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### **115. Identification of a Novel Opioid, N-piperidinyl etonitazene, in Patients with Suspected Opioid Overdose**

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**Background:** Novel synthetic opioids (NSOs) in the illicit opioid supply present an ongoing public health problem, such as the “nitazene” group of synthetic opioids. 2-benzylbenzimidazole opioids, also termed “nitazene” compounds, have been reported to exhibit potencies at the mu opioid receptor exceeding that of fentanyl. Some nitazenes have emerged in the illicit drug market with resultant overdoses, however N-piperidinyl etonitazene has not previously been identified. We describe three patients with N-piperidinyl etonitazene, a compound not previously reported in human exposure, detected after suspected opioid overdose.

**Research Question:** This study aims to evaluate the clinical effects and outcomes of a recently emerged NSO.

**Methods:** This case series is derived from the Toxicology Investigators Consortium (ToxIC) Fentanyl Study, an ongoing multicenter prospective cohort. Consecutive adult patients with suspected acute opioid overdose were screened for enrollment, clinical data was collected, and waste blood specimens were analyzed via liquid chromatography quadrupole time-of-flight mass spectrometry. Exclusion criteria was pediatrics, prisoners, and those with burns/trauma.

**Results:** Between 10/6/20-10/31/21, 412 met inclusion criteria, and three tested positive for N-piperidinyl etonitazene at one site (New Jersey) over a period of three days in July 2021. Ages ranged from 33-55, and two were male. Two reported using cocaine, and one reported heroin and alprazolam. One case had no other opioids present, and two also contained fentanyl. All three patients received initial naloxone doses with improved mental status, and two received subsequent doses for opioid toxicity recurrence. One patient had pneumonia and ICU admission, one was discharged from the emergency department, and one used additional drugs after arrival necessitating admission for naloxone infusion. All were discharged without organ damage or sequelae.

**Conclusion:** This represents the first clinical report of an outbreak of N-piperidinyl etonitazene. Ongoing analytical testing of opioid overdoses may detect growth of this emerging class of compounds.