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What do we know about dexamphetamine in the treatment of methamphetamine dependence?

8 years of the NSW Stimulant Treatment Program, Newcastle and Sydney

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ST VINCENT'S
HOSPITAL
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Health

Hunter New England
Local Health District

Background - context

- Australia: one of the highest rates of psychostimulant use in the world ¹.
- Increasing over last two decades
- Meth/amphetamines, cocaine and MDMA/ecstasy most commonly used illegal substances after cannabis
- Ever use: 10% ²
- Disorders: 0.7 % (compared with 0.2% with opiate use disorders) ³.
- Problems due mainly to methamphetamine e.g.
 - psychosis (often requiring hospital admission)
 - injecting-related and high risk sexual practices
 - psychological disturbances, cardiovascular complaints and cerebrovascular emergencies ⁴.
- Specialist intervention options limited, NSPs/HIV prevention efforts

¹Degenhardt L, Hall W. Extent of illicit drug use and dependence, and their contribution to the global burden of disease. Lancet 2012; 379: 55–70.

²Australian Institute of Health and Welfare. 2010 National Drug Strategy Household Survey report. Canberra, AIHW: 2011.

³Slade T, Johnston A, Teesson M, Whiteford H, Burgess P, Pirkis J & Saw S. The Mental Health of Australians 2. Report on the 2007 National Survey of Mental Health and Wellbeing. Department of Health and Ageing, Canberra: 2009.

⁴Darke S, Kaye S, McKetin R, Duflou J. Major physical and psychological harms of methamphetamine use. Drug and Alcohol Review 2008;27;253-262 .

Background - dexamphetamine

Some weak evidence for the use of oral dexamphetamine in the management of (meth)amphetamine dependence⁵⁻⁷

- Attraction and retention into treatment
- Reduction in (meth)amphetamine use
- Reduction in withdrawal symptom severity
- Reduction in degree of dependence
- Reduction in high risk behaviour (injecting, not sexual)
- ?Additional benefits over comprehensive psychosocial care

? *As harm reduction*^{8,9}

⁵Longo et al 2010 Randomized controlled trial of dexamphetamine maintenance for the treatment of methamphetamine dependence. *Addiction* 105 146–154 ;

⁶Shearer et al 2001 Pilot randomized controlled study of dexamphetamine substitution for amphetamine dependence *Addiction* 96 1289-1296.

⁷Merrill et al 2004 Dexamphetamine Substitution as a Treatment of Amphetamine Dependence: a Two-Centre Randomised Controlled Trial UK Department of Health

⁸Fleming & Roberts 1994. Is the prescription of amphetamine justified as a harm reduction measure. *Perspectives in Public Health* 114(3)127-131

⁹McBride et al 1997 Amphetamine prescribing as a harm reduction measure: a preliminary study *Addiction Research & Theory* 5, 95-112.

Stimulant Treatment Program

- 2 services funded in NSW – since 2006
- Response to increased prevalence methamphetamine use and increased presentations to health services
- ‘Shop front’
- Self/other referral
- Staff:
 - Counsellors, (addiction med/psychiatry staff)

Stimulant Treatment Program

Aims: to improve

1. Physical and mental health and wellbeing
2. Social functioning and relationships
3. Criminal and legal problems
4. Engagement in the community, eg through paid and volunteer work

Design:

- Stepped care model, including intake, assessment, counselling, assertive follow-up
- dexamphetamine for treatment resistant

STP evaluation

- McKetin DAR 2013
 - 105 patients attending stimulant clinics
 - Counselling
 - median of 6 counselling sessions (IQR range 1–11)
 - over a 89 days (IQR 41–148 days)
 - Past month methamphetamine use
 - baseline 79%
 - 53% 3-month follow-up ($P < 0.001$)
 - 55% at the 6-month follow-up ($P < 0.001$)
 - reduction in injecting
 - improved mental health
 - no significant change in sexual risk behaviour

¹ McKetin et al 2013. Treatment outcomes for metamphetamine users receiving outpatient counselling from the Stimulant Treatment Program in Australia. *Drug and Alcohol Review* 32 80-87

Dexamphetamine pharmacotherapy - Eligibility criteria

- >21 yrs old
- >2 yrs problem psychostimulant use
- stable accommodation
- major adverse health +/- social consequences of psychostimulant use
- failed previous attempts to address stimulant use
- SDS>4¹
- grave clinical concerns for the future (client and clinician)
- not on methadone/buprenorphine
- not dependent on other substances (cannabis)
- no major medical or psychiatric contraindications, not pregnant
- recommended by 2 doctors, reviewed by psychiatrist/other specialist

