

ASHM Position Paper on Post-Exposure Prophylaxis (PEP) in Individuals Exposed to HIV via Sexual Exposure or Injecting Drug Use (IDU) -- APRIL 1998

BACKGROUND

Prevention of transmission of HIV is of major public health importance worldwide. In Australia National Strategies have highlighted and implemented Education and Prevention Programs based on behaviour modification¹. These have been highly successful with substantial reductions during the 1990s in newly diagnosed HIV infections, 85% of which have occurred following male to male sexual exposure. Safer sexual practice and safer injecting drug (ID) use behaviours amongst ID users have been assessed to be very effective strategies, contributing to a low prevalence (estimated <0.6 to 3% amongst heterosexual IDUs) and to a low incidence of newly diagnosed HIV infection in this population². Nevertheless, despite adoption of safer behaviours, inadvertent exposure to HIV does occur in a number of circumstances; sexually (broken condoms, sexual assault victim) or via injecting drug use³ or in the HealthCare setting (needle-stick injury).

The estimated probability of HIV transmission by HIV exposure is shown in Table 1.

Table 1. The estimated probability of HIV transmission by HIV exposure

Exposure	Estimated risk HIV	transmission per exposure	Reference
Receptive anal intercourse	0.008-0.032	1:125 to 1:31	4
Receptive vaginal intercourse	0.0005-0.0015	1:2000 to 1:667	5
Insertive anal or vaginal intercourse	0.0003-0.0009	1:3333 to 1:1111	6
Puncture of HCW by contaminated needle	0.0032	1:313	7
Use of contaminated injecting drug equipment	0.0067	1:149	8

These estimates are average estimates and factors such as amount of blood involved⁹, associated trauma, concurrent sexually transmitted diseases¹⁰ or ulcerative genital disease¹¹, the HIV RNA level of the infected individual¹² and chemokine receptor status of the recipient¹³ are all likely to influence the individual risk of HIV transmission following exposure.

Post exposure prophylaxis (PEP) using zidovudine has been reported as being effective for HealthCare workers with occupational exposure to HIV, reducing transmission by 79% (60% to 90%)¹⁴. Recommendations of authoritative bodies have made post-exposure prophylaxis with antiretroviral drugs the standard practice for HCW following parenteral exposure to HIV¹⁵. Maternal-foetal transmission is reduced by 69% by pre-natal maternal zidovudine therapy combined with six weeks of therapy in the infant¹⁶. In both these circumstances combination antiretroviral therapy has become the standard of practice¹⁷.

The long-term safety of the antiretroviral drugs used in these strategies is not known especially amongst non-HIV infected individuals. Significant problems with tolerability in the shorter term have been described for triple therapy; amongst HCW receiving PEP with zidovudine one third discontinued therapy because of intolerance¹⁸. In the pregnant women special risks may exist involving potential teratogenicity.

There are no data available which indicate that post exposure prophylaxis is effective in any situation other than those documented above. However it seems reasonable to postulate that it may be so. Katz and Gerberding proposed a comprehensive approach to the care of persons recently exposed to HIV¹⁹ and Kegebein et al²⁰ recently presented their experience with such a PEP project in San Francisco. There is no current formal placebo-controlled study to examine this issue and it is not likely that such a trial could be performed in individuals with inadvertent sexual or ID use exposure to HIV. In the absence of controlled data it seems reasonable to offer PEP in these settings provided both the practitioner and the patient are aware of the potential risks and that data are collected and reviewed to give some measure of the efficacy and toxicity of such interventions.

The potential benefit of preventing HIV infection needs to be balanced against the risk that widespread use of antiretroviral agents may result in increased selection of multi-drug resistant strains of HIV in the community. Thus cautious evaluation and stringent indications need be assured. Methods to monitor the outcome need be established.

RECOMMENDATIONS

Individuals with a known sexual or needle exposure to HIV be assessed as soon as practicable (preferably within 72 hours). The factors assessed should include those in Table 2.

