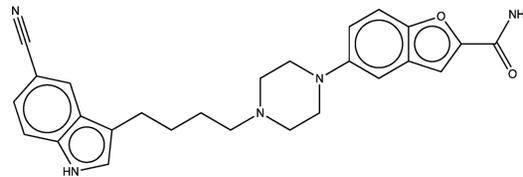
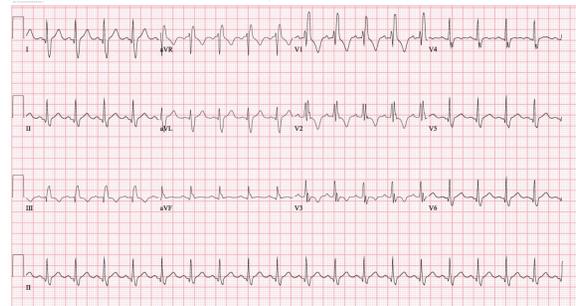


Figure 2. EKG demonstrating QRS widening to 130 msec.



Results:

- Initially given 200 mEq sodium bicarbonate IV bolus and infusion initiated at 150 mL/hr
- QRS narrowed to 96 ms and QTc improved to 484 ms, right bundle branch block pattern resolved
- Serum vilazodone level 9 hours after ingestion was 830 ng/mL (reference range <156 ng/mL at 40 mg daily)
- Mental status was at baseline by hospital day 2 and patient discharged to a psychiatric hospital without sequelae on hospital day 3

Discussion

- Only six cases of vilazodone toxicity have been reported to date — none reported cardiac toxicity nor confirmed vilazodone levels
- ECG changes were consistent with known sodium channel blockers of the Vaughn Williams IA and IC anti-dysrhythmics classes
- Based on experience with sodium channel antagonists we suggest sodium bicarbonate for QRS widening due to vilazodone toxicity

Conclusion:

- This case demonstrates serotonergic vilazodone toxicity as well as previously unreported cardiac toxicity

