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Maryland Poison Center
UNIVERSITY OF MARYLAND SCHOOL OF PHARMACY

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The Maryland Poison Center's Monthly Update: News, Advances, Information

Methadone and COVID-19

A 48 year-old-man called the poison center concerned that he may have taken an overdose of methadone. He was given his daily dose of methadone 120 mg one hour ago at a treatment center for opioid use disorder. To avoid daily visits during the COVID-19 pandemic, he was given take-home doses of methadone. He misunderstood the directions given to him, and took an additional 120 mg methadone when he arrived back home.

Methadone is a long acting synthetic full mu receptor agonist. It is used for chronic pain and for opioid use disorder (OUD). When used for the latter indication, it substitutes for the abused opioid, often heroin. The dose is designed to prevent withdrawal and prevent use of heroin or other opioids by blocking their euphoric effects. The goal of therapy is to decrease recurrent use of opioids.

When indicated for OUD, methadone is normally dispensed daily at federally licensed methadone maintenance treatment clinics and is administered as a liquid to ensure the dose is swallowed. Some clients qualify for take-home medicine but only after having been in treatment for a long time. These limitations are in place to decrease abuse and ensure it is not sold on the streets. In March, because of the COVID-19 pandemic, state and federal regulators eased restrictions on take-home methadone to maintain social distancing and protect patients and staff. Less stable clients receive up to 14 doses while clinically stable clients can receive up to 28 days of medication. For example, in New York City, 66% are receiving 7 or more days while 17% are receiving 28 days of methadone. (*NDEWS webinar; 5/18/20; https://ndews.umd.edu/resources/archived-webinars*).

As a result of a change in regulations, there is concern regarding more methadone available on the street. Diversion of take-home doses can lead to abuse and overdoses which can have fatal consequences. Abuse is usually by ingestion for liquid methadone from clinics; tablets can be ingested, crushed and snorted, or injected. Co-use of sedating drugs such as benzodiazepines increases the risk of adverse outcomes. In addition, home storage of liquid methadone can lead to unintentional ingestions by children with resultant toxicity and fatalities.

Methadone overdose causes the classic signs and symptoms of opioid toxicity including CNS depression, respiratory depression, miosis, hypotension, bradycardia, and decreased GI motility. Because of its long half-life (20-30 hours), clinical effects are prolonged. Methadone interferes with cardiac repolarization leading to prolonged QT interval by blocking the hERG voltage-gated potassium channel. Patients who are CYP2B6 slow metabolizers are at greater risk of QT prolongation. Prolonged QT can occur with both therapeutic use and in overdoses and can lead to syncope and torsade de pointes resulting in sudden death.

Methadone overdose is treated with supportive care including supplemental oxygen, intravenous fluids, and sometimes assisted ventilation. Naloxone is an opioid antagonist used to reverse CNS and respiratory depression. When administered to opioid dependent patients, initial doses are low (e.g., 0.04-0.08 mg) to avoid precipitating withdrawal. Doses can be repeated and/or escalated every 1-3 minutes if there is no response or inadequate response up to a total of 10-20 mg. If the patient is not opioid dependent (e.g., a child), higher doses (0.4-2 mg) can be administered. Naloxone is usually given intravenously or intranasally. Its duration of action is short (1-2 hours) so most patients with methadone overdose will require multiple bolus doses and/or a naloxone infusion.

Did you know?

During this public health emergency, the Drug Enforcement Administration (DEA) is allowing practitioners to prescribe and dispense controlled substances using telemedicine.

Authorized practitioners can now prescribe buprenorphine, another opioid used in patients with OUD, to new and existing patients by telephone.

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