

# Fentanyl-Induced Muscle Rigidity

## (and other Unusual Overdose Presentations)

### FENTANYL-INDUCED MUSCLE RIGIDITY

Fentanyl-induced muscle rigidity, also known as "chest wall rigidity" or "wooden chest syndrome" is a complication of intravenous injection of fentanyl that is known amongst hospital populations receiving anesthesia. Symptoms happen after rapid injection of high doses of fentanyl, and characterized by jaw clenching interfering with oral airway insertion, chest or torso rigidity interfering with ventilation, and fist clenching and finger stiffness interfering with oxygen saturation monitors. Fentanyl-induced muscle rigidity is being reported in people using illicit drugs containing fentanyl; however the literature, community members, Insite, and emergency health services report the rigidity responds quickly to naloxone. The risk of rigidity may be increased by age, health conditions, or medications including Parkinson's, neurologic or metabolic conditions, and some antidepressants.

### RECOMMENDATIONS FOR BY-STANDERS WITNESSING FENTANYL-INDUCED MUSCLE RIGIDITY

The goal for by-stander overdose response is to 'rescue' the person having an overdose until professional (paramedic) assistance arrives. In these situations it is important to remember that immediate administration of larger doses of naloxone are NOT recommended as it may cause vomiting due to withdrawal. This is dangerous in the presence of rigidity as it could compromise the person's airway and ability to receive oxygen.

#### RECOMMENDATIONS

- 1) **Call 911 immediately**
- 2) **Attempt to ventilate the person with the technique you are most comfortable using.**
  - i. If airway support equipment and trained individuals are available, use a two person bag-valve mask technique\*
  - ii. Otherwise, give breaths as possible and use barrier device if available.

- 3) **Administer naloxone - Do not delay.**

Naloxone should be administered in overdoses with muscle rigidity as follows:

#### A) Muscle rigidity where ventilation is inadequate:

- i. Immediately administer 0.4 mg naloxone by intramuscular injection.
- ii. If the person does not respond sufficiently, administer additional naloxone doses every 2 minutes.
- iii. The following dosing schedule can be followed where higher dose naloxone is available: 0.8mg, 2mg, 4mg.

#### B) Muscle rigidity where ventilation is adequate (i.e. ventilation is adequately maintained, particularly when oxygen monitoring is available)

Naloxone can be given more conservatively to lower the risk of inducing withdrawal and vomiting:

- i. Immediately administer 0.4 mg naloxone by intramuscular injection.
- ii. If person does not respond sufficiently, administer additional naloxone doses every 3-5 minutes.
- iii. The following dosing schedule can be followed if needed where higher dose naloxone and medical support is available: 0.8mg, 2mg, 4mg.

- 4) **If the person loses their pulse: perform chest compressions, assist ventilation and administer 2 mg of naloxone immediately if available.**

\*A two person bagging technique: one rescuer uses both hands to form a tight seal with the mask around the mouth and nose of the patient and a second rescuer operates the bag.

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## (and other Unusual Overdose Presentations)

### OTHER UNUSUAL OR COMPLEX OVERDOSE PRESENTATIONS

- Unusual movement of the arms and legs
- Seizures
- Delirium
- Staring gaze
- Walking or Awake overdoses where the person is able to follow simple commands but is still not getting enough oxygen (e.g. blue lips, greyish colouring, cool skin)
- Decorticate posturing (inwardly flexed at wrists, elbows, and feet)
- Slowed heart rate or irregular heart rate
- Vomiting

### Safer drug use recommendations

Fentanyl-induced muscle rigidity and other unusual overdose presentations may be related to higher doses of fentanyl which are administered rapidly

### Please be safe:

- **Have a buddy** or use overdose prevention sites. Make sure someone can call for help
- **Start low and go slow.** Drugs might be stronger than you realize
- **Have an overdose plan.** Carry Naloxone
- **Beware of mixing.** Avoid using alcohol. Prescription drugs increase overdose risk
- **Take care of yourself.** Use less when having health issues or haven't used for a while.

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