

Comparison of oral fluid and urine drug testing in a population of those with chronic pain

Sergey Latyshev, David Masters-Moore, Charles Mikel
Millennium Research Institute, San Diego, CA, USA

Purpose

Oral fluid testing offers a convenient alternative in specimen collection compared to urine drug testing as it may be collected in the presence of the physician, and can be useful for practices with limited restroom facilities. Testing of oral fluids can possibly yield results which can differ from the traditional urine drug screen. These differences include which parent drug and metabolites are present as well as the detectable concentrations. The objective of this study is to compare results of oral fluid and urine specimens collected from the same patient.

Method

This retrospective study examined the medications hydrocodone, morphine, and oxycodone in urine and oral fluid specimens collected from 433 individuals being treated at chronic pain clinics. These specimens were tested by liquid chromatography tandem mass spectrometry (LC-MS/MS) at Millennium Laboratories, Inc. The cutoff level for urinary hydrocodone, morphine, and oxycodone was 50 ng/mL. The cutoff for hydrocodone, morphine, and oxycodone in oral fluid was 5 ng/mL. The analytes were scored as positive if the concentration was at or above the cutoff level. The correlation of positivity rates was calculated in two ways. The first analysis identified the number of urine specimens positive for each analyte, then, of those, found the number of oral fluid specimens positive or negative for the same analyte. In a similar analysis, positive oral fluid specimens were identified first and the number of corresponding positive and negative test results for urine specimens was calculated.

Results

There were 73 subjects that had positive hydrocodone concentrations in both urine and oral fluid (76% of all positive urine positives 89% of all positive oral fluid positives). There were 25 subjects with both urine and oral fluid specimens positive for morphine (67.6% of all positive urine positives; 89.3% of all positive oral fluid positives). Seventy-five subjects had positive oxycodone concentrations in urine and oral fluid (91.5% of all positive urine specimens; 83.3% of all positive oral fluid specimens).

Conclusions

Hydrocodone and morphine were detected less often in oral fluid compared to urine. Oxycodone was detected more often in oral fluid compared to urine. The limitation of this study is that dose and time between dose and collection are unknown. These results show that oral fluid testing is a reliable way to monitor patient adherence to chronic opioid therapy. However, there are differences in which medications are detected more often in oral fluid compared to urine.