Prophylaxis Against Possible Human Immunodeficiency Virus Exposure After Nonoccupational Needlestick Injuries or Sexual Assaults in Children and Adolescents

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Background: Nonoccupational human immunodeficiency virus (HIV) postexposure prophylaxis (PEP) for adults has been described, although the Centers for Disease Control and Prevention, Atlanta, Ga, offer no specific recommendations. There is limited information about its use in children and adolescents.

Objective: To describe the current practices of physicians in pediatric infectious disease (PID) and pediatric emergency medicine (PEM) departments regarding nonoccupational HIV PEP for children and adolescents.

Design: Survey.

Participants: Directors of all PID and PEM departments with fellowship programs in the United States and Canada between July and November 1998.

Main Outcome Measures: General questions regarding HIV PEP and questions concerning 2 scenarios (5-year-old with a needlestick injury and a 15-year-old after sexual assault).

Results: The return rate was 67 (78%) of 86 for PID and 36 (75%) of 48 for PEM physicians. Fewer than 20% of physicians reported institutional policies for nonoccupational HIV PEP; 33% had ever initiated nonoccupational HIV PEP. In both scenarios, PID physicians were more likely than PEM physicians to recommend or offer HIV PEP in the first 24 hours after the incident (55 [83%] of 66 vs 20 [56%] of 36 for needlestick injuries [odds ratio, 4.0; 95% confidence interval, 1.6-10.1] and 47 [72%] of 65 vs 16 [50%] of 32 for sexual assault [odds ratio, 2.6; 95% confidence interval, 1.1-6.3]). Seven different antiretroviral agents in single, dual, or triple drug regimens administered for 2 to 12 weeks were suggested.

Conclusions: Although few physicians reported institutional policies, and only one third had ever initiated HIV PEP, many would offer or recommend HIV PEP for children and adolescents within 24 hours after possible HIV exposure. A wide variation of regimens have been suggested. There is a need for a national consensus for nonoccupational HIV PEP.


ACCIDENTAL needlestick injuries from discarded hypodermic needles in children and sexual assaults in adolescents raise concerns about possible human immunodeficiency virus (HIV) transmission for patients, parents, and physicians. In the occupational setting, HIV postexposure prophylaxis (PEP) is well established, and the Centers for Disease Control and Prevention (CDC), Atlanta, Ga, have published recommendations for its management.1-2 In the nonoccupational setting, HIV PEP has been used for adults exposed to HIV through injection drug use or sexual contact.3-4 However, there are no definitive recommendations for HIV PEP in the nonoccupational setting by the CDC3 or by the Committee of Infectious Diseases of the American Academy of Pediatrics.5-6

We have offered HIV PEP in our pediatric emergency medicine (PEM) department for the past 3 years after accidental needlestick injuries from discarded hypodermic needles and after sexual assault. We find HIV PEP to pose a considerable management challenge.7 As no guidelines exist, we attempted to determine the experience and opinions of physicians in PID and PEM departments regarding the use of nonoccupational HIV PEP in children and adolescents.

The questionnaire return rate was 67 (78%) of 86 for PID physicians and 36 (75%) of 48 for PEM physicians. Not all physicians who responded answered every question on the questionnaire. Data is given for those physicians who re-
METHODS

Between July and November 1998 we mailed a questionnaire to the directors of all PID and PEM departments with fellowship programs in the United States and Canada as listed in the fellowship directories of the Pediatric Infectious Disease Society of North America and the American Academy of Pediatrics. General questions regarding management experience with nonoccupational needlestick injuries, sexual assault, and HIV PEP use were followed by 2 case scenarios that we find most frequently raise the question of HIV PEP in the PEM department. The first scenario involves a 5-year-old boy with a needlestick injury from a discarded hypodermic needle in a public park; the second, a 15-year-old girl seen after sexual assault with vaginal penetration by an unknown assailant. We compared answers from PID and PEM physicians using χ² analysis and the Fisher exact test, as appropriate.

responded to the question indicated. Only 10 (14%) of 66 PID physicians and 6 (17%) of 36 PEM physicians reported formal institutional policies for use of nonoccupational HIV PEP. The PID physicians were more likely to have ever recommended or initiated HIV PEP than PEM physicians (37 [57%] of 65 vs 7 [21%] of 34 for needlestick injuries [odds ratio [OR], 5.1; 95% confidence interval [CI], 1.9-13.4], and 17 [27%] of 64 vs 5 [14%] of 36 for sexual assault [OR, 2.2; 95% CI, 0.75-6.7]).

