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Adherence and Risk for Incident Sexually Transmitted Infection among Methamphetamine using Men who have Sex with Men on HIV Pre-Exposure Prophylaxis

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Background

- Methamphetamine (METH) use is related to increased sexual risk behavior among men who have sex with men (MSM)
- METH-using MSM may therefore be good candidates for HIV pre-exposure prophylaxis (PrEP)
- The effectiveness of PrEP, however, strongly depends on maintaining adherence, and METH users have been shown to have medication adherence difficulties in the context of living with HIV
- As such, we hypothesized that among MSM enrolled in a randomized controlled PrEP trial, METH users would have lower levels of PrEP adherence



Methods

- We examined baseline and ongoing METH use over 48 weeks for association with dried blood spot (DBS) intracellular tenofovir-diphosphate (TFV-DP) levels
- 394 study participants (391 MSM and 3 transgender women)
- METH use was assessed (for the past 3 months) at all study visits using a SCID screening questionnaire for "No use", "Some use" (1-4 times) and "Heavy use" (≥ 5 times)
- The adherence composite outcomes were defined as displayed in the table
- We also assessed whether baseline METH use impacted study completion and incident sexually transmitted infections (STIs) while on study



Results

- METH use did not significantly impact PrEP adherence during the PrEP Demonstration Project
- Based on DBS TFV-DP levels

Primary and secondary Adherence composite among categories of METH use

METH use	Primary Adherence Composite (i.e. DBS TFV-DP levels > 719 fmol/punch at the week 12 and 48 visits; cutoff is associated with taking ≥ 4 doses of TDF in the past week); YES (%)	p-value	Secondary Adherence composite (i.e. DBS TFV-DP levels > 1246 fmol/punch at the week 12 and 48 visits; cutoff is associated with taking 7 doses of TDF in past week); YES (%)	p-value
Baseline METH use		0.53		0.22
No (n=331)	237/331 (72%)		96/331 (29%)	
Some (n=40)	28/40 (70%)		9/40 (23%)	
Heavy (n=23)	14/23 (61%)		10/23 (43%)	

Primary and secondary Adherence composite among categories of METH use

METH use	Primary Adherence Composite (i.e. DBS TFV-DP levels > 719 fmol/punch at the week 12 and 48 visits; ≥ 4 doses of TDF in the past week); YES (%)	p-value	Secondary Adherence composite (i.e. DBS TFV-DP levels > 1246 fmol/punch at the week 12 and 48 visits; 7 doses of TDF in past week); YES (%)	p-value
Ongoing METH use (i.e. METH use reported at >50% of visits)		0.82		0.32
No (n=335)	238/335 (71%)		95/335 (28%)	
Some (n=36)	26/36 (72%)		10/36 (28%)	
Heavy (n=23)	15/23 (65%)		10/23 (43%)	



Results

- METH use did not significantly impact PrEP linkage and adherence post demonstration project (real world; $p=0.951$)
 - 74/100 (74%) without METH use linked to PrEP
 - 5/7 (71%) with some METH use
 - 2/3 (67%) with heavy METH use
- But heavy METH use may impact PrEP adherence in real world based on self report ($p=0.002$)
 - 64/74 (86%) without METH use reported PrEP intake on every day during last 3 days
 - 5/5 (100%) with some METH use
 - 0/2 (0%) with heavy METH use



Results

- “Some” METH use at baseline was associated:
 - a.) with significantly lower likelihood of study completion (OR 0.48, $p=0.048$; “Some” METH 70% study completion versus each 83% in “No” or “Heavy” METH use)
 - b.) significantly higher likelihood of developing incident STI while on study (OR 2.44, $p=0.011$; 58% incident STI with “Some” METH use versus 36% and 39% incident STI in “No” and “Heavy” METH use, respectively)



Conclusion

- Self-reported METH uses did not relate to lower PrEP adherence
- Interestingly, “Some” METH use, which may relate to binge use or potentially use only during sexual encounters, was associated with lower likelihood of study completion and higher likelihood of incident STI when compared to “Heavy” or “No” use