



IS KETAMINE ADDICTION ON THE RISE? A SERVICE DEVELOPMENT PROJECT ON PHARMACOLOGICAL AND RECOVERY INTERVENTIONS IN KETAMINE HEAVY USERS

Irene Guerrini MD, PhD

**Consultant Psychiatrist and Clinical Lead for Bexley Addictions- South
London & Maudsley NHS Trust**

**Visiting Senior Clinical Lecturer Institute of Psychiatry, Psychology &
Neuroscience, King's College London**

KETAMINE

N-Methyl-D-Aspartate receptor antagonist.

Active metabolites: norketamine and dehydronorketamine (Sinner, 2008)

Peak plasma concentrations:

60 seconds IV

5–15 minutes IM

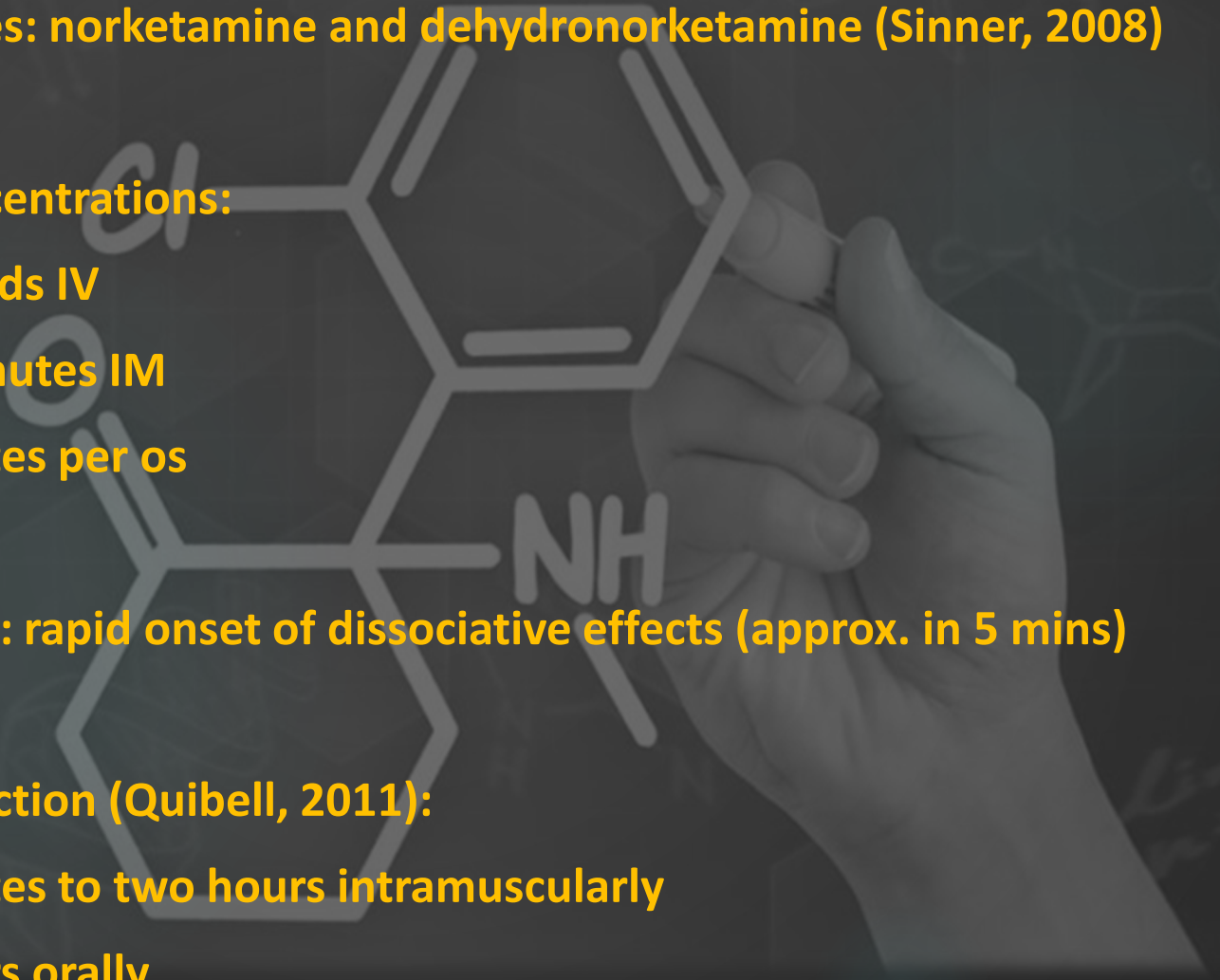
30 minutes per os

Nasal insufflation: rapid onset of dissociative effects (approx. in 5 mins)

The duration of action (Quibell, 2011):

30 minutes to two hours intramuscularly

4–6 hours orally



NEUROBIOLOGY

- ▶ **Glutamate pathway:** ketamine is a non-competitive antagonist of the N-methyl D-aspartate (NMDA) receptor. The NMDA-receptors system has a central role in learning and memory.
- ▶ **Muscarinic acetylcholine receptors:** Ketamine blocks the muscarinic acetylcholine receptors increasing the synaptic inhibition mediated by GABA.
- ▶ **Dopamine release increased by ketamine through activation of DRD1.**
- ▶ **Ketamine binds to mu, delta, and kappa opioid receptors.** The affinity of S(+)-ketamine for opioid receptors is two to three times higher than that of the R(-)isomer.

