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ToxID, a new validity tool for urine drug testing

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Urine drug testing (UDT) continues to be the federally recognized gold standard for workplace monitoring and the preferred method in pain management medication monitoring programs. Sample validity testing utilizing temperature, specific gravity, pH and creatinine are used as means of detecting tampering with a UDT. These tests fail to distinguish human urine substitution samples or the use of synthetic urine. This tampering can occur in an un-witnessed sample collection environment. In this setting, we propose a method to match the sample with the individual utilizing donor genetics thereby improving the validity of an un-witnessed sample collection. In this study, we have developed an enhanced validity test, ToxID, to successfully match the urine specimen with its donor. To evaluate the test sensitivity and specificity, a double blind test was performed. A total of 47 individuals donated their buccal cell and urine samples. The samples were collected by two individuals who are not involved in the sample testing and data analysis. They put the urine and buccal cell sample in pairs of matched (positive-matched) and miss matched (negative-matched) and also substituted a few urine samples with synthetic urine. The resulted paired samples were processed and tested. Out of the 47 samples, 3 urine samples failed to produce reliable genotyping results due to poor DNA quality and were omitted from the data analysis. For the remaining 44 paired samples, the assay correctly identified the 10 negative-matched pairs with three of the urine samples being synthetic urine. None of the positive-matched pairs were miss-identified as negative-matched. Therefore the ToxID test has 100% sensitivity and 100% specificity. ToxID is a valuable validity tool for urine drug testing when sample collection is performed in an un-witnessed environment.

Biography

Matt McCarty, MD is a board certified, fellowship Anesthesiologist with additional subspecialty certification in Pain Medicine practicing in Austin Texas. After a 14 year of successful career in anesthesiology in Tyler Texas, he decided to pursue a pain fellowship at the University of South Florida. Since moving to Austin, he has practiced interventional pain medicine utilizing a multidisciplinary approach involving medication therapy with monitoring, spinal interventions as well as physical and behavioral health therapy. Intrigued by the variable patient response to pain medication and the likely interplay of genetic factors in producing adverse drug events and addiction he founded and developed Genotox Labs. Genotox Labs is a CLIA certified high complexity lab specializing in pharmacogenomic and toxicology confirmation testing.

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