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#### Chasing the Dragon: A Case of Inhaled Heroin Overdose Resulting in Stunned Myocardium

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# Chasing the Dragon: A Case of Inhaled Heroin Overdose Resulting in Stunned Myocardium Neiman Ramjattan DO Lehigh Valley Health Network, Allentown, PA

### Introduction

Heroin is a drug of abuse that is most commonly used in an intravenous form but can also be inhaled or smoked. In cases of acute toxicity, cardiovascular effects can include potentially fatal arrhythmias and acute myocardial failure that spontaneously resolves as heroin and its active metabolites are cleared.

Presentation

- A 20-year old male with no significant past medical history presented to the hospital after being found unconscious in his home.
- His EKG showed sinus tachycardia, but initial lab work showed an elevated troponin of 0.46. This prompted an echocardiogram, which revealed global hypokinesis and a reduced ejection fraction of 35%.
- The patient eventually became hemodynamically unstable and encephalopathic requiring vasopressors and intubation.
- Within 24 hours he was weaned off vasopressors and extubated.
- A urine drug screen was positive for opiates and the patient admitted smoking heroin on the day before admission.
- Follow-up echocardiogram showed normal ventricular function with an ejection fraction of 60%. The patient was discharged without any residual cardiovascular deficits.



Fig. 1 Admission EKG showing sinus tachycardia and non-specific T-wave flattening.



Fig. 2 Parasternal long-axis echocardiogram view showing



Fig. 4 Parasternal long-axis view of early systole at the time of discharge.

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Fig. 3 Parasternal long-axis view of mid-systole showing a reduced EF of 35%.



Fig. 5 Parasternal long-axis view during mid-systole at the time of discharge showing a normal EF of 60%

- blunted cardiac function.

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## Discussion

 Heroin toxicity can cause decreases in systemic blood pressure, heart rate, and overall cardiac output.

 However, in animal models, no significant elevations in cardiac enzymes or reductions in coronary artery flow are seen in heroin toxicity, implying that heroin is not directly cardiotoxic.

• Electrocardiograms of patients with acute heroin toxicity have shown electrical abnormalities, including bradyarrhythmias, QTc prolongation, and Torsades de Pointes.

 Cases of acute myocardial failure that spontaneously resolve within 48 to 72 hours of heroin toxicity have also been reported.

 Animal studies have suggested that both increased histamine release and decreased vagal tone cause systemic changes that result in

### Heroin is a common drug of abuse, and as such recognizing its effects on the cardiovascular system can aid in initial management of patients with acute toxicity.

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