Workers' Comp

Ask The Pharmacist: Cardiovascular Effects of NSAIDs, Opioids & Other Workers' Comp Medications

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Are there cardiovascular considerations related to common medications used in workers' comp?

There can be. Here are some heart-related side effects or precautions for three of the top therapeutic classes in workers' compensation.

Opioids (a.k.a., Narcotics)

All opioids can be associated with hypotension, orthostatic hypotension, and bradycardia because of their effects on the central nervous system and histamine release. In cases of severe circulatory depression (e.g., overdose), shock and cardiac arrest may occur. Hypertension and tachycardia may also manifest, but these are usually symptoms associated more with withdrawal from opioids. Methadone is associated with an increased risk of QT prolongation and TdP. Buprenorphine can also be associated with a risk of QT prolongation. These effects are thought to be dose-related, with evidence suggesting that they are more of a concern when higher doses of methadone (>100 mg/day) are used; however, smaller doses have also been associated with cardiac risk. Caution is advised when initiating methadone therapy, switching from other opioids to methadone, or titrating the dose, and the health care professional may request ECG monitoring to screen for and continually evaluate any QT interval effects. Methadone or buprenorphine should be used with caution in patients with cardiac disease or those with risk factors for QT prolongation (i.e., family history or taking other drugs that can prolong QT interval).

Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)

All NSAIDs carry an increased risk of serious cardiovascular events including myocardial infarction (a.k.a., heart attack) and stroke. NSAIDs may also increase blood pressure, particularly in those who already have hypertension and/or who are taking medications to control blood pressure (a.k.a, antihypertensive medications). NSAIDs influence prostaglandins, and these substances play a role in kidney function (among other things). As a result, there can be an increased risk of reduced blood flow to the kidney or to blood volume with the use of NSAIDs, which can lead to exacerbations in certain conditions such as congestive heart failure, edema, or hypertension. Guidelines now also recommend avoiding use of NSAIDs in patients presenting with ST-elevation myocardial infarction (STEMI) and during the time following myocardial infarction due to an associated increased risk of death, re-infarction, hypertension, heart failure, and myocardial rupture. The highest cardiovascular risk is found with COX-2 agents (e.g., Celebrex®), and the Official Disability Guidelines (ODG) recommend that if NSAID therapy is necessary for patients with major risk factors, the suggested treatment is naproxen plus low-dose aspirin plus a Proton-pump inhibitor (PPI).

Muscle Relaxants

Patients taking Soma® (carisoprodol) have reported experiencing various cardiovascular adverse events during post-market use, including tachycardia, orthostatic hypotension, and flushing. Additive effects from other central nervous system (CNS) depressants such as alcohol, other CNS depressant medications (i.e., opioids, benzodiazepines), or psychotropic agents may exacerbate these events. Flexeril® (cyclobenzaprine) carries a warning to avoid use in patients who are in the acute recovery phase following myocardial infarction, as use could cause re-infarction or sudden death. Cyclobenzaprine or Zanaflex® (tizanidine) should be used cautiously in patients with cardiac disease or other conditions that may increase the risk of QT prolongation, or in patients taking other medications known to prolong the QT interval. Norflex™ (orphenadrine) should be used cautiously in patients with cardiac disease and can cause tachycardia. Bradycardia, flushing, hypotension, and syncope (i.e., fainting) have occurred following administration of Robaxin® (methocarbamol). Cardiac adverse reactions to other muscle relaxants commonly used in workers' comp are rare; however, use of high doses of some of these drugs has been associated with reports of hypotension and various arrhythmias.

What Cardiac Effects and Monitoring Terms Should I Know?

Feel free to refer to these terms as you read through the information under each therapeutic class.

- **Electrocardiogram (ECG or EKG):** A test that can be used to look at the electrical activity of the heart. The heart is essentially a muscle that is driven by a natural electrical rhythm, and readings of the electrical activity associated with the pumping of the heart can be seen on an ECG as line tracings on paper or "waves."
- **QT interval:** Refers to a measure of time between two different points in the heart's electrical cycle (the start of the Q wave and the end of the T wave on an ECG), and it represents the time of ventricular activity (the lower chambers) of the heart.
- **QT prolongation:** Represents a delay in the heart's electrical activity that can negatively affect the heart rhythm.
- **Bradycardia:** An abnormally slow heart rate (defined by the American Heart Association as less than 60 beats per minute).
- **Tachycardia:** An abnormally rapid heart rate (defined by the American Heart Association as more than 100 beats per minute).

- **Torsade de Pointes (TdP):** A type of ventricular tachycardia that can be associated with a prolonged QT interval and can lead to sudden cardiac death.
- **Hypotension:** Abnormally low blood pressure, with orthostatic hypotension referring to a sudden drop in blood pressure experienced upon standing from a sitting or lying position.
- **Hypertension:** Abnormally high blood pressure.

This information is meant to serve as a general overview, and any specific questions or cardiovascular concerns should be more fully reviewed with your health care professional such as the prescribing doctor or dispensing pharmacist.

Do you have a workers' compensation or auto related pharmacy question? Send us an email at AskThePharmacist@enlyte.com.

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References:

https://www.heart.org/en/

https://www.odgbymcg.com/

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