

## **BDF210069: The impact of the COVID-19 pandemic on acute toxicity related to recreational drug abuse presenting to emergency departments**

### **Executive summary**

Unprecedented in history, the COVID-19 pandemic had wide-ranging impacts on drug demand, supply and distribution. We conducted this study to characterise the trends, patterns, and clinical and psychosocial management of acute toxicity related to amphetamines, cocaine, cannabis, heroin and ketamine abuse presenting to emergency departments in Hong Kong during the pandemic. We also evaluated the impact of social and recreational venue closure and social distancing measures on recreational drug-related toxicity.

We analysed 1,453 episodes of acute toxicity involving the above five drugs reported to the Hong Kong Poison Information Centre by public emergency departments between 23 January 2017 and 22 January 2023. The number of acute toxicities reported did not correlate with the Central Registry of Drug Abuse data or drug seizure data, except for heroin. Acute toxicities involving methamphetamine, cannabis and heroin increased at the outset of the pandemic but then dropped faster than the pre-pandemic period. Ketamine toxicities also increased but the trend remained the same during the pandemic. No significant changes in the number and trend of acute cocaine toxicities were observed during the pandemic. Overall, closure of social and recreational venues had a limited impact on acute drug toxicities. Strict social distancing measures reduced the number of acute heroin poisonings.

Several changes in the patterns of drug abuse and clinical presentations are noteworthy. Compared with the pre-pandemic period, during the pandemic, more patients with acute methamphetamine toxicity presented with agitation, injury and self-harm behaviours; required invasive treatment and intensive care unit admission; and developed major effects or died. More acute myocardial injuries and major effects were seen in patients with acute cocaine toxicity during the pandemic than before. Notably, more female patients with acute cannabis toxicities were seen in emergency departments during the pandemic than before. Compared to before, during the pandemic, more heroin abusers used methamphetamine, presented with agitation, confusion, or hallucinations; or required chemical restraints. As for ketamine, polydrug abuse with other stimulants such as cocaine was common, and more alcohol co-ingestion was observed during the pandemic. Overall, presenting during the COVID-19 pandemic was not significantly associated with severe complications of acute toxicities, after adjusting for other known factors for poor clinical outcomes. Neither clinical nor psychosocial interventions changed significantly during the pandemic. However, the referral network to social workers and non-governmental organisation drug rehabilitation and treatment services can be further strengthened.

The study shows that the reduction in the number of acute toxicities involving methamphetamine and heroin during the pandemic did not translate into a lower severity of poisoning. The increased combination of heroin and methamphetamine, in particular, is alarming. Education focused on existing heroin users should be further strengthened to avoid concurrent misuse of methamphetamine. The increase in cocaine-related acute myocardial injury is also noteworthy, especially when the global supply of cocaine is increasing. Acute cannabis toxicity increased during the pandemic, particularly among female drug users. The number of ketamine users also increased during the pandemic and many of them were multi-stimulant abusers. Public education on the harms of cocaine, cannabis and ketamine should be targeted at young people and tailored to specific gender needs.

The findings of this study call for continued vigilance against drug use and related acute toxicity during and in the aftermath of the COVID-19 pandemic. Coming out of the pandemic, we must monitor the evolving trends in drug abuse and toxicity and the impact of the combination of traditional illicit drugs. The role of gender in cannabis abuse and toxicity needs further studies.