Methods

- Retrospective chart audit
- All patients prescribed dex since 2006
- Data sources
 - file audit September 2014 (n=44)
 - Electronic med record
 - 32 SVHS, 12 HNE
- De-identified data extracted and analysed for client features, treatment elements, outcomes (qualitative and quantitative), experiences (thematic)

Results: client features (n=44)

Gender	Male	73%
Age (years)	Median (range)	41 (27-54)
Duration use (years)	Median (range)	10 (1-30)
Route	IV	81%
Health	HIV+	14%
	History of suicide attempt/self harm	59%
SDS¹	Median (range)	11 (4-15)

¹Severity of Dependence Scale (1-15), Gossop M et al Addiction 1995, 90(5):607-14

Intervention

- Face-to-face counselling
 - Target weekly
 - median 2.5/month (range 1-8 sessions)
- Dexamphetamine orally
 - maximum 80mg/day target
 - median dose 80 mg (range 25-80)mg
- 5mg tabs, daily supervised dosing from OST clinic / community pharmacy
 - median attendance 6 days/week (range 0-7 days)
- Assertive follow-up = SMS + telephone contact

Outcomes – clients who completed treatment (n=32) 2006-2014

- Median duration of treatment 7 months (range 1-40)
- 69% reduced stimulant use (from clinician notes, on self report)

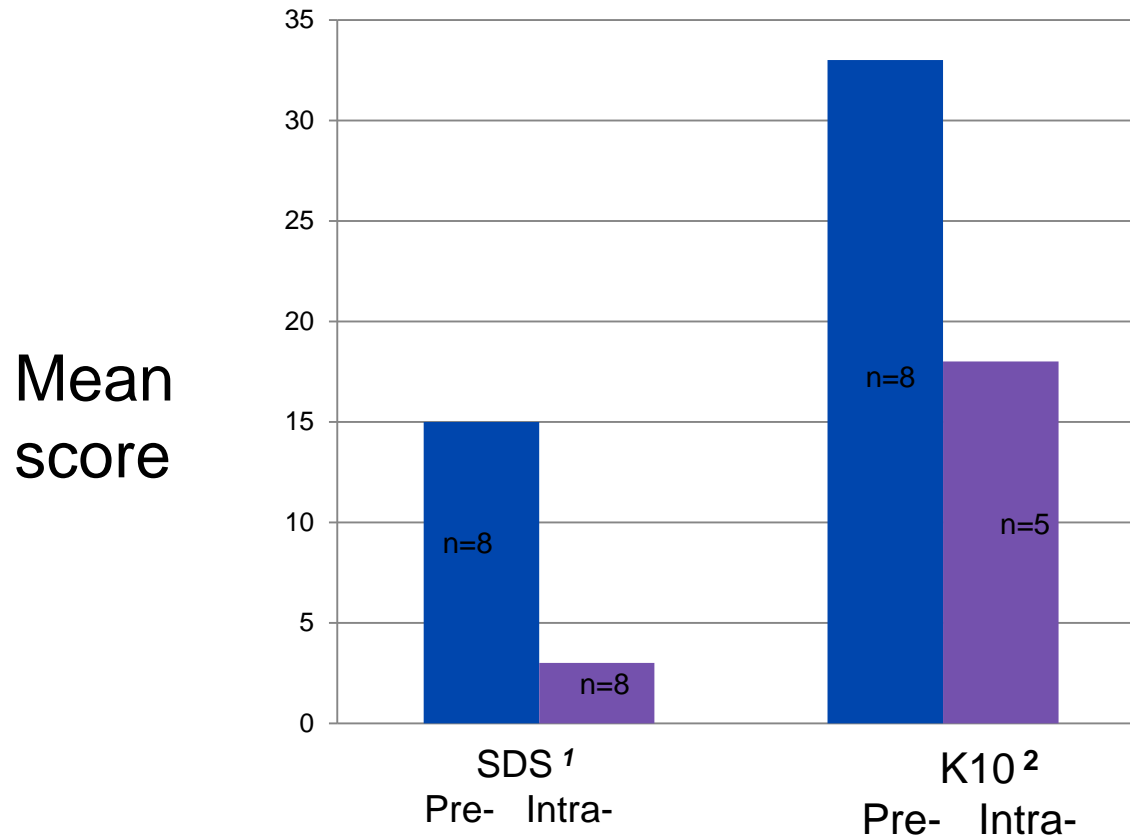
Domain (qualitative from clinical notes)	Improved	Unchanged	Worsened
Physical/mental health and wellbeing	16	15	1
Social functioning and relationships	21	9	2
Criminal and legal outcomes	18	11	3
Paid and volunteer employment	20	10	2
Alcohol, BZD, cannabis, tobacco use	12	17	3
	Ceased	Reduced	Relapse
Methamphetamine use at completion	8	15	9

