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Short Communication

Sexually transmitted infections and viral hepatitides in patients presenting for non-occupational HIV post-exposure prophylaxis: results of a prospective cohort study

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SUMMARY

Data evaluating the screening practices for viral hepatitides and sexually transmitted infections (STIs) in patients presenting for non-occupational HIV post-exposure prophylaxis (nPEP) care are limited. Screening practices and prevalences of viral hepatitides and STIs were evaluated in 126 patients presenting to a dedicated HIV prevention clinic for HIV nPEP. Three patients (2.4%) were diagnosed with chronic hepatitis C infection, 28 (22.2%) did not have surface antibodies in sufficient quantity to confer immunity to hepatitis B, and six (4.8%) were diagnosed with an STI. A multivariate regression model did not predict any demographic or clinical features predictive of HBV non-immunity. Beyond screening for HIV infection, evaluation for viral hepatitides and STIs is an important feature in the care of patients presenting for HIV nPEP.

1. Introduction

Individuals presenting for HIV non-occupational post-exposure prophylaxis (nPEP) are at risk of acquiring concomitant infections via sexual contact or percutaneous exposures, including sexually transmitted infections (STIs), hepatitis B (HBV), and hepatitis C (HCV). Little is known about the infectious comorbidities of patients presenting for nPEP at baseline, and although published guidelines recommend screening for co-infections,[1,2] the frequency with which screening occurs in real-world settings is unclear.

2. Methods

This prospective cohort study was conducted at the HIV Prevention Clinic at the Toronto General Hospital between January 1, 2013 and September 30, 2014, and was approved by the University Health Network (UHN) Research Ethics Board. All patients enrolled in this study underwent a structured clinical evaluation. STIs (syphilis, chlamydia, and gonorrhea) were routinely screened for and treated as per the current Public Health Agency of Canada STI Guidelines.[3] Screening specifically included urine PCR for chlamydia and gonorrhea infections, and rectal and oral swabs for chlamydia and gonorrhea culture. Additionally, we attempted to screen all patients for HCV antibodies at baseline and for up to 6 months at follow-up appointments after any sexual or percutaneous exposure. Patients were also screened for HBV immunity with a surface antibody (HBsAb) test at baseline. Patients with high-risk HBV exposures were managed as per clinical guidelines.[4] HBV surface antibody production was confirmed following completion of the vaccine series or booster immunization in those who followed up to clinic.

All clinical data were transferred from a structured dictated note into a prospectively designed database. All analyses were conducted using IBM SPSS version 22.0 software (IBM, Armonk, NY, USA). Significance was defined at $p < 0.05$. Fisher's exact t-test was

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used for 2 × 2 comparisons. Multivariable logistic regression was used in adjusted comparisons of HBV immunity.

3. Results

One hundred twenty-six patients attended the HIV Prevention Clinic for nPEP care between January 1, 2013 and September 30, 2014. One hundred nineteen of these 126 patients (94.4%) had clear knowledge and documentation of the type, route, and source of potential HIV exposure. Of these 119, there were 83 (69.7%) sexual exposures and 36 (30.3%) non-sexual exposures. Of the 126 patients who presented for their initial nPEP clinic appointment, 96 (76.2%) were male; 115 (91.3%) were screened for HBV infection and immunity and 111 (88.1%) were screened for hepatitis C. Ninety-six of the total patients (76.2%) were screened for at least one STI, which included 81 of 83 (97.6%) patients presenting with sexual exposures. None of the patients seroconverted with HIV.

