

Naloxone Induced Pulmonary Edema

Sherif Elkattawy DO, Ramez Alyacoub MD, Chidinma Ejikeme MD, Muhammad Atif Masood Noori MD, Carlos Remolina MD

DEPARTMENT OF INTERNAL MEDICINE. TRINITAS REGIONAL MEDICAL CENTER

Background

Naloxone has gained widespread popularity since its FDA approval in the 1970s. Through its intrinsic opiate antagonist property, it reverses respiratory depression induced by large doses of narcotics. Although having many advantages, it is not without complications including hypotension, arrhythmias, seizures and noncardiogenic pulmonary edema.

Clinical Case

62-year-old female with past medical history of hypertension, bipolar disorder, COPD and opioid use disorder presented to the emergency department (ED) via EMS post being unresponsive. She was given 4 mg naloxone intranasally on field with improvement of mental status. In the ED, vital signs and physical exam were unremarkable except for constricted pupils. CT head w/o contrast, ethyl alcohol, and salicylate levels were unremarkable. Creatinine 1.74. UDS positive for opiates, methadone, and benzodiazepines. COVID 19 PCR negative. She further received an additional three doses of IV 0.4 mg of naloxone as she became drowsy and desaturated to 80% with associated shortness of breath. Non-rebreather mask was ordered. Repeat respiratory exam was significant for bilateral crackles with no tongue swelling, stridor or skin rash. BNP 111. Chest x-ray showed pulmonary vascular congestion and pulmonary edema. She was started on furosemide. Patient's mental status continued to improve with supportive measures, and she was weaned off oxygen support.

Conclusion

The incidence of naloxone-induced non cardiogenic pulmonary edema (NPE) has been rarely described. The proposed mechanism is that naloxone triggers a centrally mediated catecholamine surge causing shifts in blood volume from the systemic or high-pressure bed to the pulmonary or lower pressure bed, which increases permeability and subsequently, pulmonary edema [1-3]. Research studies report that there is a temporal relationship between the dose of naloxone administered and an increased risk of noncardiogenic pulmonary edema. Various factors affect how patients respond to naloxone including different sensitivity levels to narcotic use and rate of narcotic elimination [3,4].

References

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