When pain management testing calls for a consult

Karen Titus

October 2016—Surprises might work for birthday parties—and even then they're not everyone's cup of tea—but not in drug screening programs.

Third of three parts. In August and September:
"Painstaking process of drug monitoring" and "Mass spec up front for pain management testing"

Perhaps the most common reason for doing a toxicology consultation is when a urine drug screen yields an unexpected result, either positive or negative, says Nicholas Heger, PhD, assistant director of clinical chemistry at Tufts Medical Center and assistant professor of anatomic and clinical pathology, Tufts University School of Medicine, Boston.

If a patient is prescribed morphine but only tests positive for methadone, for example, eyebrows might go up. Or perhaps a patient is taking a drug that isn't detected well by a urine opiates immunoassay, such as fentanyl (which as a synthetic opioid goes undetected).

Dr. Heger

Another common reason is when the clinician suspects that the patient may have diverted his or her pain medications, said Dr. Heger, who spoke at and co-chaired an AACC virtual conference on drug monitoring for pain management.

The elements of a toxicology consult are straightforward, Dr. Heger said. (The template he uses is referenced in *Clinical Toxicology Testing: A Guide for Laboratory Professionals*, CAP Press 2012.) These pieces will become part of a patient's medical record, and clinicians are likely to use the information to make clinical decisions about prescribing and treatment.

Among the components:

- date of request (to match the consult with test results).
- clinical pathology consultation (typically a CPT 80502—complex diagnostic problem; comprehensive review of a patient's history and medical records).
- patient name and medical record number.
- patient diagnosis (ICD-10 codes—for example, chronic pain, opioid requiring [ICD-10 F11.20]). "It's best to use the most relevant ICD-10 code available, to avoid possible denial of reimbursement for the consultation," Dr. Heger said.

- reason for consult. “This is typically a one- or two-paragraph overview of patient history as it pertains to the consultation.” It’s also helpful to state who’s requesting the consultation and what his or her main question(s) are.

Other components of a consult include discussions of:

- in-depth medical history, either in a description or as a list of ICD-10 codes. Relevant elements are the indications for pain (chronic and acute) and history of drug abuse, alcoholism, and psychiatric illnesses.
- social history, such as family life and marital status, employment, and stressors, as well as tobacco/alcohol/recreational drug use.
- current medications—a list of prescribed and OTC drugs and doses, including frequency, and ideally provided by the practitioner. “If a drug is only taken as needed, a negative result may be easily explained. Likewise, if a patient is taking a low dose of a drug that is not detected well by the urine immunoassay screen, a negative result might not be unexpected.” Dr. Heger also noted that current medication lists in a medical record aren’t always up to date, so it’s best to get an updated list directly from the referring clinician.

The laboratory data section of a consult should include detected and nondetected analytes, Dr. Heger said, for both in-house and reference laboratory test results. For clarity, state the specimen type, collection date, methodology, and limit of detection.

The assessment should include a contextual interpretation of the laboratory results. “Ideally, this section should be divided into the individual relevant analytes and incorporate both screening and confirmatory testing—or definitive testing as applicable—results together.” This is also a good place to provide analyte-specific information, such as half life, metabolism, and detection patterns.

The summary and conclusion section should integrate the clinical and laboratory data into a succinct interpretation of the overall findings. “Many times, a consult can be multiple pages long,” Dr. Heger noted, “and the clinician may only have time to read the final paragraph.” Be sure to address the requestor’s specific questions, and don’t over-interpret or overstate the findings.

Following the actions-speak-louder-than-words school of thought, Dr. Heger provided a case study to illustrate the elements of a toxicology report.

The patient, known as Mr. A, is a 60-year-old man with chronic pain syndrome secondary to psoriatic arthritis in the right shoulder, right hip, and both ankles. The most relevant diagnosis code is ICD-10 F11.20—chronic pain, opioid requiring. He has a history of depression and anxiety.

He’s currently prescribed oxycodone (10-mg tabs, four tabs/day) for pain and Valium (diazepam: 10-mg tabs, two tabs/day) for anxiety.