Table 1 outlines the infectious diagnoses in those presenting for HIV nPEP. All infected individuals were male. Over the course of this study there were no cases of HCV seroconversion, however three cases (2.4% prevalence) of chronic HCV infection were identified. Six patients (4.8%) were diagnosed with an STI at their initial clinic visit. Twenty-eight patients (22.2%) did not have HBsAb at a level conferring immunity. Fifteen (53.6%) HBV non-immune patients were retained in care long enough to either complete the HBV vaccine series or obtain a booster vaccination dose and document HBsAb seroconversion. A multivariate logistic regression analysis demonstrated that increasing age (adjusted odds ratio (AOR) per additional year 1.01, 95% confidence interval (CI) 0.96–1.05), female sex (AOR 1.13, 95% CI 0.36–3.69), non-white race (AOR 1.95, 95% CI 0.77–4.92), and increasing number of high-risk sexual exposures (AOR per sexual exposure 0.72, 95% CI 0.48–1.08) were not significantly associated with HBV non-immunity after adjusting for age, sex, race, and number of sexual exposures.

4. Discussion

Screening for STIs, HCV, and HBV is important in the care of individuals seeking HIV nPEP. The present findings support current guidelines for the routine screening of STIs, HCV, and HBV in patients presenting for HIV nPEP.[1,2] Most published studies examining patients presenting for HIV nPEP have traditionally focused on measuring adherence to medications or clinic visits, and on HIV seroconversion rather than reporting on the screening or treatment of potential co-infections.[5–7] Additionally, those individuals diagnosed with bacterial STIs in nPEP settings may be good candidates for HIV pre-exposure prophylaxis (PrEP).[8,9] This study provides evidence that such screening is valuable and that practitioners should be vigilant about investigating for these potentially transmissible infections.

The study clinic has redundancies designed to increase the probability of testing for co-infections. Protocols have been designed to ensure that patients referred to the HIV Prevention Clinic undergo baseline screening in participating emergency departments (EDs), the most common initial point of patient contact. This mechanism allows for laboratory results to be available to healthcare providers at the time the patient is evaluated in the HIV Prevention Clinic 3 days later.

An important area for quality improvement identified in this study is ensuring that patients who are not immune to HBV either (1) complete the vaccine series if they have no prior history of vaccination, or (2) receive a booster vaccination if they have a history of vaccination, and (3) all have documentation of HBV surface antibodies following vaccination.[10] Ensuring HBV immunity post vaccination is often quite challenging given major issues with adherence, both to medications and clinic attrition in nPEP care,[5–7,11–13] and completing a vaccination series for HBV typically involves follow-up over a 6-month time period. Strategies such as automated reminders should be optimized to ensure appropriate vaccination protocols are undertaken to immunize individuals.

Weaknesses of this study include the lack of screening and vaccination for hepatitis A infection, human papillomavirus, and pregnancy screening. In addition, the data presented are only reflective of patients referred to this clinic from three EDs and several local clinics, and may not be reflective of the unique demographics in other settings. Lastly, these data would be more robust if they could be compared to screening rates prior to the establishment of the dedicated HIV Prevention Clinic and implementation of screening protocols.

The present findings support current recommendations for universal screening for viral hepatitis and STIs among patients presenting for HIV nPEP care.

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Table 1
Results of screening for hepatitis B, hepatitis C, and STIs in 119 patients presenting for HIV nPEP

	Sexual exposures, *n* (%) (*n* = 83)	Non-sexual exposures, *n* (%) (*n* = 36)
Hepatitis B		
Immune	60 (69.8)	22 (61.1)
Not immune	15 (18.1)	13 (36.1)
Not tested	8 (9.6)	1 (2.8)
Hepatitis C		
Positive	2 (2.4)	1 (2.8)
Negative	72 (86.7)	31 (86.1)
Not tested	9 (10.8)	4 (11.1)
STI diagnosis		
No STI	74 (89.2)	12 (33.3)
Chlamydia	3 (3.6)	1 (7.7)
Gonorrhea	1 (1.2)	0 (0)
Syphilis	1 (1.2)	0 (0)
Not tested	4 (4.8)	23 (63.9)

STI, sexually transmitted infection; HIV nPEP, non-occupational HIV post-exposure prophylaxis.

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