

## Essentials of ... Pharmacotherapy and Addiction Medicine

Note to readers: It may be helpful to read first the *Essentials of ... Comprehensive Addiction Medicine Assessment*, which outlines a recommended assessment process to be conducted prior to starting pharmacotherapy.

### What is it?

*Pharmacology* refers to the physiological effects of chemical substances (i.e., medications or drugs) in the human body.

*Pharmacotherapy* is the treatment of illness or disease with medications by qualified healthcare professionals, keeping in mind the pharmacology of the medications.

### How does pharmacotherapy work?

A treatment plan based on a completed assessment may include pharmacotherapy.

Healthcare providers are often confronted with acute treatment needs for addiction-related medical and/or psychiatric complications. Mental health conditions—commonly seen as a complication of a presenting problem or as a concurrent condition—are often treated with medications that aggravate addiction-related problems. Chronic pain, for example, may require ongoing opioid therapy or other psychoactive medications. However, it can be challenging for healthcare providers to differentiate between symptoms related to physical and emotional pain and to identify extreme sensitivity to pain.

An individual can be prescribed medication for common conditions such as pain, anxiety and sleep problems. For these conditions, physicians often prescribe medications that have sedative effects on the brain. Unfortunately, some people self-medicate without consulting their physician, anticipating that prescription drugs such as opioids or benzodiazepines will help them stay calm and feel well rested. As a significant emotional component can accompany the presenting physical injury or ailment, it is important that physicians carefully monitor how prescribed medications are used by their patients (see [Canadian Guideline for Safe and Effective Use of Opioids for Chronic Non-Cancer Pain](#)).

Over-the-counter (OTC) products commonly used for nausea, colds, muscle spasms and pain often contain chemicals that result in other, less desirable effects. For example, diphenhydramine can result in depressant effects, pseudoephedrine can produce stimulant effects, and antihistamines can have sedating effects. Therefore, a thorough assessment of all medications and drug use—including OTC products—is essential prior to making a diagnosis and initiating pharmacotherapy.

Pharmacotherapy for addiction, pain and mental health diagnoses can be divided into five broad categories:

#### 1. Psychoactive medications

Psychoactive medications carry the greatest potential for abuse and development of dependence or addiction. As a result, it is essential that psychoactive medications be carefully prescribed for short durations of time, and for acute episodes of clearly defined conditions or diagnoses. This category of medications also carries the highest risk of diversion (i.e., the medications are illicitly diverted and sold). Provincial prescription programs are highly variable in their design and function and are always evolving. Some exclusively monitor opioids; however, combination opioids (e.g., Tylenol #2, #3, #4), non-prescription opioids (e.g., Tylenol #1, #222), stimulants and benzodiazepines

may be diverted and abused without any monitoring or accountability. Psychoactive medications include:

- Sedatives (i.e., sedative-hypnotics and anxiolytics) such as benzodiazepines (e.g., diazepam, lorazepam, oxazepam, temazepam), zopiclone, buspirone, chloral hydrate and barbiturates;
- Stimulants such as methylphenidate, amphetamines, nicotine and cocaine;
- Opioid analgesics such as morphine, codeine, oxycodone, hydrocodone, hydromorphone and fentanyl; and
- Cannabinoids such as cannabidiol (CBD), nabilone (Cesamet) or delta-9 tetrahydrocannabinol (THC).

## 2. Psychotropic medications

Psychotropic medications, although not often abused, have intoxication potential and are associated with withdrawal symptoms. These can be problematic if an individual takes a high dosage or abruptly discontinues use. Tricyclic antidepressants can be fatal in an overdose situation, especially when combined with benzodiazepines and/or alcohol, which have depressant effects on the brain and can cause respiratory depression. Psychotropic medications include:

- Anti-depressants, which include: tricyclics such as amitriptyline and doxepin; selective serotonin reuptake inhibitors (SSRIs) such as fluoxetine, paroxetine, trazodone, citalopram and sertraline; serotonin-norepinephrine reuptake inhibitors (SNRIs) such as venlafaxine; and tetracyclics such as mirtazapine. There is a very well-defined 'discontinuation' syndrome associated with abrupt discontinuation of SSRI antidepressants;
- Mood-stabilizers such as lithium and valproic acid; and
- Antipsychotics such as haloperidol, chlorpromazine, risperidone, quetiapine and olanzapine, which are used for psychiatric diagnoses such as anxiety disorders, mood disorders (e.g., bipolar disorder) and psychotic disorders (e.g., schizophrenia).

