



Blood Ethanol Measurement: Priceless

We commend Drs. Birmingham and Nelson for writing about a relevant and often-overlooked topic relating to patients who are clinically believed to be intoxicated [Nelson LS, Birmingham C. Measuring blood ethanol: can it lead you astray? (Maybe). *Emerg Med.* 2011;43(6):15-17]. We agree that a debate exists concerning when to obtain blood ethanol concentrations in emergency patients. However, we find the assessment of blood ethanol concentrations in patients with deep obtundation or an unclear history to be valuable and less controversial. Our ED treats 130,000 patients annually, and it is not uncommon to arrive at shift change and receive sign-out stating that a patient is “just drunk” and can “MTF” (metabolize to freedom). Many of these patients are located in hallway beds, lack an IV line, and are occasionally forgotten about. If an ethanol concentra-

tion is significantly elevated (varying per individual), it may aid in establishing the etiology and we are comfortable closely observing for return to baseline mental status. However, if the blood ethanol concentration is zero or less than expected for level of obtundation, then other etiologies will be entertained earlier in the patient’s course to avoid delays in assessing for acute life threats. We believe a blood ethanol measurement (which costs \$1.17 at our institution) may be a priceless test in deeply obtunded patients.

Michael Nelson, MD
Sean M. Bryant, MD

*Department of Emergency Medicine
John H. Stroger, Jr Hospital of Cook County
(Formerly Cook County Hospital)
Toxikon Consortium
Chicago, Illinois*

The Authors’ Response

We thank Drs. Nelson and Bryant for their recent comments. They propose that a blood ethanol measurement is a valuable test in all obtunded patients, as it “may aid in establishing the etiology.” In other words, if the ethanol concentration is very high, it suggests that ethanol intoxication is the cause of the alteration in mental status. While we agree that obtaining blood ethanol concentrations can sometimes be helpful, we seek to emphasize two potential pitfalls to routinely ordering this test.

The first issue is that which was emphasized in our case report: life-threatening etiologies can coexist in patients with markedly elevated ethanol concentrations. Our patient presented with altered mental

status and was presumed to be intoxicated with ethanol, as local festivities were under way and multiple other intoxicated patients were presenting to the ED. In reality, he had consumed a potentially fatal dose of acetaminophen in a suicide attempt. He had also ingested diphenhydramine, causing an antimuscarinic toxidrome and a resulting alteration in mental status. He was observed for several hours and failed to become more alert. This frequent reassessment and realization that he was not “sobering up” in an appropriate time frame prompted a thorough evaluation, including CT of his head and multiple laboratory studies. At that point, his elevated transaminase concentration and markedly elevated acetaminophen level were discovered. In this particular case, an initial ethanol concentration would have been negative and therefore helpful, as it would have led to a more immediate workup for his altered mental status. However, had this patient co-ingested a large amount of ethanol, as we commonly see in patients with suicide attempts, his initial ethanol concentration would have been misleading. In such cases, a provider can fall victim to diagnostic “anchoring” and fail to consider other etiologies for an altered mental status, thinking that he or she has already “made the diagnosis.”

The second concern with routinely measuring blood ethanol concentrations involves the ethical and legal implications of discharging a patient who has a markedly elevated ethanol concentration. Due to the phenome-

Continued on page 14

LETTERS

Continued from page 4

non of tolerance, a chronic alcoholic often exhibits a normal functional status at an ethanol concentration that would cause a nontolerant individual to be altered. In one ED study, among patients deemed to be clinically sober by a physician, ethanol concentrations ranging from 120 to 540 mg/dL were found, with an average of 268 mg/dL.¹ Can a provider discharge a patient with an ethanol concentration of 268 mg/dL without placing himself or herself at legal risk (not to mention society in general)?

What if this patient gets behind the wheel of a car and has a motor vehicle collision? Relatedly, how does the physician ethically keep this patient in the ED, allowing him or her to metabolize to a “legally sober” blood ethanol concentration (<80 mg/dL), placing the patient at risk for ethanol withdrawal?

There is no easy answer to the question of whether or not to routinely obtain blood ethanol concentrations in intoxicated patients. We set the question forth with the hope

that clinicians will consider all of the implications of both choosing to obtain and choosing not to obtain this particular test. We believe that the best decisions are made on a case-by-case basis, keeping all of these considerations in mind.

EM

Colleen (Birmingham) Rivers, MD
Lewis S. Nelson, MD

*New York City Poison Control Center
New York, New York*

Reference

1. Urso T, Gavaler JS, Van Thiel DH. Blood ethanol levels in sober alcohol users seen in an emergency room. *Life Sci*. 1981;28(9):1053-1056.