

## **Prospective observational study of urinary symptoms, sexual behaviors and psychiatric symptoms in ketamine Misusers**

### Executive summary

Ketamine has well documented safety in medical and veterinary settings. The recreational use of ketamine gained the popularity in Hong Kong (HK) since 1980s as it is easy to consume and with clear dose response effect. The rising trend of the recreational use of ketamine, especially in the adolescent group, has recently created a large social arousal. Much concern has been put in the acute effect after ketamine intake, while the long term effect is not well known. This will be a heavy medical and socio-economic burden to provide long term care for this group of adolescents.

Urinary symptoms and renal failure has been reported in previous medical case reports. However, the symptom in the people who quitted ketamine is not known. Whether the remaining symptom is related to their previous duration and dosage used or whether these symptoms are reversible or how long they will persist is not clear. This study aims to evaluate the urinary, psychiatric symptoms and sexual attitude in the ex-ketamine user and the relationship of the pattern of previous ketamine use. Also inflammatory markers, cytokines and chemokins, will be tested in the urine sample, which can be a potential new marker to diagnosis ketamine related urinary symptoms in future.

Total of 44 subjects were referred to our Gynaecology specialty clinic in Department of Obstetrics and Gynaecology, Prince of Wales Hospital from November 2009- April 2010 from a local drug rehabilitation centre. All of them had history of ketamine abuse and had stopped using the drug in the centre. They were interviewed and assessed by a gynaecologist and psychiatrist for their urinary and psychiatric conditions respectively. Sexual attitude and behaviors were assessed by special designed questionnaires and appropriate gynaecological examinations were performed accordingly. Urinary symptoms were also assessed by using 3-day bladder diary and validated quality of life questionnaires Urogenital Distress Inventory Short Form (UDI-6) and the Incontinence Impact Questionnaires Short Form (IIQ-7). Urine samples were saved for laboratory testing of human cytokines and chemokines. Psychiatrist interviewed the subjects using

validated Chinese version of the Structured Clinical Interview for the Diagnostic and Statistical manual of Mental Disorders-IV (C-SCID).

Female ketamine misusers had a permissive sexual attitude and had high risk sexual behaviors including accepts one night stand (27.8%), accepts more than one sexual partner at same time (25%), and accepts sex without contraception (52.8%). Results from bladder diary and UDI-6 and IID-7, among those who abused ketamine for 2 years or more, the mean scores of the questionnaires were higher, reflecting their symptoms are more disturbing. When they stopped abusing ketamine for 3 months or more, their mean 24 hour urinary frequency had decreased, the maximum voided volume had increased and the mean UDI-6 and IID-7 scores had decreased. Urine analysis found out significant increase in epidermal growth factor (EGF) in ketamine ex-users compared with control. The most common lifetime psychiatric diagnosis obtained from 32 of them was substance-induced mood disorder (47%) and substance-induced psychotic disorder (16%).

In conclusion, female ketamine misusers are rendering for permissive sexual attitude, high risk sexual behaviors, severe lower urinary tract symptoms which affecting their quality of life and also psychiatric morbidity. They are those who warranted special medical attention to screen and treat earlier. Besides, the finding from the urinary symptoms further emphasis the benefit of abstinence from drug use will reduce their symptom, though the urinary symptoms may still persist after cessation.