

The Incidence Rate of Gonorrhea and Chlamydial Infections in Pre-Exposure Prophylaxis and HIV Patients in the Era of Chemoprophylaxis

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INTRODUCTION

Since the FDA approval of Pre-exposure Prophylaxis (PrEP) for those at risk of HIV and the knowledge that having an undetectable viral load in patients living with HIV makes transmission unlikely, many individuals in both groups have reduced condom use. Higher rates of bacterial sexually transmitted infections (STIs) may reduce the health impact of chemoprophylaxis.

METHODS

A retrospective cohort of PrEP and HIV patients with at least one medical visit to one of two clinics in Dallas, Texas from January, 2016 through December, 2018 were compared. Three-site testing was performed on all patients reporting condomless sex. Categorical variables were compared using Chi-Square. A binomial logistic regression model was used to evaluate the odds of STI acquisition.

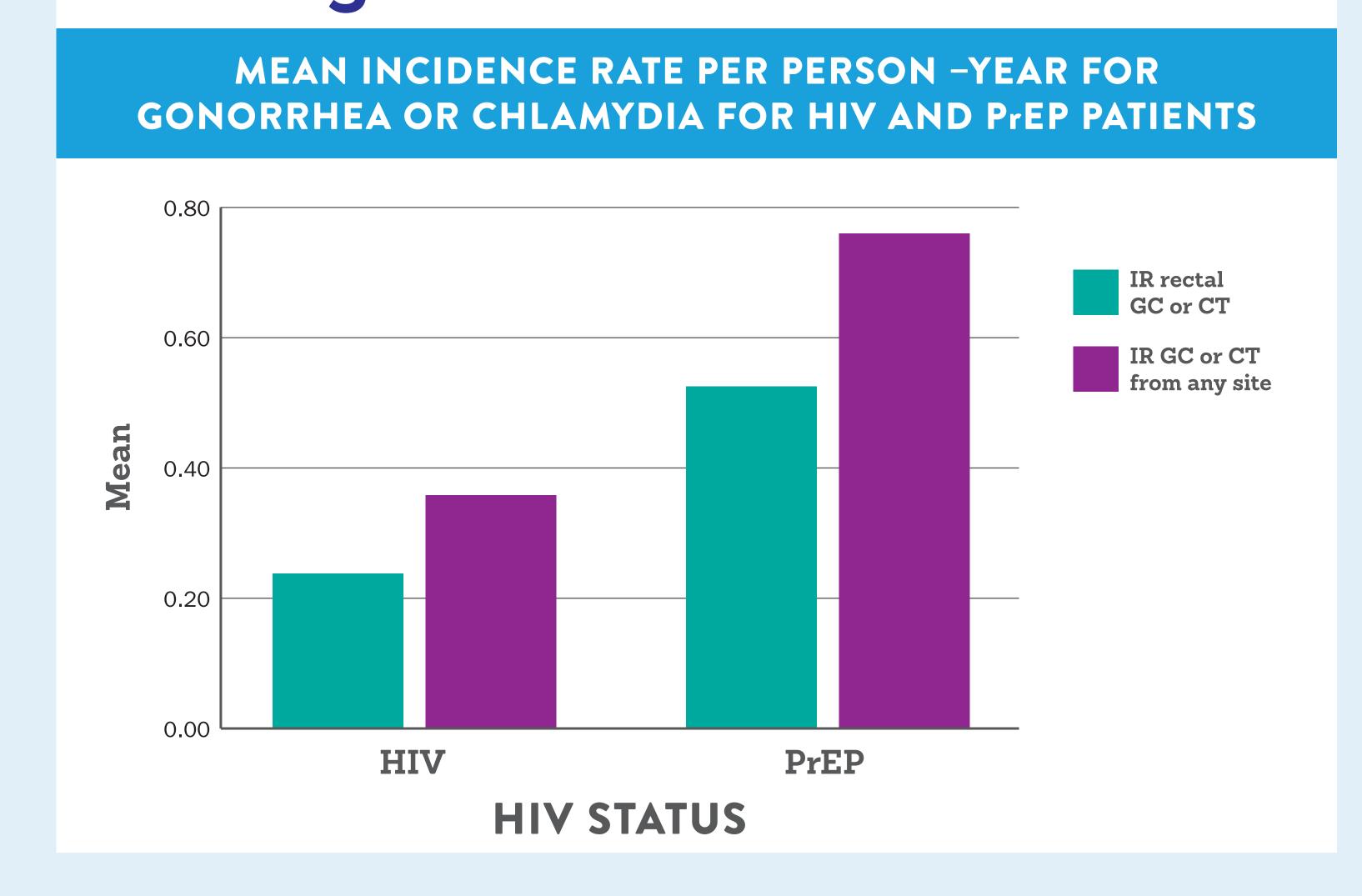
RESULTS

- 185 PrEP patients were screened in 731 visits; 2375 HIV patients had 5472 visits.
- PrEP patients contributed 156
 person-years (py) to the study, while HIV
 patients 1949 py.
- Incidence rates were higher in PrEP patients than HIV patients for any STI (76/100py, 95% CI, 69-82 vs. 36/100py, 95% CI, 34-38, p<0.001)
- Any chlamydia (CT) (46/100py, 95%CI, 39-54 vs. 16/100py, 95% CI, 15-18, p<0.0001)
- Rectal gonorrhea (GC) or CT (53/100py, 95% CI, 39-54 vs.24/100py, 95%CI, 22-26, p<0.00001).
- In a binomial regression model, being a PrEP vs. HIV patient was positively correlated with any rectal STI on screening (aOR, 2.17, 95% CI, 1.39 -3.37, adjusted for age, race, year specimen obtained, and HIV viral load<20)

Patient Demographics

TABLE 1. DEMOGRAPHICS								