(Morgan C., Curran H.V., 2011; Kohtala, 2020)



PHARMACOLOGICAL PROPERTIES

- ▶ Dissociative Anaesthetic - emergency medicine and vet medicine.
- ▶ Pain management
- ▶ Antidepressant - Refractory Depression, suicidality
- ▶ Relapse prevention- Alcohol use disorders
- ▶ Class B drug (2013)- Addiction



KETAMINE- FACTS

ACUTE EFFECTS

Low dose:

Mild dissociative effects

Distortion of time and space

Visual hallucinations

“Melting into the surroundings”

‘out-of body experiences’

‘gigginess’

Higher dosage:

Severe dissociation (K-hole)

CHRONIC EFFECTS

Memory impairment, depression, “K bladder”, reduced appetite

(Morgan C., Curran H.V., 2011)

KETAMINE

Adults entering treatment in 2021 to 2022

Trend of rising numbers
entering treatment over the
last 8 years

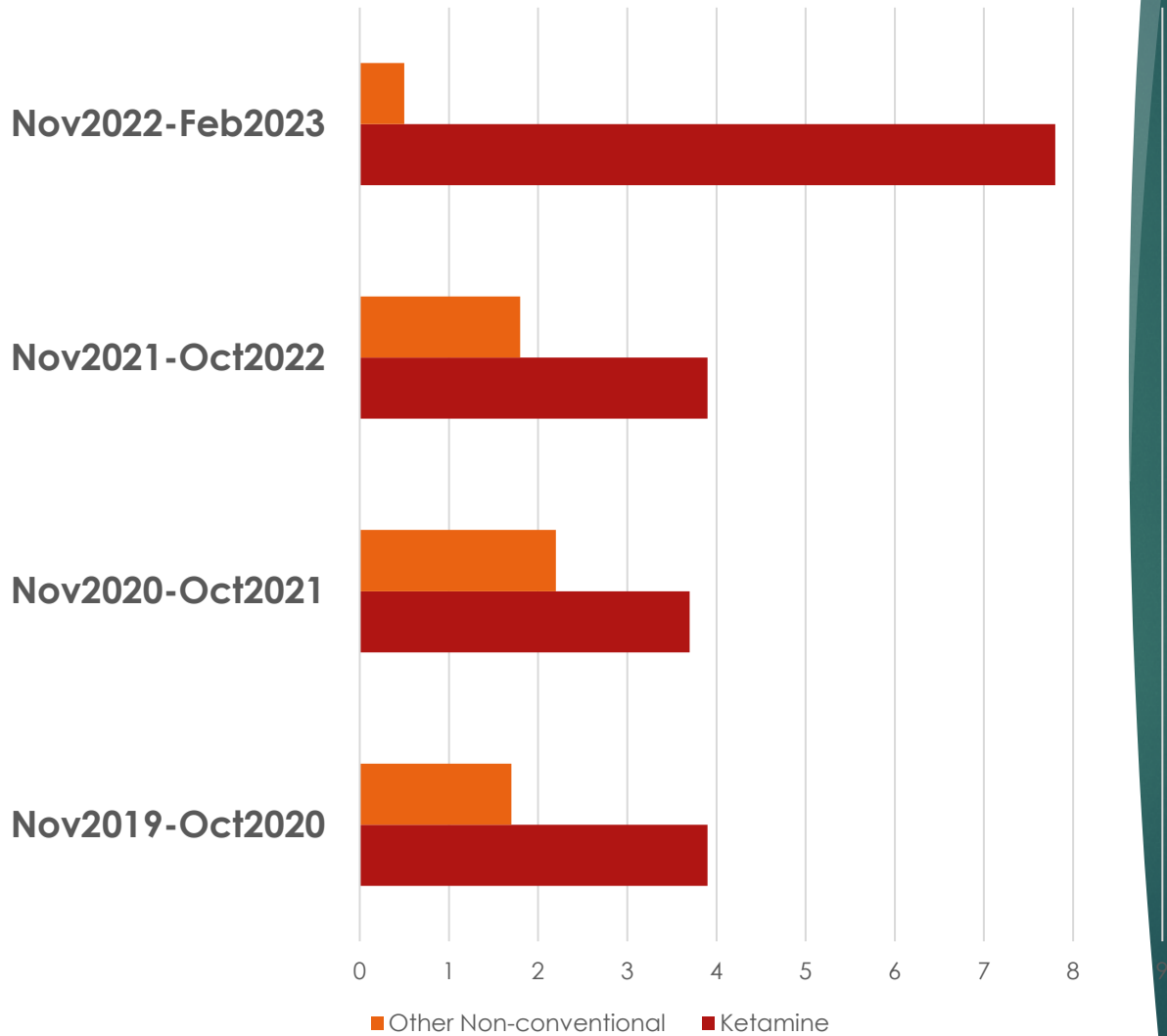
1.2 % of the total adults
entering the treatment in 2021 -
2022

