Fentanyl

Fentanyl is a synthetic opiate analgesic similar to morphine but 50 to 100 times more potent. Fentanyl has been widely used for its analgesic and anesthetic properties in patients undergoing outpatient procedures and inpatient surgery, and is routinely used in ICU patients who are on the ventilator. Fentanyl is also used for the long-term management of chronic pain in persons who have developed opioid tolerance.

Fentanyl is available in many different forms. The fentanyl liquid injectable (Sublimaze®) is given IV or IM for analgesia and sedation in the operating room and the ICU. Fentanyl is also available as a transdermal patch (Duragesic®), sublingual tablets (Abstral®), buccal tablets (Fentora®), oral buccal film (Onsolis®) similar to breath freshening strips, a sublingual mouth spray (Subsys®), a nasal spray (Lazanda®) and lollipop-like lozenges (Actiq®).

Fentanyl’s rapid onset of effects is due to its high lipid solubility which allows it to quickly concentrate in the brain and spinal cord where it produces analgesia, sedation and respiratory depression. Fentanyl also increases dopamine levels in the brain’s reward areas, producing euphoria and relaxation. Other effects produced by fentanyl include constricted pupils (miosis) and decreased cough and gag reflexes. Chronic opioid users will develop a tolerance to fentanyl’s analgesic and euphoric effects but not to its respiratory depressant effects.

Fentanyl’s two main toxic effects are respiratory depression / respiratory arrest and sedation leading to airway compromise. Either of these conditions is a medical emergency and requires evaluation and treatment in an emergency department. Treatment includes securing the airway with endotracheal intubation, providing supplemental oxygen and appropriate ventilation. The opioid antagonist naloxone is an effective antidote to fentanyl’s respiratory and CNS effects. Naloxone needs to be used with caution as it can precipitate opioid withdrawal in chronic opioid users and its duration of effects is shorter than that of fentanyl’s duration of effects. Of note, fentanyl will continue to be absorbed from the skin and fat underneath a fentanyl patch for over 24 hours even after the fentanyl patch has been removed from the skin.

Should you have any questions about fentanyl or its treatment, contact the Iowa Poison Control Center at 1-800-222-1222.

Clark Huntley, RN
Specialist in Poison Information