Clinical Case Study

Prescription Compliance or Illicit Designer Drug Abuse?

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CASE

A 62-year-old Caucasian woman underwent evaluation for possible liver transplantation. She had endstage cirrhosis secondary to hepatitis C and alcohol abuse. Among the tests ordered were urine screens for various drugs of abuse, including amphetamines, for which the patient's urine sample was positive. Given the patient's history of alcohol abuse and possible other drug abuse, her physicians questioned her in detail about recent use of any illicit substances. The patient stated emphatically that she had used no recreational drugs for the past 15 years. The physicians wondered what could be the cause of a false-positive result and relayed to the laboratory that the patient was on several medications. The laboratory arranged to have the initial sample analyzed for amphetamines by GC-MS. The result was reported as negative for amphetamine, methamphetamine, 3,4-methylenedioxy-methamphetamine (MDMA),[3] and 3,4-methylenedioxy-amphetamine (MDA). In addition, the laboratory contacted the manufacturer of the screening immunoassay used [Amphetamines II, a kinetic interaction of microparticles in solution (KIMS) assay; Roche Diagnostics] and was informed that the medications that the patient had been prescribed, namely trazodone and bupropion, had been tested and did not exhibit any cross-reactivity.

[3] Nonstandard abbreviations: MDMA, 3,4-methylenedioxy-methamphetamine; MDA, 3,4-methylenedioxy-amphetamine; KIMS, kinetic interaction of microparticles in solution (assay)

Questions to Consider
• What could have caused the discrepancy in amphetamine results?
• When a question is raised about the accuracy of a positive result in an immunoassay screen, what is the proper subsequent course of action?
• When screening for drugs of abuse with immunoassays, is it sufficient to know that the assays are free from interferences by the parent compounds alone?
• Are there clinically important differences in interferences among different manufacturers' amphetamine immunoassays?

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Final Publication and Comments

The final published version with discussion and comments from the experts will appear in the December 2012 issue of *Clinical Chemistry*. To view the case and comments online, go to http://www.clinchem.org/content/vol58/issue12 and follow the link to the Clinical Case Study and Commentaries.

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