Abstract

Objectives: Ketamine erupted in the global landscape of drug misuse in the 1990s, and the rise of ketamine misuse in Hong Kong is unparalleled in the world. Despite its strong dependence potential, so far there is limited research on ketamine dependence. There is a lack of validated instrument to measure the severity of ketamine dependence; pattern of psychiatric comorbidity of ketamine dependence remains largely unknown. This study examined the validity and reliability of the Chinese version of Severity of Dependence Scale for Ketamine (C-SDS-K) in a sample of treatment-seeking ketamine users in Hong Kong. C-SDS-K's ability to diagnose current ketamine dependence according to the criteria of Diagnostic and Statistical Manual of Mental Disorders - Fourth Edition (DSM-IV) was also determined. As a secondary objective, psychiatric comorbidity was explored in those with a lifetime diagnosis of ketamine dependence.

Methods: A purposive sample of 80 treatment-seeking ketamine users was recruited from a tertiary drug misuse clinic and two community-based counselling centres for psychotropic drug users. C-SDS-K was administered to assess their severity of dependence on ketamine in the past one month. The diagnosis of their ketamine use and any comorbid psychiatric disorder was determined by the Chinese-bilingual version of Structured Clinical Interview

for DSM-IV Axis I Disorders – Patient Edition (CB-SCID-I/P). Data on demographics, drug use pattern and consequences was also collected. Psychometric properties of C-SDS-K were examined; test-retest reliability was assessed in 24 participants. Receiver Operating Characteristic (ROC) analysis was performed to identify the optimal cut-off for screening of current diagnosis of ketamine dependence according to DSM-IV criteria.

Results: C-SDS-K showed high internal consistency ($\alpha = 0.74$) and test-retest reliability (ICC = 0.95). All items loaded strongly on a single factor (factor loading ≥ 0.60) in principal component analysis, supporting its construct validity. The total score of C-SDS-K correlated positively with several indices of ketamine use severity, including dose, frequency of use, duration of regular use and the count of DSM-IV dependence criteria met in the past one month, suggesting its strong concurrent validity. An area under ROC curve of 0.97 reflected C-SDS-K's excellent diagnostic utility in discriminating presence or absence of a current diagnosis of ketamine dependence according to DSM-IV criteria. Optimal cut-off at 8 was chosen as it afforded the best trade-off between a sensitivity of 94.4% and a specificity of 88.5%. In those with a lifetime diagnosis of ketamine dependence (n = 77), the prevalence of any current psychiatric disorder was 46.8%. There was a high point prevalence of depressive disorder (31.2%); the lifetime prevalence of any psychotic disorder was 33.7%, in which most were drug-induced. Brief psychotic disorder

was the commonest diagnosis, constituting 69.2% of all identified psychotic disorders. Other substance use disorders were also common as 44.2% had a lifetime diagnosis of dependence on a drug other than ketamine, most commonly being cocaine (29.9%).

Conclusion: The findings support C-SDS-K as a reliable and valid measure of severity of dependence in the local treatment-seeking population of ketamine users. With the use of empirically determined cut-off, it allows rapid identification of individuals who are likely to have more problematic misuse of ketamine. Psychiatric comorbidity of ketamine dependence is significant, with high prevalence observed in depressive disorders and brief psychotic disorders.

Keywords: ketamine; dependence; Severity of Dependence Scale; psychometrics; psychiatric comorbidity