DDI : ARVs & “Party drugs” Clinical case

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10TH RESIDENTIAL COURSE ON CLINICAL PHARMACOLOGY OF ANTIRETROVIRALS

Paul

- 28 years old
- MSM

Seen on Monday morning after has been exposed to HIV, following 2 days of *CHEMSEX* parties: multiple partners + no condom use

After discussion, it is decided that he should start PEP

Paul

When asked, he reports:

-Use of party drugs for over 2 years

-No “sober” sex in the past 2 years

-Already received PEP twice in the past 10 months

Paul

- He is prescribed LPV/r + TDF/FTC
- Long discussion on importance of NOT taking recreational drugs over the following 4 weeks because of possible DDIs

UK guideline for the use of post-exposure prophylaxis for HIV following sexual exposure (2011)

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Paul

Approximately 2 weeks after being prescribed PEP he comes back to the clinic :

-Stopped PEP

-Admitted to A&E 5 days earlier after collapsing in a night club on Saturday night…

Paul

At A&E:

- Unconscious (unresponsive)
- Endotracheally intubated + Ventilated
- Bradycardic
- BP 170/120 mmHg
- T 35.1 C

- Normal head CT scan and chest X-ray

Paul

I was high on Crystal meth from Friday night and I took G during the night on Friday and Saturday...

I collapsed before in clubs but I was never taken to A&E before, as the “medics” in the side room generally sorted me out…

Crystal Methamphetamine

G or GHB (GBL)

GHB= Gammahydroxybutirate
GBL= Gammabutyrolactone

What are “party drugs”?

Combination of substances used among MSM
in a sexualised context - in clubs or private parties…

1. GHB or GBL
2. Crystal Meth (methamphetamine)
3. Mephedrone
4. MDMA (ecstasy)
5. Ketamine
6. EDA, Poppers, Benzodiazepines…

Recreational drug use, polydrug use, and sexual behaviour in HIV-diagnosed men who have sex with men in the UK: results from the cross-sectional ASTRA study

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Summary

Background Recreational drug use in men who have sex with men (MSM) is of concern because it might be linked to the transmission of HIV and other sexually transmitted infections. Evidence about drug use in HIV-diagnosed MSM in the UK is limited by representativeness of the study populations. We describe patterns of drug use and associations with sexual behaviours in HIV-diagnosed MSM in the UK.

Methods We used data from the cross-sectional ASTRA study, which recruited participants aged 18 years or older with HIV from eight HIV outpatient clinics in the UK between Feb 1, 2011, and Dec 31, 2012. We examined data for MSM, assessing the prevalence of recreational drug use and polydrug use in the previous 3 months and associations with sociodemographic and HIV-related factors. We examined the association of polydrug use with measures of condomless sex in the previous 3 months and with other sexual behaviours.

Findings Our analysis included data for 2248 MSM: 2136 (95%) were gay, 1973 (89%) were white, 1904 (85%) were on antiretroviral treatment (ART), and 1682 (76%) had a viral load of 50 copies per mL or lower. 1138 (51%) used recreational drugs in the previous 3 months; 608 (27%) used nitrites, 477 (21%) used cannabis, 460 (21%) used erectile dysfunction drugs, 453 (20%) used cocaine, 280 (13%) used ketamine, 258 (12%) used 3,4-methylenedioxy-N-methylamphetamine (MDMA), 221 (10%) used gamma-hydroxybutyrate or gamma-butyrolactone, 175 (8%) used methamphetamine, and 162 (7%) used mephedrone. In the 1138 individuals who used drugs, 529 (47%) used three or more drugs and 241 (21%) used five or more. Prevalence of injection drug use was 3% (n=68). Drug use was independently associated with younger age ($p<0·0001$), not being religious ($p=0·001$), having an HIV-positive stable partner ($p=0·0008$), HIV-serostatus disclosure ($p=0·009$), smoking ($p<0·0001$), evidence of harmful alcohol drinking ($p=0·0001$), and ART non-adherence ($p<0·0001$). Increasing polydrug use was associated with increasing prevalence of condomless sex (prevalence range from no drug use to use of five or more drugs was 24% to 78%), condomless sex with HIV-seroconcordant partners (17% to 69%), condomless sex with HIV-serodiscordant partners (10% to 25%), and higher-HIV-risk condomless sex after taking viral load into account (4% to 16%; $p\leq0·005$ for all). Associations were similar after adjustment for sociodemographic and HIV-related factors. Methamphetamine was more strongly associated with higher-HIV-risk condomless sex than were other commonly used drugs.

Interpretation Polydrug use is prevalent in HIV-diagnosed MSM and is strongly associated with condomless sex. Specialist support services for MSM with HIV who use recreational drugs might be beneficial in the reduction of harm and prevention of ongoing transmission of HIV and other sexually transmitted infections.

