South London and Maudsley NHS
NHS Foundation Trust

METHAMPHETAMINE INTOXICATION AND PSYCHOSIS
Emergency Management

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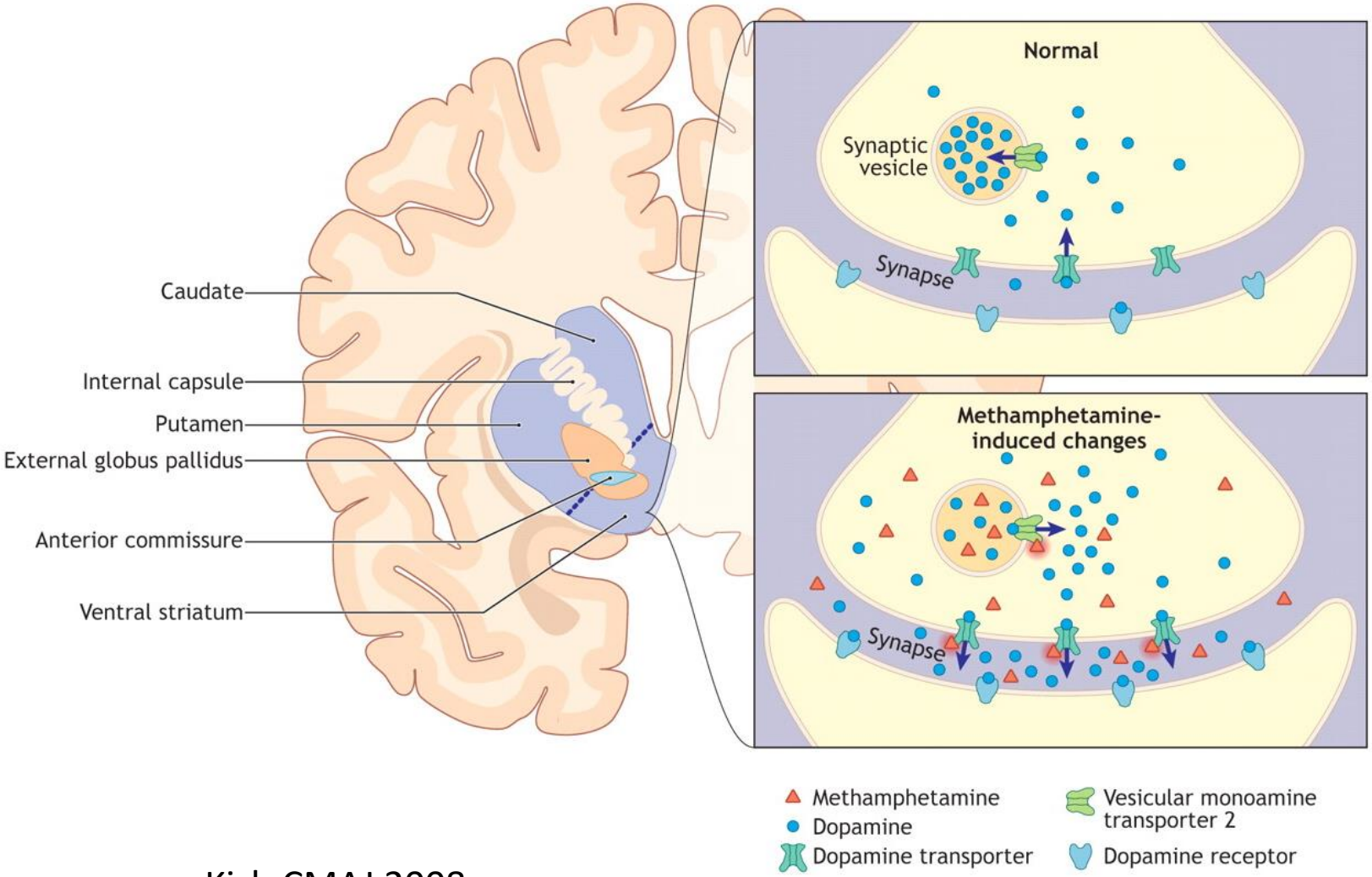
Methamphetamine is a type of amphetamine

