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Sexually Transmitted Infections Among Young Adults Affected By Perinatal HIV

Anna-Barbara Moscicki[1], Yanling Huo[2], Lisa Haddad[3], Deborah Kacanek[2], Claude A Mellins[4], Sharon Nichols[5], Kunjal Patel[2], Tzy-Jyun Yao[2], Katherine Tassiopoulos[2] for the Pediatric HIV/AIDS Cohort Study

[1]University of California Los Angeles David Geffen School of Medicine, Los Angeles, CA, USA, [2]Harvard T.H. Chan School of Public Health, Boston, USA, [3]The Rockefeller University, New York City, USA, [4]Columbia University and New York State Psychiatric Institute, New York City, USA, [5]University of San Diego, San Diego, USA

BACKGROUND

As young people living with perinatally-acquired HIV (YPHIV) become sexually active, they are susceptible to sexually transmitted infections (STI). Given their HIV status, YPHIV may more frequently receive advice to use condoms consistently to protect their partner(s) from HIV, hence may be at lower risk of STIs than those HIV uninfected. The objective of this study was to compare STI incidence rates between YPHIV and a comparator group of young adults with perinatal HIV exposure but uninfected (YPHEU).

METHODS

YPHIV and YPHEU participating in the U.S.-based Pediatric HIV/AIDS Cohort Study (PHACS) network had annual screening for chlamydia (CT), gonorrhea (GC), and trichomonas (TC); women were also tested for HPV (Aptima^{tm}). Incidence rates were calculated for CT, GC, and TC over person-time of follow-up as of January 2020. HPV incidence rates were calculated among those with an initial negative HPV test result. Incidence rates and exact Poisson 95% confidence intervals were calculated by age, sex, race, ethnicity, geographic region, and PHIV status.

Table 1: Baseline characteristics by perinatal HIV status

Characteristics	YPHIV (N=480)	YPHEU (N=99)
Age (years) at AMP Up study entry, median (Q1, Q3)	21.7 (19.2, 25.9)	18.5 (18.2, 19.5)
Age at the first of any test on AMP Up, median (Q1, Q3)	21.8 (19.4, 26.0)	18.6 (18.2, 19.9)
Age at vaginal/anal/oral sexual debut, median (Q1, Q3)	16 (14, 17)	15 (13, 16)
Sex: Male	176 (37%)	45 (45%)
Race: Black	315 (66%)	60 (61%)
Ethnicity: Hispanic	138 (29%)	34 (34%)
Site region		
Northeast	193 (40%)	32 (32%)
West	50 (10%)	17 (17%)
South	143 (30%)	30 (30%)
Midwest	54 (11%)	7 (7%)
Puerto Rico	40 (8%)	13 (13%)
Number of sexual partners in past 3 months		
None	165 (34%)	29 (29%)
1	245 (51%)	50 (51%)
2 or more	54 (11%)	13 (13%)
Condom use in past 3 months		
No sex	151 (31%)	27 (27%)
Always	175 (36%)	21 (21%)
Sometimes/Never	137 (29%)	46 (46%)

Table presents N (%) except where indicated.
Missing data among YPHIV and YPHEU: race (n=25, 5%; n=1, 1%), ethnicity (n=5, 1%; n=3, 3%), number of partners (n=16, 3%; n=7., 7%), condom use (n=17, 4%; n=5, 5%).
Abbreviations: YPHIV, young people living with perinatally-acquired HIV; YPHEU, young people living with perinatal HIV exposure but uninfected.

STI rates were high--and similar-- in both young adults living with perinatal HIV (PHIV) and those exposed perinatally to HIV but uninfected, underscoring the need for better risk reduction counseling among all young adults affected by PHIV. The higher rate of HPV in women living with PHIV underscores the need for effective triage strategies before implementing primary HPV testing for cervical cancer screening as recommended for the general population.

Table 2: Incidence rates of STIs per 1000 person-years (95% confidence interval*) by demographic characteristics