3.5 times higher than it was in
2014 to 2015

Prevalence increased and
price decreased since 2005/6

**(National Statistics-Adult substance misuse
treatment statistics 2021 to 2022: report- Office for
Health Improvement and Disparities-Jan 2023)**

Adults entering treatment- PRP Ketamine Addiction



BEXLEY KETAMINE DATA

(Service improvement audit approved by the
Addiction Division SMT/Clinical Governance in
February 2023)

BEXLEY - KETAMINE DATA

	Total	<15d/mo	Heavy users	Daily users
Age (y)	25±5	26±6	25±5	25±4
Age of onset (y)	19±5	19±6	19±4	19±3
Gender				
Females	21%	28%	16%	22%
Males	73%	63%	78%	75%
Other	7%	9%	5%	3%
Ketamine use				
Frequency of Use (d/mo)	20±10	7±3	25±6	30±0
% total	100%	36%	64%	35%
Amount (g)	2.74±2	1.7±0.9	3.2±2	2.9±1.7
Ketamine (only drug)	30%	15%	42%	44%
Length of use (y)	7±6	7±5	6±4	7±3
Mental Health problems				
Mental Health problems	58%	39%	70%	78%
Ketamine-related urological problems				
Ketamine-related urological problems	42%	12%	59%	63%

KETAMINE PATHWAYS- RATIONALE

Improving patients'
experience

Treatment retention

Avoiding early drop-outs

Client-tailored interventions

Complex needs provisions
(mental and physical health)

WHAT WE HAVE DONE SO FAR...

STAFF

Ketamine PRP working group established.

Staff training on ketamine addiction

Ketamine Checklists and Craving scale developed and training provided

Ketamine urine test kits available to the staff on triage assessments

Service users

Ketamine specific pathways with rapid access for ketamine clients.

Ketamine fact information sheet, harm reduction pack and sniffing tubes.

Ketamine specific group interventions

“Off label” prescribing of Naltrexone for Relapse Prevention

PRP KETAMINE PATHWAY

Triage assessment

Priority triage if under 25yrs of age. Ketamine Fact Sheet and brief harm reduction to be given and invite to Ketamine Induction group.

Medical review or NPS Clinic slot to be booked

Allocation

Keyworker to provide Ketamine check lists, Cravings scales and Consent form completed 1-2-1

Group Programme

Client is then reviewed for suitability for the 6 weeks group programme. Mainly a safe space to speak openly about physical, mental and social consequences of ketamine use.

Pharmacological Interventions

If suitability is established, Off-label Naltrexone prescribing assessment

PRELIMINARY OUTCOME DATA

Ketamine specific group interventions

- ▶ **Group completion rate: 67%**
- ▶ **Ketamine abstinence rate: 62% (2-4 months)**
- ▶ **Group feedback: extremely good and positive comments.**

The ketamine group was great as it was of course very reputable and allowed myself and other users to share experiences and advise that only ketamine users would understand. I also liked the fact that it was a small group with a handful of people which made the experience a lot more personable.

It is now January 25th and have been clean for 7 weeks and I am using my time productively by keeping fit, mentally and physically.

PRP Service user, age 21yrs old

NALTREXONE “OFF LABEL” PRESCRIBING FOR KETAMINE RELAPSE PREVENTION

Ketamine has opioidergic effects and naltrexone had been used successfully as a relapse prevention drug in published case reports of detoxed ketamine addicted patients (Garg et al, 2014).

In animal and clinical studies, naltrexone reduces the antidepressant effects of ketamine in Refractory Depression via the opioid receptors antagonism (Klein et al, 2020; Nolan et al., 2018)

PRELIMINARY OUTCOME DATA NALTREXONE

Patients: Three

Recent discontinuation of ketamine (2-3 days)-
Very strong craving for ketamine plus
abdominal cramps.

Naltrexone 25mg for two days, then 50mg OD

Ketamine craving for ketamine stopped in all
when the dose was increased to 50mg. All of
three remain abstinent (64 days-45days-
11days)

“Bladder pain and symptoms” gradually
reduced over a period of 10-14 days

CONCLUSIVE REMARKS

Epidemiological and clinical studies on prevalence of severe addiction to ketamine.

Randomised research studies on pharmacological interventions

Ketamine specific psychosocial interventions and treatment guidelines

Joint working protocols/guidelines with urology services, mental health services, primary care professionals

Training for A&E, GPs, and other professionals on ketamine related physical conditions (bladder symptoms, acute abdominal pain, seizures, low mood, short-term memory problems- significant weight loss)

The Ketamine Working Group at Pier Road Project

Tom Colley
Senior Recovery Worker
Humankind/SLAM

Claire Waldock
Senior Addiction Nurse
SLAM

Dr Rishi Verma
ST6 Addictions
SLAM