Table 2. Factors to be considered in individuals with a known exposure to HIV

Factors associated with the exposed individual	<ul style="list-style-type: none"> • Details of Incident • Previous exposures to HIV, HBV, HCV • Previous courses PEP • Baseline HIV, HBV and HCV Status • Risk-reduction behaviours • Pregnancy risk and contraception plans • Understanding of risks and benefits PEP • Contributing factors in the exposure (eg alcohol)
Factors associated with the exposure	<ul style="list-style-type: none"> • Time since exposure • Exact type of exposure • Degree of trauma • Amount of blood or body fluid involved • Condom or other protective measure
Factors associated with the source individual	<ul style="list-style-type: none"> • Plasma HIV RNA • Current or prior antiretroviral therapy • Current or prior sexually transmitted diseases, hepatitis B or C

Following assessment all individuals with high-risk exposures should be offered PEP. Highest risk is defined as sexual exposure to HIV infected individual via insertive intercourse (without intact condom) or IDU exposure to HIV infected blood via injecting equipment where percutaneous exposure has occurred with a used hollow needle.

Post exposure prophylaxis should be as identical to the CDC recommended PEP following HCW parenteral blood exposure to HIV as possible but be modified as follows.

Exposure	Example	PEP*
Highest	Intercourse (anal or vaginal) without or with broken condom or reuse of needle/syringe from HIV infected individual (especially one with advanced disease or high viral load)	ZDV + 3TC + IND (NEL** may be alternative as third agent)
Increased	Semen onto broken mucosa # or blood splash onto non intact skin from used injecting equipment known to have contained blood from HIV infected individual with high HIV viral load	ZDV + 3TC
Low risk	Semen/blood onto oral mucosa# from HIV infected individual with low HIV viral load	Offer either ZDV (3TC or no therapy dependent on incident (source and quantity)
No risk	Semen/ other body fluids onto intact skin	No therapy

- * ZDV= zidovudine 200mg tid or 250mg bd, 3TC= lamivudine 150mg bd, IND= indinavir 800mg tid on empty stomach. Duration recommended is four weeks
- # Oral exposure to semen is a lower risk but HIV transmission has occurred in this setting
- ** Nelfinavir 750mg tid may be better tolerated as taken with food and diarrhea not renal crystalluria main side effect

Should the source individual be receiving antiretroviral therapy individual decisions on components of PEP should be made in the light of factors such as duration, past and current HIV RNA and resistance assays as available.

Monitoring. Complete blood count, renal and liver function test, CPK, BSL and lipid analysis should be performed. These should be repeated at least at the completion of four weeks. Baseline and follow-up HIV and antibody testing should be performed at 3-6 weeks, 3 months and 6 months.

Consideration should be given to the risk of and post exposure prophylaxis for hepatitis B virus (HBV). Follow-up appropriate to other exposures (other sexually transmitted diseases, tetanus or Hepatitis C virus) should be undertaken as indicated. Precautions to prevent secondary transmission should be advised. Assessment of physical and emotional responses as well as monitoring for toxicity should be performed as needed during this treatment phase. In the event of HIV transmission consideration should be given to ongoing antiretroviral therapy as recommended by primary HIV infection treatment protocols.

Costs

Recent studies have shown that strategies of PEP for HCW and zidovudine therapy for pregnant women are cost effective²¹. In the absence of data proving the efficacy of PEP following inadvertent sexual or needle exposure, assessment of such benefits can not easily be made. The cost of 4 weeks of triple therapy is approximately \$A800. Although some exposed individuals may well afford such therapy many may not be capable of doing so and mechanisms to provide such treatment should be established.

Caveats

Public Health strategies of universal safer sexual practices and safer needle use behaviour amongst injecting drug users remain the major strategy to reduce HIV transmission. Individuals at ongoing HIV exposure risk should be counseled to change behaviour. PEP should be used cautiously in settings of known exposure and data should be collected prospectively in order to provide evidence to guide future therapeutic strategies. The provision of PEP should be provided in the setting of practitioners experienced in the management of HIV infected individuals and be available in a timely manner (preferably within 2 to 4 hours of exposure). Thus identified General Practices, Emergency Services or Specialist Facilities need be designated to provide this service.

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