Characteristic	Gonorrhea [1]	Chlamydia [1]	Trichomonas [1]	HPV [2]
Age (years) at STI test				
18 - 20	60.8 (39.0, 90.5)	130.0 (96.5, 171.4)	45.3 (24.8, 76.1)	99.2 (52.8, 169.6)
21 +	40.1 (28.5, 54.9)	99.6 (80.6, 121.8)	81.3 (62.6, 103.9)	129.3 (92.4, 176.1)
Perinatal HIV status				
YPHEU	32.8 (14.1, 64.6)	95.1 (60.3, 142.7)	54.3 (27.1, 97.1)	52.0 (14.2, 133.2)
YPHIV	49.0 (36.9, 63.8)	111.3 (92.4, 132.9)	75.0 (58.1, 95.3)	134.8 (99.7, 178.2)
Sex				
Male	27.6 (15.1, 46.3)	76.2 (53.9, 104.6)	23.3 (10.7, 44.2)	-
Female	57.0 (42.2, 75.4)	127.5 (104.5, 154.0)	97.3 (75.7, 123.1)	223.0 (163.2, 297.4)
Race				
White/Other	9.9 (2.7, 25.3)	65.2 (42.6, 95.5)	5.8 (0.7, 21.0)	101.6 (56.8, 167.5)
Black or African American	65.7 (50.0, 84.7)	132.3 (109.3, 158.7)	106.0 (83.3, 133.1)	140.3 (99.3, 192.6)
Ethnicity				
Hispanic	23.1 (10.6, 43.8)	68.0 (44.4, 99.6)	8.8 (1.8, 25.8)	76.9 (38.4, 137.5)
Non-Hispanic	56.1 (42.1, 73.2)	125.3 (103.7, 150.0)	100.8 (79.3, 126.4)	142.8 (102.9, 193.0)
Site region				
Northeast	42.1 (26.7, 63.1)	85.7 (62.8, 114.4)	76.7 (52.8, 107.7)	122.0 (78.2, 181.5)
West	6.0 (0.2, 33.4)	48.5 (21.0, 95.7)	0 (-)	123.5 (53.3, 243.3)
South	64.2 (41.6, 94.8)	152.7 (115.9, 197.4)	116.1 (79.9, 163.0)	149.9 (81.9, 251.5)
Midwest	91.2 (48.5, 155.9)	158.0 (99.0, 239.3)	85.2 (42.5, 152.5)	94.1 (25.6, 241.0)
Puerto Rico	8.2 (0.2, 45.8)	93.3 (46.6, 166.9)	9.0 (0.2, 50.1)	69.8 (14.4, 203.9)
Age | HIV status				
18 – 20 | YPHEU	30.3 (8.3, 77.6)	100.2 (53.4, 171.4)	37.0 (10.1, 94.8)	47.3 (5.7, 170.8)
18 – 20 | YPHIV	76.2 (46.5, 117.6)	145.2 (102.2, 200.2)	49.8 (23.9, 91.6)	123.9 (61.8, 221.6)
21 + | YPHEU	35.7 (9.7, 91.3)	89.1 (42.7, 163.9)	74.1 (29.8, 152.6)	57.8 (7.0, 208.8)
21 + | YPHIV	40.7 (28.4, 56.6)	101.0 (80.7, 124.9)	82.3 (62.4, 106.7)	138.3 (97.9, 189.9)
Sex | HIV status				
Male | YPHEU	31.5 (6.5, 92.0)	51.7 (16.8, 120.7)	0 (-)	-
Male | YPHIV	26.7 (13.3, 47.8)	82.0 (56.5, 115.2)	29.1 (13.3, 55.2)	-
Female | YPHEU	33.6 (10.9, 78.5)	123.9 (73.4, 195.8)	87.6 (43.7, 156.7)	117.3 (32.0, 300.3)
Female | YPHIV	61.9 (45.0, 83.2)	128.2 (103.0, 157.8)	99.4 (75.5, 128.5)	243.9 (175.8, 329.7)

* Exact Poisson 95% confidence interval. Confidence interval was not calculated for 0 event.
[1] Calculation of incidence rates included all STI occurrences during AMP Up follow up.
[2] Calculation of incidence rates included the first HPV occurrence during AMP Up follow up.

CONCLUSIONS

Rates of CT, GC and TC were high and similar between YPHIV and YPHEU, underscoring the need for better STI prevention strategies, including promotion of condom use among young adults affected by PHIV. This is particularly important for YPHIV given that there is often a preconceived notion by providers that persons living with PHIV have been adequately informed and counseled regarding the importance of condom use.

Our observed high rate of HPV in women with PHIV is consistent with the well-documented vulnerability of those living with HIV for HPV infections and the development of cervical precancers and cancers. This underscores the need for HPV-associated cancer surveillance. Currently HPV primary screening is recommended for the general population in women 25 years or older. This high rate of HPV will require a robust triage test in order to avoid over referral to colposcopy. As many of these women were of HPV vaccine age at the time the vaccine came available, accounting for HPV vaccine status will be a critical next step in studies that seek to understand HPV vaccine effectiveness in this group.

ADDITIONAL KEY INFORMATION

Author Contact Information

Anna-Barbara Moscicki, MD
Professor of Pediatrics
Chief, Adolescent and Young Adult Medicine
Associate Vice Chair of Clinical Research
Department of Pediatrics
University of California, Los Angeles
10833 Le Conte Ave MDCC 22-432
Los Angeles, CA 90095
AMoscicki@mednet.ucla.edu

Funded by the National Institutes of Health, under cooperative agreements HD052104 (Tulane University School of Medicine), HD052102 (Harvard T.H. Chan School of Public Health), and P01HD103133 (Harvard T.H. Chan School of Public Health for the Pediatric HIV/AIDS Cohort Study 2020). We thank the study participants, clinical sites, PHACS CAB, Frontier Science, and Westat.

National Institutes of Health
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