

2. Hospital Authority Drug Formulary Management. Available from: <http://www.ha.org.hk/hadf/en-us/Drug-Formulary-Management>. Accessed 31 Jan 2019.
3. Census and Statistics Department, Hong Kong SAR Government. Thematic Report: Older Persons (2016). Available from: https://www.byccensus2016.gov.hk/data/16BC_Older_persons_report.pdf. Accessed 31 Jan 2019.
4. Al-Gedadi NA, Hassali MA, Shafie AA. A pilot survey on perceptions and knowledge of generic medicines among consumers in Penang, Malaysia. *Pharm Pract (Malaysia)* 2008;6:93-7.
5. Choulera MY, Amruta VD, Borkar AS, Date AP. Knowledge and perception about generic drugs in patients coming to outpatient department of tertiary care centre. *Int J Basic Clin Pharmacol* 2018;7:1024-7.
6. Hassali MA, Kong DC, Steward K. Knowledge and perceptions of recent pharmacy graduates about generic medicines. *Pharm Educ* 2007;7:89-95.
7. Dunne SS, Shannon B, Cullen W, Dunne CP. Beliefs, perceptions and behaviours of GPs towards generic medicines. *Fam Pract* 2014;31:467-74.

Ketamine analogues multiplying in Hong Kong

Hong Kong Med J 2019;25:169
<http://doi.org/10.12809/hkmj197863>

To the Editor—New psychoactive substances are increasingly seen in Hong Kong. We have previously reported an outbreak affecting 52 patients involving a ketamine analogue, 2-oxo-PCE, which is much more potent than ketamine and caused more severe clinical adverse effects.^{1,2} We report the recent identification of two other ketamine analogues, 2-fluoro-deschloroketamine [2-(2-fluorophenyl)-2-methylamino-cyclohexanone] and deschloroketamine (2-phenyl-2-methylamino-cyclohexanone), in urine samples of two unrelated ketamine abusers.

The 2-fluoro-deschloroketamine was first synthesised in 2014 as a ketamine derivative.³ To date, there have been no case reports of its abuse or poisoning in the scientific literature. Deschloroketamine was first described in 1962 and its recreational use was first reported in 2015.⁴ Both drugs belong to the arylcyclohexylamine class which is known to possess antagonist activity at the N-methyl-d-aspartate receptor.⁵ User reports on internet forums showed that 2-fluoro-deschloroketamine has a similar potency as ketamine, whereas deschloroketamine is more potent than ketamine. These two drugs are not detected by common urine toxicology screening methods.

Frontline clinicians should be aware of patients with suspected ketamine abuse but with negative urine immunoassay and toxicology results. In point of fact, the kind of new psychoactive substances greatly outnumbers traditional drugs of abuse nowadays.⁴ Poisoned patients or drug abusers may present with unfamiliar clinical toxidromes. Traditional toxicology analyses usually cannot determine the true nature of such new psychoactive substances. Analysis of these substances is available in our laboratory and can be requested by clinicians in Hong Kong.

Author contributions

C Li, MHY Tang, YK Chong, and TWL Mak drafted the

manuscript. All authors contributed substantially to the concept or design or the study, acquisition of data, analysis or interpretation of the data, and critical revision of the manuscript for important intellectual content. All authors had full access to the data, contributed to the study, approved the final version for publication, and take responsibility for its accuracy and integrity.

Conflicts of interest

All authors have disclosed no conflicts of interest.

^{1,2} C Li, MB, BS

² CK Lai, MSc

^{1,2} Magdalene HY Tang, PhD

³ Cary CK Chan, MB, BS

^{1,2} YK Chong, FHKCPath, FHKAM (Pathology)

^{1,2} Tony WL Mak *, FRCPPath, FHKAM (Pathology)

¹ Hospital Authority Toxicology Reference Laboratory, Hong Kong

² Chemical Pathology Laboratory, Department of Pathology, Princess Margaret Hospital, Hong Kong

³ Accident and Emergency Department, Caritas Medical Centre, Hong Kong

* Corresponding author: makwl@ha.org.hk

References

1. Chong YK, Tang MH, Chan CL, Li YK, Ching CK, Mak TW. 2-oxo-PCE: ketamine analogue on the streets. *Hong Kong Med J* 2017;23:665-6.
2. Tang MH, Chong YK, Chan CY, et al. Cluster of acute poisonings associated with an emerging ketamine analogue, 2-oxo-PCE. *Forensic Sci Int* 2018;290:238-43.
3. Moghimi A, Rahmani S, Zare R, Sadeghzadeh M. Synthesis of 2-(2-fluorophenyl)-2-methylamino-cyclohexanone as a new ketamine derivative. *Synth Commun* 2014;44:2021-8.
4. European Monitoring Centre for Drugs and Drug Addiction. EMCDDA-Europol 2015 Annual Report on the implementation of Council Decision 2005/387/JHA. Available from: http://www.emcdda.europa.eu/publications/implementation-reports/2015_en. Accessed 12 Mar 2019.
5. Morris H, Wallach J. From PCP to MXE: a comprehensive review of the non-medical use of dissociative drugs. *Drug Test Anal* 2014;6:614-32.