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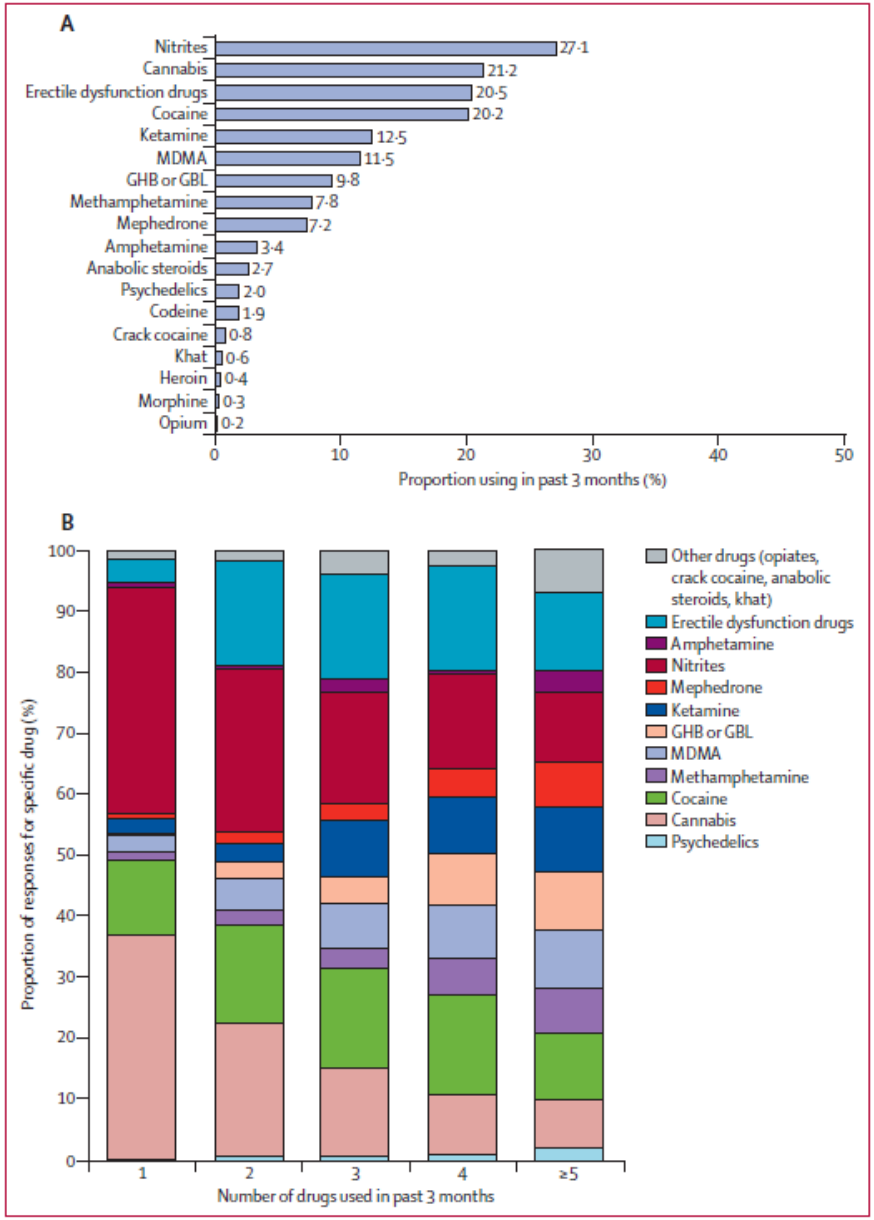

Figure 1: **Recreational drug use in the past 3 months in HIV-diagnosed men who have sex with men**
(A) Prevalence of recreational drug use in 2248 individuals. (B) Type of drug according to number of drugs used in 1138 individuals who used at least one drug. GHB=gamma-hydroxybutyrate. GBL=gamma-butyrolactone. MDMA=3,4-methylenedioxy-N-methylamphetamine.

What happened to Paul?

1. Is ritonavir 100 mg bid enough to boost Crystal meth or GHB?
2. Involvement of CYP3A4 ? CYP2D6? Other enzymes?
3. Would a ritonavir- free PEP have avoided admission to A&E ?
4. Just overdosing?

www.hiv-druginteractions.org

UNIVERSITY OF LIVERPOOL

Antiretrovirals and Recreational Drugs

Charts produced October 2014. Full information available at www.hiv-druginteractions.org and www.hiv-druginteractionslite.org