“During a recent visit to his primary care physician, a urine drug screen was performed and tested positive for

opiates, oxycodone, benzodiazepines, and cannabinoids, or marijuana," Dr. Heger said. The patient's primary care physician, reasonably enough, requested a formal toxicology consultation, given the surprising positive opiates result.

The social history revealed that Mr. A is single and lives alone. He's not working, but he does collect disability. A former cigarette smoker (one pack/day for 45 years), he now smokes two or three cigars daily, and he uses alcohol occasionally and marijuana a few times a week. He does not report using IV drugs.

His medical history includes chronic shoulder, hip, and ankle pain, as well as psoriasis, depression, muscle cramps, insomnia, and hypertension. In addition to oxycodone and Valium, his medication list (provided by his physician in an email) includes Neurontin (gabapentin: 300-mg tablets, two tabs at bedtime), hydroxyzine HCl (25-mg tabs, one tab/day as needed), clobetasol proprionate (applied twice daily), and lidocaine (applied twice daily as needed).

The urine immunoassay drug screen (urine collected April 18, 2016) showed the presence of benzodiazepines, THC-cannabinoids, opiates, and oxycodone.

"If we recall from the medication list and the social history of the patient, the positive benzodiazepines result can be explained by the patient's prescription for Valium, for diazepam," Dr. Heger said, "and the positive cannabinoids result would also be expected," given the patient's recreational use of marijuana. Likewise, the positive oxycodone result tracks with the patient's prescription for the drug.

The results take a detour at the positive opiates result. "The opiates immunoassay we use in our lab is not designed to detect oxycodone and its metabolites," Dr. Heger reported. That suggests another opiate is at play, requiring a confirmatory test.

The consultation note states the urine specimen collection date and the specific laboratory in which the tests were performed, as well as the methodology, including the limit of detection (for example, LC-MS/MS, with a limit of detection of 50 ng/mL.) The results showed 620 ng/mL of hydromorphone, 4,200 ng/mL of oxycodone, 500 ng/mL of oxymorphone, and more than 15,000 ng/mL of noroxycodone.

Looking at the metabolic pathway of opiates provides insight into the results. Oxycodone is primarily metabolized into oxymorphone and noroxycodone. All three were found in high concentrations in the urine specimen. But hydromorphone is a different beast, with no shared metabolic pathway with oxycodone. "We can infer that the hydromorphone is not due to normal in vivo metabolism of oxycodone."

Those results sound damning, but Dr. Heger urged a temperate response in the ensuing assessment and conclusion.

The report notes that the positive opiates immunoassay result is due to hydromorphone, providing a brief explanation of why that's likely the case. For oxycodone, the positive immunoassay result is attributable to oxycodone, a point supported by the confirmatory test. Likewise, the positive benzodiazepine immunoassay result is likely due to Valium (though the report notes the immunoassay can't rule out the use of other benzodiazepines), while the positive cannabinoids result was also expected, though neither result was confirmed.

The conclusion section sums up all the information succinctly and offers clinical guidance. Many of the results were expected. Given that the toxicology results are not completely consistent with the prescribed medications, however, the report suggests considering further investigation of the patient's unprescribed drug use.

Sounding as cautious as a copy editor, Dr. Heger urged labs to be careful with the language in their reports. "When reading through a patient history and interpreting the laboratory results, it may be tempting to propose plausible scenarios as to why certain drugs were detected or not," he said. "However, the point of the consultation is to provide an objective review of laboratory results to present to the physician." In other words, avoid insinuation, accusation, and speculation—all of which is better left to political jousting on social media.

It’s also best to avoid commenting on whether a patient is compliant with a drug regimen or dose. Clinical toxicology testing is not pharmacokinetic in nature, he said, and thus can’t always explain drug concentrations found in urine.

Neutral words and phrases are best: “alternative scenarios should be considered,” “is consistent with,” “would be expected in a patient taking,” and “use of other drugs cannot be ruled out.” While such pedestrian language won’t win a lab a Pulitzer, it will keep the laboratory well within its bounds and help guide clinicians in making treatment decisions.
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