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Addiction Messenger

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Ideas for Treatment Improvement

Medication-Assisted Treatment

Part 2 - Maintenance Therapy for Opioid Dependence

No civilization, era, or global power has been immune from the devastating effects of opium and its derivatives", as illustrated by a fascinating timeline that traces opium's distribution from 3400 BC Mesopotamia to present day (NAADAC, 2008). In recent decades, misuse of opioids has been an increasingly growing concern:

- In 2008, among people aged 12 or older, an estimated 282,000 abused or were dependent on heroin and an estimated 1,716,000 abused or were dependent on pain relievers (opioids) in the past year (OAS-NSSATS, 2010).
- While treatment admissions for heroin as the primary substance of abuse rose only 5% (up from 235,143) from 1997 to 2007, in that time period admissions for all other types of opioids rose 456%, from 16,274 to 90,516 (OAS-TEDS, 2009).

Opioids – Terms and Definitions

Although the terms are often used interchangeably, *opiates* are naturally derived from the opium poppy (e.g., morphine and codeine), whereas *opioids* include both opiates and the spectrum of synthetically derived opioid products. Opioids can be divided into three groups:

1. Agonists bind to and activate opioid receptors, causing effects commonly associated with opioid use; acute intoxication increases until fully activated receptors create maximum effects, including a surge of pleasurable sensation ("rush"), warm flushing of skin, dry mouth, heavy-feeling extremities, drowsiness, mental fog, depressed respiration and heart rate, nausea, vomiting, and itching. The majority of opioids are agonists, including opium, morphine, codeine, heroin, many analgesics (e.g., hydromorphone, oxycodone, and hydrocodone), methadone, and levo-alphaacetylmethadol (LAAM).

2. Partial Agonists bind to neurons, preventing other neurotransmitters from binding to these sites. Lower doses cause effects associated with agonists, while higher doses do not produce as great an effect (ceiling effect). Buprenorphine is a partial agonist.

3. Antagonists bind to, but don't activate, opioid receptors; therefore they don't cause the psychoactive effects of agonists but rather occupy receptors and block the effects of competing agonists. Examples include naloxone or naltrexone.

It is important to distinguish between *addiction* (the pathologic use of opioids defined as *substance dependence* in the Diagnostic and Statistical Manual of Mental Disorders IV) and *physical dependence*, as indicated by tolerance and withdrawal. Physical dependence on a prescribed opioid medication *does not* mean the person

*"Nobody will
laugh long who
deals much with
opium:
its pleasures even
are of a grave
and solemn
complexion."*

*~ Thomas De Quincey
(1785-1859) ~*

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Next Issue:

**MAT for Nicotine
Cessation**

Addiction Technology Transfer Center Network

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is engaging in pathologic (addictive) behaviors. Also, developing tolerance for one opioid produces *cross-tolerance* to other opioids, which may impact the dosing of prescribed opioids.

Opioids and the Brain

Agonist opioids attach to specific receptors in the brain called “mu” receptors, activating a pleasure response. Repeated stimulation alters the brain, leading to *tolerance* and *withdrawal*. *Acute withdrawal* symptoms include pupil dilation, watery eyes, runny nose, muscle spasms (“kicking”), yawning, sweating, chills, gooseflesh, stomach cramps, diarrhea, vomiting, restlessness, anxiety, and irritability.

A typical opioid dependent who injects heroin (or takes opioid analgesics) several times a day is always fluctuating between being “high” and being “sick” from acute withdrawal. *Protracted withdrawal* symptoms can occur weeks or months after opioid cessation; they include deep muscle aches/pains, insomnia, disturbed sleep, poor appetite, reduced libido, impotence, anorgasmia, depressed mood, anhedonia, drug craving, and obsession.

MAT for Opioid Addiction

Longer-acting medications that operate through the opioid receptors prevent craving and withdrawal symptoms and help a person function normally. The four medications approved for opioid treatment are methadone, buprenorphine, levo-alpha-acetylmethadol (LAAM), and naltrexone. This article will focus on methadone and buprenorphine. LAAM hasn’t been produced since 2004, due to safety concerns; and while naltrexone is a highly effective opioid agonist, its use alone in opioid treatment is generally limited, mostly due to poor patient compliance.

Research is clear that using medication as an aide to psychosocial treatment for opioid dependency yields the most positive outcomes, rather than either approach used alone.

As with MAT for alcohol use disorders, the treatment agency’s ability to team with prescribers is key. For buprenorphine, SAMHSA maintains an on-line *Physician Treatment and Program Locator*: http://buprenorphine.samhsa.gov/bwns_locator/

Not all trained and qualified physicians consent to being listed, however, so community outreach is critical.

Side effects, contraindications, and drug interac-

tions require medical oversight, but this is a vital area for counselors to be vigilant and watch for signs warranting consultation with the medical provider.