		ATV/r	DRV/r	FPV/r	IDV/r	LPV/r	SQV/r	EFV	ETV	NVP	RPV	MVC	DTG	EVG/c	RAL	ABC	FTC	3TC	TDF	ZDV
Stimulants	Amyl nitrate (Poppers)	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
	Cocaine	↑[ab]	↑[a]	↑[a]	↑[a]	↑[ab]	↑[ab]	↑[c]	↑[c]	↑[c]	↔[b]	↔	↔	↑[a]	↔	↔	↔	↔	↔	↔
	Ecstasy (MDMA)	↑[d]	↑[d]	↑[d]	↑[d]	↑[d]	↑[d]	↔	↔	↔	↔	↔	↔	↑[d]	↔	↔	↔	↔	↔	↔
	Mephedrone	↑[e]	↑[e]	↑[e]	↑[e]	↑[e]	↑[e]	↔	↔	↔	↔	↔	↔	↑[e]	↔	↔	↔	↔	↔	↔
	Methamphetamine	↑	↑	↑	↑	↑	↑	↔	↔	↔	↔	↔	↔	↑	↔	↔	↔	↔	↔	↔
Depressants	Alcohol	↔	↔	↔[f]	↔	↔[f]	↔	↔	↔	↔	↔	↔	↔	↔	↔	↑	↔	↔	↔	↔
	Alprazolam	↑[g]	↑[g]	↑[g]	↑[h]	↑[g]	↑[g]	↓	↓	↓	↔	↔	↔	↑	↔	↔	↔	↔	↔	↔
	Codeine	↑[i]	↑[i]	↑[i]	↑[i]	↑[i]	↑[i]	↓[i]	↓[i]	↓[i]	↔	↔	↔	↑[i]	↔	↔	↔	↔	↔	↔
	Diazepam	↑	↑	↑	↑[h]	↑	↑	↓	↑	↓	↔	↔	↔	↑	↔	↔	↔	↔	↔	↔
	GHB (gamma hydroxybutyrate)	↑[j]	↑[j]	↑[j]	↑[j]	↑[j]	↑[j]	↔	↔	↔	↔	↔	↔	↑[j]	↔	↔	↔	↔	↔	↔
	Heroin (Diamorphine)	↔[k]	↔[k]	↔[k]	↔[k]	↔[k]	↔[k]	↔[k]	↔	↔	↔	↔	↔	↔[k]	↔	↔	↔	↔	↔	↔
	Hydrocodone	↑	↑	↑	↑	↑	↑	↓	↓	↓	↔	↔	↔	↑	↔	↔	↔	↔	↔	↔
	Hydromorphone	↓	↓	↓	↓	↓	↓	↑	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
	Ketamine	↑	↑	↑	↑	↑	↑	↓	↓	↓	↔	↔	↔	↑	↔	↔	↔	↔	↔	↔
	Pethidine (Meperidine)	↓[l]	↓[l]	↓[l]	↓[hl]	↓[l]	↓[l]	↓[l]	↓[l]	↓[l]	↔	↔	↔	↑?	↔	↔	↔	↔	↔	↔
	Methadone	↓[b]	↓16%	↓18%	↓	↓53%[b]	↓19%[bm]	↓52%	↑6%	↓~50%	↓16%[b]	↔	↔	↑7%	↔	↓	↔	↔	↔	⇑
	Midazolam (oral)	↑[n]	↑[n]	↑[n]	↑[n]	↑[n]	↑[n]	↓[h]	↓	↓	↔	↔	↔	↑[n]	↔	↔	↔	↔	↔	↔
	Morphine	↓[o]	↓[o]	↓[o]	↓[o]	↓[o]	↓[o]	↑	↔[o]	↔	↔	↔	↔	↔[o]	↔	↔	↔	↔	↔	↔
	Oxycodone	↑	↑	↑	↑	↑	↑	↓	↓	↓	↔	↔	↔	↑	↔	↔	↔	↔	↔	↔
	Temazepam	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
	Triazolam	↑[n]	↑[n]	↑[n]	↑[n]	↑[n]	↑[n]	↓[h]	↓	↓	↔	↔	↔	↑[n]	↔	↔	↔	↔	↔	↔
Hallucinogens	Cannabis	⇓	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
	Lysergic acid diethylamide (LSD)	↑[p]	↑[p]	↑[p]	↑[p]	↑[p]	↑[p]	↓	↓	↓	↔	↔	↔	↑[p]	↔	↔	↔	↔	↔	↔
	Phencyclidine (PCP, angel dust)	↑[q]	↑[q]	↑[q]	↑[q]	↑[q]	↑[q]	↓	↓	↓	↔	↔	↔	↑[q]	↔	↔	↔	↔	↔	↔

Conclusions

- High use of recreational drugs in MSM HIV+
- Importance of addressing type of use: how often, what drugs, modality of consumption

  Crystal meth, GHB
  mephedrone, MDMA
  Ketamine, EDA, BDZ

HIGHEST potential for hazardous DDI with Cobicistat or Ritonavir containing regimens

- Patient empowerment
- Personalised ARVs choice (when possible)

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