Drug Screens Fail Accuracy Tests 10% of Time

BY BETSY BATES

FROM THE ANNUAL MEETING OF THE AMERICAN PSYCHIATRIC ASSOCIATION

NEW ORLEANS — Some of the most important drugs of abuse, misuse, and diversion remain undetected by common immunoassay drug screens, according to Dr. Dwight Zach Smith.

Moreover, widely used drug screens produce false-positive results in as many as 1 in 10 cases.

"We trust in science. We believe [accuracy] is going to be higher than that, when it's not. We need to have these tests confirmed," Dr. Smith, a psychiatrist with the Veterans Affairs Black Hills (S.D.) Health Care System, said at the meeting.

Dr. Smith and his associates reviewed nearly 30 years of peer-reviewed studies concerning the coverage, accuracy, and specific nuances of commercially available drug-screening immunoassays and found that, although they have improved, they are "not so good."

Drug testing, he said, "is simply a fact of life in America in the 21st century," with one drug-screening test performed for every two Americans in 2009.

"We have drug tests for our students, for our athletes, [and] as a condition for employment for many federal and private agencies," he noted.

Considering how prevalent they are, however, "unfortunately there remains a significant gap in our knowledge and our scientific understanding of drug tests [pertaining to] clinical practice," Dr. Smith said.

For example, a 2007 study included in the review found that 88% of physicians did not realize that oxycodone is not detected in most opiate assays.

They also might be surprised to learn that methadone, fentanyl, tramadol, hydromorphone, and buprenorphine also go largely undetected in opiate immunoassays, unless a physician specifically requests them, he said during a session on issues within addiction psychiatry.

Benzodiazepine drug screens report on use of diazepam, nordazepam, and oxazepam, but "surprisingly to me," not some of the most commonly misused drugs within the class, including clonazepam, alprazolam, and lorazepam, Dr. Smith said.

Unlike other drug classes, benzodiazepine screens are regulated by no federal guidelines establishing minimal thresholds for defining a positive test result. "Each lab sets its own minimal thresholds, sets of guidelines, and procedures … with differing specificities and sensitivities," Dr. Smith pointed out.

Dr. Smith advised physicians requesting drug screens to be very specific about what they want and to "become friends with the toxicologist in charge of the lab" to discuss laboratory standards and unexpected test results.

Ordering a confirmatory test using gas chromatography / mass spectrometry also is a useful step in the face of unexpected results, but cost is a barrier for some. A standard immunoassay might cost $12, compared with almost $120 for the much more accurate confirmatory test (99% sensitivity, 99% specificity), he said. Another problem with drug screening arises when a careful medical history is not taken before the ordering of a drug screen, he said.

False-positive results might arise if a patient is taking sympathomimetics such as Vicks nasal inhaler, tricyclic antidepressants, bupropion, selegiline, ranitidine (false-positive amphetamine results); sertraline or oxaprozin (false-positive benzodiazepine results); efavirenz or hemp-containing foods (cannabis); or poppy seeds, dextromethorphan, rifampin, or quinolones (false-positive opioid results).

Widely used drug screens produce false-positive results in as many as 1 in 10 cases; the results need to be confirmed.

DR. SMITH

With regard to poppy seeds, 1 teaspoon or more within 2-3 days of a test could alter results.

False-positive test results are a relatively common phenomenon with immunoassays used for the majority of drug-screening tests in the United States, with a mean specificity of 85%-90%, his research found.

"I look at those numbers, and I can't help but think 1 in 10 … are going to be inaccurate results," he said.

Sensitivities are better, at about 90%-95%, but that range does not account for myriad ways drug users thwart the test results: by drinking a gallon of water, diluting urine with bleach or drain cleaner, or using someone else's urine to fill a commercially available product such as the "Real Whizzinator," a device that contains a prosthetic penis with synthetic urine for men who seek to pass drug tests.

He estimated that about half of cheaters get away with their ruse, since many laboratories do not check samples for urine-specific gravity, creatinine, pH, or exogenous substances that might give them away.

