SDRL Laboratory

TOXICOLOGY TIMES

SDRL Laboratory

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A FREE Monthly Newsletter for Substance Abuse and Opioid Treatment Programs from San Diego Reference Laboratory

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Oxycodone

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Oxycodone is a semisynthetic keto-opioid first synthesized from thebaine in 1917 in Germany. Thebaine is found naturally in poppy straw. In 2013 Australia was the main producer, followed by Spain and France, accounting for 99% of global production.[1] Treatment of thebaine with m-chloroperoxybenzoic acid in acetic acid and trifluoroacetic acid, then hydrogenation with a catalyst results in the desired oxycodone.[2]

Pharmacologically, oxycodone shares the same characteristics of morphine. It is a potent analgesic, with associated feelings of euphoria and anxiolysis. Side effects include constipation, nausea, vomiting, dizziness and respiratory depression. It is respiratory depression that causes death in opioid overdose cases. When choosing an opioid for treatment, morphine is generally considered first. Morphine may be undesirable due to adverse patient effects or low bioavailability (20-40% orally). Oxycodone is 80% bioavailable orally and the half-life is similar to morphine, therefore, it is easier to convert patients from morphine to oxycodone in treatment compared to other opioids.

Oxycodone is a full agonist for the μ-opioid receptor and has almost no affinity for the δ- and κ-opioid receptors. After an oral dose of oxycodone, the onset of action is 10-30 minutes with peak plasma levels in 30-60 minutes.[3] Oxycontin® (Purdue Pharma), an oral sustained-release formulation containing oxycodone, delivers peak plasma levels in about 180 minutes.

Oxycontin® plays a key role in the current US opioid crisis. It was first developed in 1995 as a sustained-release form of oxycodone. Since it is sustained-release, it contains much more oxycodone than a tablet of oxycodone alone. A typical single dose of oxycodone is 5 milligrams, while an Oxycontin® tablet can contain 10, 20, 40 or 80 milligrams of pure oxycodone. People who wanted larger doses of oxycodone were crushing the Oxycontin® tablets and snorting them or extracting the contents and injecting the oxycodone. To prevent this, manufacturers are developing crush-proof tablets or tablets formulated with microspheres that maintain the extended-release properties even when crushed.[4,5]

There is a large amount of illegal traffic in oxycodone tablets, extended-release or otherwise. People who seek opioids are likely to seek any substance that relieves their addiction, including heroin. In many instances, it may be easier for people to seek and find heroin than Oxycontin®. The current heroin crisis, compounded with the recent addition of fentanyl, is a result of skyrocketing painkiller prescriptions in the 1990s and 2000s era. Another very insidious pathway to drug abuse is the relative ease which children and young adults have access to opioids used for analgesia.[6,7]

Oxycodone can be metabolized to oxymorphone. In an immunoassay class screen, it does not appreciably cross-react with other opioids, nor does it interfere with other opioids in a mass spectrometer during the confirmation process. Testing for oxycodone is specific when an immunoassay class screen is confirmed with a mass spectrometric technique (HPLC/MS/MS or GC/MS).

??? Did You Know ???

Counseling can take a number of forms depending on the type of therapy being used, the goals of the treatment, and other factors in the life of the person receiving therapy. Some courses of counseling last for months or even years, while others can be brief. One brief, goal-oriented strategy, which may be used by itself or as a part of broader course of counseling is Motivational Enhancement Therapy (MET). MET is based on principles of motivational psychology and designed to produce rapid, internally motivated change. Rather than directing an individual through recovery, practitioners make efforts to help to mobilize the person's own resources and build their own motivation to address a goal, such as reducing alcohol use. Counseling is usually provided on an individual basis, but can also be conducted with small groups of people addressing common issues.
Source: SAMHSA

Question of the Month

Question: *Can any over-the-counter (OTC) cold medications cross-react with any of the drugs on the basic panel?*

Answer: OTC medications, when taken as recommended per the instructions included with the medication, are not expected to cross-react with any drug classes. However, when a patient takes more than the recommended amount, OTC medications can cross-react and cause a positive result. At high levels in the system, Ephedra-based drugs (diet pills, cold and sinus medications, etc.) can cross react with the Amphetamines class screen. Similarly, medications containing Dextromethorphan can cross-react with the Amphetamines and/or the Opiates class. When OTC substances are used following the instructions of the medication, they should have no interaction. If a patient is reporting utilizing these types of medications, and there is a positive result in one of the above classes, a confirmation test by either HPLC/MS/MS or GC/MS is suggested.

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