Letter in Response to: “Use of a Rapid Ethylene Glycol Assay: a 4-Year Retrospective Study at an Academic Medical Center”

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Dear editor,

In their 2015 JMT article, Rooney and colleagues discussed the utility of a rapid ethylene glycol (EG) assay in the management of patients with suspected EG poisoning [1]. Although we enjoyed the study, we would like to clarify a few points with the authors and readers.

First, it is not clear why the institution’s algorithm used an osmolal gap (OG) >15 as the threshold to reflexively test for EG. We caution readers about the limitations of using OG as a screening tool for toxic alcohols, as the normal limits of OG can range from −14 to +10 [2, 3]. The normal OG also varies depending on the formula used to calculate osmolality and the type of instruments used by the laboratory to measure the serum osmolality. Also, the OG will decrease over time as an alcohol is metabolized [2], resulting in cases of EG poisoning with normal OG [4]. Likewise, we are concerned that reflexive testing will be unnecessary in cases where osmolality is elevated and there is a clear etiology for the metabolic acidosis, such as alcoholic ketoacidosis and diabetic ketoacidosis [5]. Therefore, we suggest considering limiting the toxic alcohol ordering to cases in which there is either a clinical suspicion of poisoning or an unexplained acidosis.

Additionally, the present study did not clarify how 222 rapid EG assays were performed in 106 patient encounters. This information would be useful to further grasp the utility and limitations of rapid EG assays. Were tests repeated as a result of laboratory error or as part of a laboratory protocol? Is the assay difficult to run correctly on a single attempt? Finally, the study’s methods cannot exclude false negatives of the rapid EG assay because the gold standard of gas chromatography (GC) was used in only a small portion of negative results.

We agree with the authors that decreasing reliance on GC is important, highlighting the fact that rapid EG assays carry a similar financial burden to GC but are potentially faster and more convenient to use. However, because propylene glycol (PG) interference continues to occur, GC capability of the laboratory is still a necessary component of the algorithm to exclude ethylene glycol toxicity. We also agree with the authors that further studies are needed to improve techniques to minimize PG interference and to develop technology for rapid methanol testing and commend them on their efforts to date.

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