

# PHENCYCLIDINE FALSE POSITIVE RESULT INDUCED BY LAMO TRIGINE ON THE PROFILE-V MEDTOXSCAN DRUGS OF ABUSE TEST SYSTEM



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## Contribution to Emergency Nursing Practice

- The current literature on urine drug screens indicates very limited evidence of the propensity of lamoTRigine to cause a false positive result for phencyclidine on urine drug screens.
- This article contributes to the literature by demonstrating the potential for lamoTRigine to cause false positives for phencyclidine on urine drug screens.
- Key implications for emergency nursing practice found in this article include reinforcing that the results of the urine drug screen may require further investigation into the cause of the positive test result.

Despite the convenience of rapid urine drug screens, false positive results have frequently been reported, which can have an impact on the clinical utility of the test and potentially create more questions than answers.<sup>1</sup> Most false positive results for phencyclidine (PCP) occur with medications that are structurally similar to PCP, such as ketamine and traMADol.

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## Case Report

A 17-year-old girl with a past medical history of seizures presented to a regional pediatric trauma emergency department with lethargy, decreased appetite, and unsteady gait. After initial screening, a complete blood count (CBC) without differential, complete metabolic panel (CMP), valproic acid level, ammonia level, and a rapid urine drug screen were ordered. The results of the CBC and CMP were unremarkable, although valproic acid and ammonia levels were both elevated at 155 mg/L and 69  $\mu$ mol/L, respectively, thus explaining the patient's initial symptoms. The results of the rapid urine drug screen (PROFILE-V MEDTOXScan Drugs of Abuse Test System, MEDTOX Diagnostics Inc, Burlington, NC)<sup>2</sup> were positive for benzodiazepines and PCP. The patient's home medications included divalproex, cloBAZam, and lamoTRigine, and the patient reported no use of herbal remedies or over-the-counter products. The positive urine drug screen results for benzodiazepines was explainable by cloBAZam; however, the positive result for PCP was not expected.

PCP, better known as angel dust, rocket fuel, crystal, and many other names on the street, is a synthetic white crystalline powder or clear liquid drug. Best known for its hallucinogenic and hypnotic properties, it is one of the most popular street drugs in the 21st century.<sup>3</sup> Although the popularity of PCP declined in the latter part of the 20th century, its use at present has been increasing since the early 2000s, with the Drug Abuse Warning Network reporting a 400% increase in ED visits related to PCP between 2005 and 2011.<sup>4</sup>

Pharmacy was contacted by the emergency department to evaluate for potential causes of the positive PCP result. The package insert from the urine toxicology screen used by the facility (PROFILE-V MEDTOXScan Drugs of Abuse Test System) was obtained, which did not list any medications that the patient was prescribed as possibly causing a false positive result. The pharmacist on duty notified the ED provider that, based on the package insert for the facility's urine drug

screen, none of the patient's home medications appeared to account for the positive result for PCP.

After confirming with the patient's mother that there were no other medications taken by the patient that would account for the positive urine drug screen, the Division of Family and Children Services (DFCS) was contacted. Once DFCS arrived to the emergency department, they conducted an interview with the patient and mother and requested a confirmatory urine sample be sent to evaluate for PCP. Unfortunately, this test was a send-out test for our facility, which took several days to return. It was not until after DFCS involvement that a similar case report was identified describing a false positive result for PCP with lamoTRIGine, although this was with a urine drug screen by a different manufacturer.<sup>5</sup> The confirmatory sample ultimately resulted a few days later as negative for PCP, but by this time, the patient had been discharged home; DFCS was made aware of the negative result, and the case was closed.

In 2010, Geraci et al<sup>5</sup> published a case series of 2 patients in whom lamoTRIGine produced false positive results for PCP using the Bio-Rad TOX/See rapid urine toxicology screen. For both patients, a urine toxicology screen was conducted as part of the patients' initial workup in the emergency department, which inexplicably resulted in positive results for PCP. In both cases, confirmatory screenings were subsequently completed that were negative for PCP. In these cases, all other potential false positives had been ruled out with the exception of lamoTRIGine.<sup>5</sup> An additional case of lamoTRIGine causing a false positive result for PCP was reported recently with the 6-panel iCup Urine Drug Test (AlcoPro, Knoxville, TN).<sup>6</sup> To our knowledge, this is the first case of a false positive result for lamoTRIGine using the PROFILE-V MEDTOXScan Drugs of Abuse Test System, and the manufacturer currently lists no potential substances capable of causing false positives in their package insert.<sup>2</sup>

Our case adds to the literature of potential false positive results for PCP caused by lamoTRIGine on commercially available urine drug screens and is the only one, to our

knowledge, with the PROFILE-V MEDTOXScan Drugs of Abuse Test System. Clinicians, especially those in pediatric emergency settings, should be aware of these potential issues with rapid urine drug screens, as false positive results may have unintended consequences such as unnecessary involvement of DFCS.

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