In both scenarios, PID physicians were more likely than PEM physicians to recommend or offer HIV PEP in the first 24 hours after the incident (55 [83%] of 66 vs 20 [56%] of 36 for needlestick injuries [OR, 4.0; 95% CI, 1.6-10.1] and 47 [72%] of 65 vs 16 [50%] of 32 for sexual assault [OR, 2.6; 95% CI, 1.1-6.3]) and between 25 and 72 hours after the incident (50 [78%] of 64 vs 18 [51%] of 35 for needlestick injuries [OR, 3.4; 95% CI, 1.4-8.2] and 41 [63%] of 65 vs 14 [44%] of 32 for sexual assault [OR, 2.2; 95% CI, 0.9-5.2]).

If more than 73 hours and less than 1 week had elapsed, both PID and PEM physicians were less likely to recommend or offer HIV PEP (14 [22%] of 63 vs 8 [23%] of 35 for needlestick [OR, 1.0; 95% CI, 0.4-2.6] and 12 [18%] of 65 vs 6 [21%] of 29 for sexual assault [OR, 0.9; 95% CI, 0.3-2.6]), however, more than 1 week after the incident, some physicians would still recommend or offer it (10 [16%] of 64 vs 4 [11%] of 35 for needlestick injuries [OR, 1.4; 95% CI, 0.4-5.0] and 5 [8%] of 65 vs 4 [14%] of 28 for sexual assault [OR, 0.5; 95% CI, 0.1-2.0]).

A total of 7 different antiretroviral agents (zidovudine, lamivudine, stavudine, indinavir, nelfinavir, saquinavir, and ritonavir) in single-, dual-, or triple-drug combinations were suggested for both scenarios, with lengths of therapy ranging from 2 to 12 weeks. Most PID physicians (42 [69%] of 65) recommended 4 weeks of antiretroviral prophylaxis, and the most frequently recommended drugs were zidovudine (50 [96%] of 52) and lamivudine (48 [92%] of 52). Twenty-two (61%) of 36 PEM physicians would always consult an infectious disease specialist if they were faced with HIV PEP issues as they were unsure about appropriate drug regimens and length of therapy.

Baseline HIV testing in the PEM department after nonoccupational possible HIV exposure would be undertaken by most PID and many PEM physicians (58 [88%] of 66 vs 21 [58%] of 36 for needlestick injuries [OR, 5.1; 95% CI, 1.9-14.0] and 60 [92%] of 65 vs 17 [47%] of 36 for sexual assault [OR, 13.4; 95% CI, 4.3-41.2]).

COMMENT

The results of this survey of PID and PEM physicians indicate that nonoccupational needlestick injuries and sexual assault elicit a variety of management responses regarding HIV PEP. Despite the lack of formal institutional policies or national guidelines, most PEM and a greater number of PID physicians surveyed would currently offer or recommend HIV PEP within 72 hours of possible HIV exposure.

The CDC recommendation to use HIV PEP after certain occupational HIV exposures is based on data showing a reduction in HIV transmission by using antiretroviral drugs in animal models of parenteral and mucosal exposure to retroviruses. A case-control study of health care workers and perinatal and postnatal HIV transmission studies. The probability of transmission through a single episode of unprotected rectal (0.1-3%) or vaginal intercourse (0.1-0.2%) with someone known to be infected with HIV is similar in magnitude to that associated with percutaneous exposures for health care workers (0.4%). Although HIV transmission after rape has been documented, the transmission risk with an assailant of unknown HIV status is difficult to assess. To date no HIV transmission from a discarded hypodermic needle in a nonoccupational setting has been documented, but viable virus has been recovered from hypodermic syringes maintained at room temperature in excess of 4 weeks. While HIV PEP has been used for adult patients after nonoccupational HIV exposure, a recent CDC statement on the management of nonoccupational exposures to HIV concluded that since no data exist regarding the efficacy of PEP for nonoccupational exposures, recommendations for or against its use cannot be made.

Although our survey shows a variety of drug regimens and lengths of treatment, most PID physicians would obtain HIV baseline testing in the emergency department and use a 4-week regimen with 2 antiretroviral agents (in particular, zidovudine and lamivudine) for patients who are seen within 72 hours of possible exposure. We have also used this regimen for the past 3 years in roughly 30 children and adolescents. This regimen mirrors the occupational exposure guidelines developed by the CDC for an exposure source with unknown HIV status.

The desire to potentially prevent a life-threatening disease with HIV PEP conflicts with a lack of efficacy and safety data. Although a national nonoccupational HIV postexposure prophylaxis registry has been established


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by the CDC\(^3\) (patients can be enrolled by phone \[877-HIV-1PEP\] or through the Internet \[www.hivpepregistry.org\]), it is unlikely that evidence-based guidelines for nonoccupational HIV PEP will become available soon. Therefore, a national consensus panel should develop preliminary recommendations for PID and PEM physicians in this confusing and evolving area of medical care. In the meantime, management strategies for HIV PEP, including issues such as HIV testing and follow-up arrangements, should be coordinated and formalized within institutions.

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