2009 AQ-A
PARTICIPANT SUMMARY

Program Update

Beginning with this mailing, participants must indicate whether you are using traditional calibration or IDMS-traceable calibration for measuring creatinine. Failure to do so will result in penalties.

IDMS-traceable calibration should be indicated when a method manufacturer has informed the laboratory that results with a given method are traceble to an IDMS reference method or the results **have acceptable bias (as defined in** *Clinical Chemistry* 2006;52(1):5-18**) when compared to an IDMS-traceable method.** Traditioinal calibration should be indicated for all other situations.

Discussion

Whole Blood Lactate Measurements and Ethylene Glycol Poisoning

The differential diagnosis of an elevated anion gap metabolic acidosis includes both lactic acidosis and ethylene glycol poisoning. Whole blood or plasma lactate measurements are readily available in most facilities, using either an arterial blood gas analyzer or an automated chemistry analyzer.

There have been several reports in the literature about false elevations in lactate measurements in patients who have ingested ethylene glycol. The methods that gave false lactate elevations used L-lactate oxidase.[1,2] Ethylene glycol itself does not cause falsely elevated lactate results. Rather, it is the metabolites, glycolate and glyoxylate, that appear to be responsible.[1-4] Glyoxylate is the major metabolite of ethylene glycol that is produced in humans.[5] Blood gas analyzers that demonstrate falsely elevated results with ethylene glycol metabolites include the ABL series 625, 700, 725, 825, and 835 (Radiometer), the CCX 4 (Nova Biomedical), the GEM Premier 4000 (Instrumentation Laboratory), and the OMNI S (Roche Diagnostics).[3,4,6] Earlier reports indicated that the Beckman Synchron chemistry analyzer and the Bayer 860 blood gas analyzer demonstrated falsely elevated lactate results with ethylene glycol intoxication.[2,7] However, a recent article indicates this is no longer the case.[3]

The falsely elevated lactate result obtained by one of these affected methods can be compared to a lactate result obtained by a method that is resistant to this effect and a "lactate gap" can be calculated. The lactate gap can be used to rapidly detect ethylene glycol poisoning.[2,7] This may be especially useful when there will be a substantial delay in obtaining a definitive measurement of the patient's ethylene glycol concentration.

Each laboratory needs to know whether or not their lactate method(s) shows falsely elevated results in the presence of ethylene glycol metabolites and communicate this information with clinicians who may see patients with ethylene glycol intoxication.

William L. Roberts MD, PhD, Vice Chair
Chemistry Resource Committee

Discussion

References

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