Dr. Smith reported he had no relevant financial conflicts. ■

Innovations Needed to Undercut Smoking Culture in Military

BY HILLEL KUTTLER

FROM THE ANNUAL MEETING OF THE SOCIETY FOR NICOTINE AND TOBACCO RESEARCH

BALTIMORE — U.S. soldiers in Iraq and Afghanistan smoke to relieve boredom and stress in an environment that fosters smoking, according to focus group research sponsored by the Department of Veterans Affairs.

The favorable smoking environment also pervades monthly drill exercises once they've returned home, and even encourages nonsmokers to smoke.

The poster was based on interviews with members of the Minnesota Army National Guard who had served in Afghanistan (Operation Enduring Freedom) and Iraq (Operation Iraqi Freedom) and had smoked while deployed.

"The most important thing [learned] is that there's a very strong culture of tobacco use in the military, and it encourages people to start smoking and to continue it," said Rachel Widome, Ph.D., core investigator at the VA Center for Chronic Disease Outcomes Research (CCDOR).

Concern for the effects of secondhand smoke on their children deterred smoking at home, Dr. Widome said. But the 1-weekend-a-month, 1-week-a-year drill exercises altered their habits.

Interviewees said that "it's not a problem to stay tobacco free at home, but when they get to the drill weekend, they smoke," she said.

Dr. Widome highlighted the following responses from focus group participants:

► "While deployed, tobacco was a way to deal with stress, anger, boredom, and lack of control, and was a way to connect with others."

► "It's such a camaraderie thing. At the drill, you can start up again if you quit before. The guys will give you crap about quitting and call you a quitter."

► "Now that I'm at home and not around smokers, I have successfully quit, although I still smoke three packs a day on drill weekend … Even the nonsmokers smoke on drill weekends."

► "I know people who smoke just because they get breaks every hour."

"Innovative strategies and policies are needed" to promote smoking cessation among military members, Dr. Widome wrote in the poster, adding that focus group findings will be used to address the needs of returning soldiers at the Minneapolis VA Medical Center. ■

Compliance Is Spoiler in Cocaine Dependence Drug Trial

BY SHERRY BOSCHERT

FROM THE ANNUAL MEETING OF THE AMERICAN SOCIETY OF ADDICTION MEDICINE

SAN FRANCISCO — A trial of the anticonvulsant vigabatrin to treat cocaine dependence may have failed because the patients weren't taking it, not because the drug didn't work, the study results have shown.

The National Institute on Drug Abuse will repeat the trial, but this time the investigators will try to enroll people who appear motivated to stop cocaine use so that adherence to treatment can be better measured, Dr. Eugene C. Somoza said at the meeting.

"The trial failed, but we don't think that the drug failed," said Dr. Somoza of the University of Cincinnati. Vigabatrin is currently indicated for adjunctive treatment of complex partial seizures and infantile spasms. The original double-blind, placebo-controlled trial randomized 186 adults with cocaine dependence to 12 weeks of treatment with placebo or 3 g daily of vigabatrin in two divided doses. The investigators assessed cocaine use during the study through patient self-report and measurements of benzoylecgonine, a long-acting metabolite of cocaine in the urine. Cocaine use did not differ significantly between the groups, suggesting that vigabatrin failed to decrease use of the drug.

Dr. Somoza said he was "very surprised that it didn't work," because vigabatrin had decreased cocaine use in a similar study of 103 patients in Mexico. In that study, however, investigators observed patients ingesting the drug on 29% of the treatment days. The American study relied on pill counts and patient self-reports to measure treatment adherence, which was rated as 85%.

A subsequent analysis of urine samples retained from the study showed that fewer than 40% of 53 patients in the vigabatrin arm who completed the 12-week study had urine drug levels that would indicate adherence to the medication regimen. The subsequent urinalyses suggested that at 5 of the 11 study sites, fewer than half of the patients had taken the medication as prescribed.

After lack of adherence to the treatment regimen was controlled for, the findings indicated that patients who took vigabatrin used less cocaine than did those who were on placebo, Dr. Somoza said.

The Mexican study enrolled participants who were seeking treatment for their cocaine dependence and who may have been more motivated to adhere to treatment than were participants in the American study, he added.

The study was funded by Catalyst Pharmaceutical Partners, which makes the vigabatrin formulation used in the study. Two of Dr. Somoza's research associates in the study work for the company. ■