- 'Crystal meth', 'Tina', 'meth', 'ice', 'glass', 'crank'
- Injected (43% of those in treatment) or smoked
- Intense euphoria similar to cocaine
- Longer lasting than cocaine - t1/2 12 hours
- Used in combination with GBL, a sedative, in Chemsex
- Use is rare in the UK – 0.03% of the population report use in the past year
- But around 5% of London general hospital substance use caseload
- 90% men, median age 38

Methamphetamine directly affects dopamine transmission by increasing DA release and reducing DA uptake



Kish CMAJ 2008

Psychotic symptoms in methamphetamine use are dose-related

13% report psychotic symptoms (McKetin 2006 Addiction n = 306) and 23% sub-clinical unusual thoughts/experiences

OR of 3 if methamphetamine dependent

Relative to a month where no meth use:

- OR of 4 (2.5-6.5) if 1-15 days use
- OR of 11(5.9-21.0) if >15 days use
- OR of 2 – cannabis or alcohol use alongside

(McKetin et al JAMA Psychiatry 2013)

- **Starts earlier in each binge**
- **Lasts longer each binge**
- **Most resolve within a couple of weeks**
- **30% last longer than one month**

It is difficult to distinguish clinically between methamphetamine psychosis and schizophrenia at first presentation

	SIP (n = 52)	PPD (n = 20)	p value	Total (N = 72)
First episode symptoms, n (%)				
Persecutory delusions	24 (50)	7 (35)	.258	31 (46)
Visual hallucinations	14 (29)	6 (30)	.945	20 (29)
Auditory hallucinations	27 (56)	13 (65)	.504	40 (59)
Schneiderian hallucinations	0 (0)	4 (20)	.001	4 (6)
Grandiose delusions	0 (0)	3 (15)	.006	3 (4)
Other symptoms[a]	6 (12)	7 (35)	.020	13 (18)
Demographics,				
Median age, years	29	30	.770	29
Female, n (%)	21 (40)	8 (40)	.976	29 (40)
Immigrant, n (%)	4 (8)	3 (15)	.349	7 (10)
Family history of psychotic disorder, n (%)	17 (36)	6 (32)	.723	23 (35)
Family history of non-psychotic disorder, n (%)	31 (67)	12 (67)	.956	43 (67)
Single, n (%)	31 (60)	14 (70)	.415	45 (63)
Tertiary education, n (%)	25 (48)	9 (45)	.815	34 (47)
Methamphetamine use				
Ever injected, n (%)	46 (88)	14 (70)	.060	60 (83)
Age first used, median years	16	17	.114	17
Duration of use, median years	11	11	>.999	11
Any use in the past month, n (%)	51 (98)	19 (100)	.543	70 (99)
Days of use in the past month (median)	8	5	.317	7

- Patients who turned out to have primary psychosis vs stimulant related
- One difference – primary psychosis more likely to have **running commentary hallucinations** – *but* this only in 20% of them

(McKetin et al 2016 Psych Res)

Patients in the ED who have taken methamphetamine and are displaying psychotic symptoms have psychiatric needs and need early liaison psych involvement

- May need advice regarding rapid tranquillisation and behavioural containment
- Rapid tranq is different for this group
- If psychotic – this needs to be assessed as potentially requires onward care
- May need specialist capacity assessment
- Psychosis may be subtle – requires specialist skills to elicit – A&E doctors and acute medics can be foxed by guarded patients once the agitation dies down

