Introduction

While the legalization of marijuana (THC) for recreational and/or medical use was being hotly debated across the country, Substance Abuse and Mental Health Services Administration (SAMHSA) investigators were compiling the latest statistics on THC use and abuse. In June of 2012, SAMHSA published their findings showing that 18 percent of patients admitted to substance abuse treatment centers report marijuana as their primary substance of abuse, with 58 percent of those reporting abuse of additional substances, including opiates, sedatives, and alcohol.1 Marijuana is the illicit drug with the largest number of new initiates, followed closely by pain relievers.2 Nearly 5 million persons use marijuana on a daily or almost daily basis.3 Eighteen states have approved medical marijuana citing benefits across a number of disease states, including nausea/vomiting and pain.4 This is despite the fact that marijuana use, particularly in teens and young adults, has been found to be associated with abuse of prescription opioids and other drugs, and also has been found to impair driving ability.5-7 Studies in chronic pain patients have demonstrated an association between prescription medication misuse and illicit drug use.8,9 In these chronic pain patients it is unknown if the association extends to THC or is limited to agents such as cocaine, heroin, etc. Therefore, we sought to investigate the relationship of marijuana use to potential medication non-adherence in patients prescribed hydrocodone, the most frequently prescribed medication in the United States, hoping that the findings will help clinicians caring for those with chronic pain to clarify their practice policy on THC and achieve optimum patient outcomes while minimizing risks.10

Methods and Design

A retrospective review was conducted on a database of urine drug monitoring results from samples submitted to Ameritox for patients prescribed hydrocodone (excluding those prescribed only on an “as needed” basis) from May 16, 2011 to May 15, 2012. Samples were included in the analysis only if physicians ordered testing for both the marijuana metabolite, 11-nor-A9-tetrahydrocannabinol-9-carboxylic acid (THCA), and cocaine metabolite, benzoylecgonine. Results were separated into three categories for analysis based on presence of illicit(s): THC only, cocaine only (as a comparator because cocaine is typically considered a serious finding by clinicians), and no illicit found. The results of urine drug monitoring were grouped as having the prescribed hydrocodone not found (defined as a result for hydrocodone using LC/MS/MS below a cutoff of 100 mg/mL) or as having a non-prescribed drug detected (based on a reconciliation of the medication list submitted to Ameritox by the ordering clinician). Additional analysis was done to look for specific classes of non-prescribed drugs found. This analysis included opioids (codeine, morphine, hydrocodone, oxycodone, oxymorphone, buprenorphine, fentanyl, methadone, meperidine, propoxyphene, tramadol, and tapentadol), sedative hypnotics (benzodiazepines, barbiturates, and carisoprodol), and stimulants (amphetamine, methamphetamine, methadone, or nicotine metabolites). A sample may be included in two categories if multiple non-prescribed meds are found. Results are presented as the aggregate of all eligible samples. Data was examined from an existing database and analyzed by researchers as de-identified, so IRB approval wasn’t obtained.

Results

From May 16, 2011 to May 15, 2012 a total of 250,397 eligible urine samples were received by Ameritox from individuals prescribed hydrocodone containing medications. Of those, 116,001 samples had a physician order to test for both marijuana (THC) and cocaine (COC). Further breakdown of the samples showed 15,153 that were positive for THC only, 1,731 that were positive for cocaine only, and 99,115 that had no illicit present.

A breakdown of hydrocodone not found, any non-prescribed medication found, and details of classes of non-prescribed medication by illicit group can be found in Graphs 1, 2, and 3. Statistical analysis is presented in Table 1.

Discussion

For the clinician caring for patients suffering from chronic pain, the challenges are many. Given the millions of marijuana users, deciding what to do with a positive marijuana urine drug test in a patient prescribed opioids is a common dilemma. Some clinicians have opted to simply not test for THC given the fact that in many circles, including some state legislatures, marijuana is considered to possess medicinal value and perhaps be suitable for recreational use. But like the SAMHSA results of 2011, the results presented here suggest that for some, marijuana use is associated with misuse of prescription medications. Pain patients prescribed hydrocodone and using marijuana were missing their opioid and/or were found to be taking some other non-prescribed medicine significantly more often than patients who were not using an illicit. For those chronic pain patients prescribed an opioid and using marijuana, the odds of medication misuse even equaled that seen in cocaine users for the case of finding some other medication, and the odds ratio for non-prescribed stimulants and sedative/hypnotics was higher for THC than cocaine. These results indicate that marijuana use should be explored via urine drug monitoring (UDM) in chronic pain patients prescribed opioids. For clinicians who continue to prescribe opioids even if UDM confirms the use of marijuana, this data suggests that these patients should be considered at higher risk of medication misuse than a patient not using illicits. Consistent with recently published expert recommendations,14-18 a high risk patient warrants more frequent follow-up, including the use of clinical tools such as prescription drug monitoring programs and more frequent urine drug testing.

Limitations

This study focused solely on patients prescribed hydrocodone. Results may not be reflective of UDM in the overall population of patients as physicians may test patients suspected of medication misuse more frequently, thereby resulting in possible selection bias. The dataset reflects unique samples and not unique patients. As categories of urine drug testing results are not mutually exclusive, the samples with multiple abnormal results may be contributing to an overstatement of the problem.

Conclusion

This data suggests that marijuana carries a significantly increased risk of potential nonadherence, in some cases equal to that of cocaine. Clinicians should carefully consider these data when deciding not to test for THC when utilizing urine drug monitoring for patients on chronic opioid therapy, as a positive finding has a higher odds ratio for potential nonadherence.