Progress current clients (n=12) Sep 2014

- Median duration of treatment 17 months (range 4-52)
- 5/12 ceased, 7/12 reduced stimulant use (from clinician notes of self-report)

Outcome (qualitative from clinical notes)	Improved	Unchanged	Worsened
Physical/mental health and wellbeing	12	-	-
Social functioning and relationships	10	2	-
Criminal and legal outcomes	8	4	-
Paid and volunteer employment	6	6	-
Alcohol, BZD, cannabis, tobacco use	6	6	-
Methamphetamine use	12	-	-

Progress - current clients (SVH only n=8)



¹Severity of Dependence Scale (1-15), Gossop M et al Addiction 1995, 90(5):607-14.

²Kessler Psychological Distress Scale (10-50), Kessler RC et al. Arch Gen Psychiatry. 2003;60(2):184-9.

Current clients - experiences

- DEX=ATTRACTION INTO TREATMENT
- Chrissy. 39 year old woman, 17 years IV use, daily \$150, 'hard core user' + sex work.
- Attracted to the program because 'there was pharmacology involved, I was interested in that because I wanted something to take the pain away. I don't think anyone understands the mental and physical torture of coming off the high'.

DEX=FREEDOM

- ‘By the time I got up to 80mg I felt so hopeful and so free and just ‘why doesn’t everyone know about this’... I don’t want to use drugs when I am taking dex ...The fact that it helped me get through the habitual part of drug taking ... And because of the dexamphetamine it takes away the physical symptoms and the mental obsession of what you became so used to ... If I had it my way I would be on it [dex] for the rest of my life’

DEX= FREEDOM

- Billy
- 15 year use + 'hypersexual behaviour' MSM, \$250/d smoke & IV.
- 'My whole adult life my brain has had as its sole agenda to maximise access to crystal ..Every decision I made in my adult life had to go through that filter. And when I first took the dex it just vanished completely on that first day I could finally make choices free of that addictive overpowering regime in my brain ... that crystal meth dictatorship in my head I was ecstatic for the first couple of weeks it was like that ...
- It's a service provided by a public hospital it's a pharmaceutical grade drug and there is never going to be a day when you cant get it. In a way that was a relief.'

NOT ONLY DEX

- Billy
- ‘It did occur to me that it couldn’t be as simple as just taking a couple of pills every day to overcome my addiction and it did get harder after 6 weeks ... it’s not as simple as taking dexamphetamine every day...I have worked really hard at everything in my life.I think the counselling is equally as beneficial as being on the dex. The dex is the safety net ...the counselling takes it one step further’

NOT ONLY DEX

- Chrissy
- '[Counselling and dexamphetamine] are hand in hand ... like they're equal. You couldn't have dex and go about your business. I think the cross-over from hard core drug user on a daily basis ... you can't go from that world into 'normal' society by popping a few pills and everything being OK.'

Discussion

- Feasible
- Useful in attracting and engaging severely dependent psychostimulant users, when combined with psychosocial support
- Retention in treatment reasonable
- Promising but many limitations to the data e.g.
 - > small numbers, no comparison group, data derived from clinical notes
 - > lack of quantitative outcome measures, sufficient qualitative data, other outcomes such as safer sexual practices, adverse events e.g. hypertension
 - > no capacity to determine relationship between individual and treatment factors and outcomes

Conclusion

- Further research
 - the role of pharmacotherapy in the treatment of stimulant dependence
 - adjuvant to psychosocial intervention?
 - role of longer term therapy vs withdrawal
 - for whom (severity, comorbidity)
 - dosages and formulations of dexamphetamine
 - other pharmaceuticals (eg lisdexamphetamine)
 - outcome measures – harm reduction
 - sexual, injection related risk behaviour