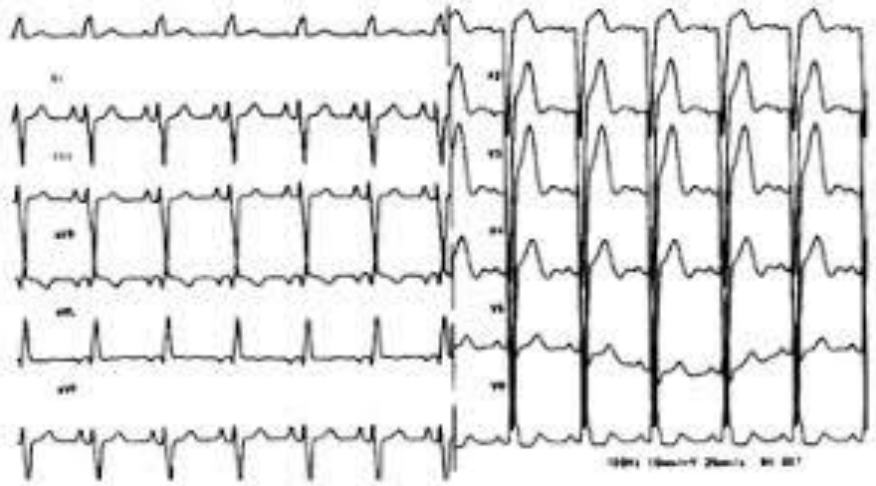
Initial assessment – signs of intoxication and physical complications?

Features of intoxication:

- History of recent use (<24hours)
- Tachycardia, hypertension
- Dilated pupils
- Sweating
- Agitation
- Increased muscle tone, clenched jaw, teeth grinding, muscle spasms

Examination and investigation:

- Signs of dehydration
- Neuro exam - CVA
- ECG – ischaemia, arrhythmia
- Bloods: CK – rhabdomyolysis; U and Es – renal failure, ATN



Then – are they G dependent?

Do they take GBL/'G'/'Liquid ecstacy'?

If yes:

- For more than 5 days a week for two weeks?
- >15ml per day?
- Wake up at night to use?
- Use alcohol or benzos when they can't get it?
- Do they report symptoms of withdrawal? (Tremor, sweating, agitati craving, nausea)

If yes to these, at risk of G withdrawal.

G withdrawal and methamphetamine intoxication may look similar – *sweating, agitation, hypertension and tachycardia*. Comes on soon after use.

G withdrawal needs high doses of benzodiazepines given aggressively and may need ITU

Immediate management of agitation and psychotic symptoms in patient with working dx of intoxication

- Diazepam 5-10mg 6 hourly as needed
- Lorazepam as per rapid tranq if severe agitation
- Sleep
- MCA

Important differences in rapid tranq

- **Aripiprazole** NOT haloperidol because of risk of acute dystonic reaction high

Onward care

- Boundary between acute intoxication and drug-related psychosis not studied
- Pragmatic approach – when do we need to make a decision? Role of a CDU?
- ?Role of continued antipsychotic prescribing – low dose, frequent review
- Need for **psychiatric** follow up and review to prevent inappropriate antipsychotic prescribing
- Community drug and alcohol team
- Sexual health

Ongoing antipsychotic prescribing for methamphetamine associated psychosis – limited evidence

Study	n	Duration	Agents	Findings
Leelanhanaj 2005	58	4 weeks	Haloperidol (5-20mg) Olanzapine (5-20mg)	Both ↓ symptoms Olanzapine better tolerated
Suleiman 2013	37	56 days	Aripiprazole (5-10mg) Placebo	Aripiprazole ↓ psychotic sx
Verachai 2014	80	27 days	Haloperidol (mean 2mg) Quetiapine (mean 112mg)	Both ↓ symptoms
Samuel 2016	44	4 weeks	Haloperidol (5-20mg) Risperidone (2-8mg)	Both ↓ symptoms
Wang 2016	42	25 days	Risperidone (2-4mg) Aripiprazole (5-10mg)	Poorly tolerated EPSEs ++ Aripiprazole – akathisia High rates dystonia

Live Q&A chaired by Dr Sarah Welch