Characteristic	PrEP (n= 185) Participants n (%)	Follow-up In Person-Years Total=156.02	HIV (n= 2190) Participants n (%)	Follow-up In Person-Years Total= 1949.03				
Age in years, median (IQR)	33 (27,41)		40 (32,49)					
Gender								
Male	173 (93.5)	0.88	1930 (88.1)	0.90				
Female	12 (6.5)	0.43	260 (11.9)	0.79				
Race								
American Indian	3 (1.6)	0.75	12 (0.5)	0.93				
Asian	8 (4.3)	0.62	22 (1)	0.80				
Black	39 (21.1)	0.84	987 (45.1)	0.92				
Native Hawaiian, Pacific Islander	0	0	9 (0.4)	1.21				
White	133 (71.9)	0.86	1136 (51.9)	0.86				
Other	2 (1.1)	1.37	24 (1.1)	0.77				

Figure- Incidence Rates



Comparative Incidence Rates

TABLE 2. STI INCIDENCE								
	PrEP cases (n)	IR/100 PY (95% CI)	HIV cases (n)	IR/100 PY (95% CI)	P value			
Any Gonorrhea (GC)	59	37.8 (30.6-45.6)	498	25.5 (23.6-27.5)	<0.05			
Any Chlamydia (CT)	72	46.1 (38.5-53.9)	318	16.3 (14.7-18.0)	<0.0001			
Any GC or CT	119	76.3 (69.0-82.3)	698	35.8 (33.7-37.9)	<0.001			
Rectal GC	32	20.5 (14.8-27.6)	276	14.1 (12.7-15.8)	0.03			
Rectal CT	57	36.5 (29.4-44.3)	292	14.9 (13.4-16.6)	<0.0001			
Any Rectal GC or CT	82	52.6 (38.5-53.9)	465	23.9 (22.0-25.8)	<0.0001			

Binomial Regression Model

ADJUSTED ODDS RATIO FOR RECTAL GONORRHEA OR CHLAMYDIA								
Variable	Total + Cases	PrEP Cases	HIV Cases	aOR (95%CI)	P value			
Race (Black)	222	9	213	0.98 (0.77-1.26)	0.89			
Age<24	59	12	47	7.76 (2.88-20.89)	<0.000			
PrEP Patient	547	82	465	2.167 (1.39-3.37)	0.001			
Year Specimen Obtained (2017 vs. 2016)	201	27	174	0.93 (0.72-1.21)	0.58			



CONCLUSIONS

Higher rates of gonorrhea and chlamydia in PrEP patients highlight the need to emphasize condom use in the era of chemoprophylaxis.

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- Cohen MS, Chen YQ, McCauley M, et al. Antiretroviral Therapy for the Prevention of HIV-1 Transmission. *New England Journal of Medicine* 2016; 375:830-9.