Recognizing that substance-related disorders include substance-induced psychiatric disorders, it is important that a psychiatric diagnosis is reached prior to prescribing these medications.

In addition, substance abuse or dependence may create, mimic or obscure psychiatric symptoms, thus misrepresenting a true psychiatric condition requiring pharmacotherapy. For example, depression is a common symptom of both intoxication and withdrawal from substances of abuse. Patients with substance dependence will often describe highs and lows in their mood and behaviour that are related to intoxication and withdrawal, without disclosing their dependence on a substance. This could be misinterpreted as a bipolar disorder.

Atypical antipsychotics such as quetiapine and olanzapine, generally indicated for thought disorders, are often prescribed for their sedating effects in the treatment of anxiety and insomnia, which is known as off-label prescribing and poses risks of its own. The active pharmaceutical ingredients have addictive potentials to take into account when prescribing.

### 3. Maintenance therapy medications

Methadone, buprenorphine and buprenorphine/naloxone are approved for maintenance therapy in people who have opioid dependence. Although controlled-release opioids such as MS Contin, OxyContin and Hydromorph Contin are appropriate for treatment of persistent pain, they are not recommended for maintenance therapy.

### 4. Specific addiction-treatment medications

Craving for substances is recognized as a physiological phenomenon that can be treated with medications that act on the affected brain pathways. Naltrexone, for example, is an opioid antagonist that has an anti-craving effect for opioids and alcohol. Acamprosate has also been found to be of some benefit in decreasing alcohol relapse by reducing the compulsion to use. Specific addiction-treatment medications include:

- Anti-craving medications such as varenicline, naltrexone, acamprosate and bupropion; and
- Deterrent medications such as disulfiram.

Disulfiram is a deterrent drug that interferes with the metabolism of alcohol to produce an adverse physiological effect. This effect occurs only if a person drinks alcohol while taking disulfiram regularly.

### 5. Medications for pain and neurological disorders

Cannabinoids, gabapentin and pregabalin are used in chronic pain situations, but also have abuse potential. Some dopamine agonists used in the treatment of Parkinson's disease, such as pramipexole, have been found to increase the desire and compulsion for gambling or sex. Topiramate and lamotrigine are sometimes prescribed for mood stabilization; though the research on topiramate is mixed, some studies indicate that, at off-label use times, it can increase the unpleasant/uncomfortable mood (dysphoria) and risk for relapse to addictive behaviours. Other studies, however, indicate that it may be an effective relapse prevention strategy for alcoholism. Physicians should therefore proceed with caution in prescribing this drug. Medications for pain and neurological disorders include:

- Cannabinoids, gabapentin and pregabalin, which are prescribed for chronic pain because of their depressant effects on the brain;
- Dopamine agonists such as pramipexole, which are prescribed for Parkinson's Disease; and
- Anti-epileptics such as topiramate and lamotrigine, which are prescribed for seizure disorders.

## Implications for healthcare providers

It is essential for all healthcare providers to be familiar with the pharmacology and indications of medications prescribed to patients, and to appreciate the context of addiction related problems. A good patient history and assessment are essential, together with blood work and a urine drug screen as outlined in the *Essentials of ... Comprehensive Addiction Medicine Assessment*. Both physicians and non-physician healthcare providers need to be familiar with pharmacotherapy to collaborate on treatment plans, especially in cases where addiction-related problems are concurrent with mental health issues or chronic pain.

Benzodiazepines may be considered as a short-term medication for patients who do not have addiction-related problems. They are also useful in supervised detoxification for patients in alcohol withdrawal. Long-term prescription of benzodiazepines and short-acting opioids both increases the addiction potential in patients and contributes to tolerance and physiological dependence. These medications also destabilize recovery in patients in an abstinence-based program. Buspirone for anxiety and baclofen for muscle spasms may be considered as relatively safer options for someone requiring long-term treatment. Safer alternatives for long-term treatment of insomnia would be sedating anti-depressants such as amitriptyline, trazodone or mirtazepine.

Withdrawal symptoms are a physiological phenomenon that occurs with all drugs and medications that affect the brain. Symptoms can range from mild to moderate (e.g., nausea, chills, headache, DT's), so a gradual taper and supportive psychotherapy are the treatments of choice. Individuals who have been on long-term therapy with psychoactive or psychotropic medications need to be warned about withdrawal symptoms. The most dangerous withdrawal is from depressants such as alcohol, benzodiazepines or barbiturates, as it can lead to death. Gradual taper options, the use of withdrawal agents with long half-lives, and careful medical monitoring are essential to avoid inadvertent complications.

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