Methadone

Who May benefit: Methadone has been used effectively for decades with heroin addicts, but increasingly has been finding general use for all opioid dependencies. Its primary use is in methadone maintenance therapy (MMT), though it is also used for detoxification and to treat pain. Research shows it is safe when used as prescribed. It is also effective in helping stop or reduce illicit opioid use, in decreasing adverse consequences related to use of nonsterile injection equipment (such as cellulitis, hepatitis, and HIV infection), and in decreasing criminal behavior associated with obtaining drugs. Additionally, it has been shown to improve overall adjustment, reducing psychiatric symptoms, unemployment, and family or social problems.

Mechanism: MMT suppresses withdrawal for 24-36 hours; the correct dose helps reduce cravings without causing intoxication, euphoria, sedation, or an analgesic effect. It is the only full agonist (besides LAAM) used in opioid treatment. Since it reduces cravings by stimulating opioid receptors (like heroin or morphine) it has a high potential for abuse; in 1974 The Narcotic Treatment Act limited methadone treatment to specifically licensed Opioid Treatment Programs (OTP).

Dosage: A common maintenance dose is between 80 to 120 mg 1x/day, dispensed daily at OTPs, with take-home doses sometimes carefully allotted. Patients must be abstinent long enough to experience mild to moderate opioid withdrawal before starting MMT. Available in various forms, in the U.S. it is usually administered orally as a liquid.

Cost/Coverage: Approximately \$149.90/month, \$5/day; covered by most major insurance carriers, Medicare, Medicaid, and the VA (NAADAC, 2008; price calculated based on the Average Wholesale Price [AWP] on March 1, 2008 for 100 mg/day for 30 days).

Buprenorphine

Who May Benefit: Buprenorphine is used for both opioid withdrawal and maintenance therapy. It was FDA-approved in 2002 for treating opioid addiction by office-based practitioners, allowing patients an opportunity to use a medication prescribed by a

nearby physician without having to travel to an OTP. Research indicates that when combined with psychosocial support, buprenorphine is equally effective as moderate doses of methadone; it may be less effective for higher-dose opioid addicts.

Mechanism: Because it is a partial agonist buprenorphine is safer than methadone. It leads to a lower level of physical dependence, so withdrawal is less severe than with methadone, which can also be a disadvantage since patients can more easily discontinue treatment. It is usually prescribed as Suboxone, which combines buprenorphine with naloxone, an antagonist that blocks the effects of opioids.

Dosage: Suboxone is administered as a tablet placed under tongue until completely dissolved; it should not be taken with food, crushed, halved, or diluted. Although it has a short half-life, buprenorphine is long-acting due to high receptor affinity; dosing ranges from 1x/day (in the range of 12 to 32 mg) to a convenient 3x/week (usually during maintenance). Dose range averages 12 to 24 mg/day. Patients must be abstinent long enough to experience mild to moderate opioid withdrawal symptoms before beginning buprenorphine therapy.

Cost: Approximate cost for Suboxone is \$356/month, \$11.86/day (NAADAC, 2008; prices calculated based on the AWP on March 1, 2008 for 16 mg/day for 30 days); it is covered by most major insurance carriers, Medicare, Medicaid (except for Louisiana) and the VA (NAADAC 2008).

Treatment Phases/Duration

Four phases are associated with MAT for opioid addiction. *Induction* refers to procedures used to transition someone from illicit opioids to an opioid substitute, the goal being to achieve *stabilization*, the appropriate dose with minimal withdrawal symptoms, side effects, and cravings. While a physician primarily guides this process, a multidisciplinary team is critical in providing supportive care and counseling. At this point, a decision can be made to either move onto the *maintenance phase* or *medically-assisted withdrawal*.

The FDA hasn't limited the amount of time a client can be prescribed methadone or buprenorphine; clients can be administered either as a maintenance therapy for months or even years with effective results. The decision to discontinue MAT after maintenance or stabilization should be made

carefully as part of a comprehensive treatment plan. Not all clients are appropriate for medically-assisted withdrawal. "Unstable living situations, multiple relapses, previous failed detoxification attempts, or lack of desire to withdraw from opioids may indicate that maintenance is a better treatment option. However, if appropriate, the goal of *medically-assisted withdrawal* is to help clients transition off opioids so that they are no longer physically dependent. This can be accomplished in an inpatient or outpatient setting, but regardless, it is imperative that a multidisciplinary addiction treatment team is in place to provide supportive services before, during, and after withdrawal." (NAADAC, 2008)

A new training on using buprenorphine to treat opioid addiction in youth will be available soon <http://tinyurl.com/bup-youth>. For this, or other training on MAT for opioid addiction, please contact your regional ATTC.

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