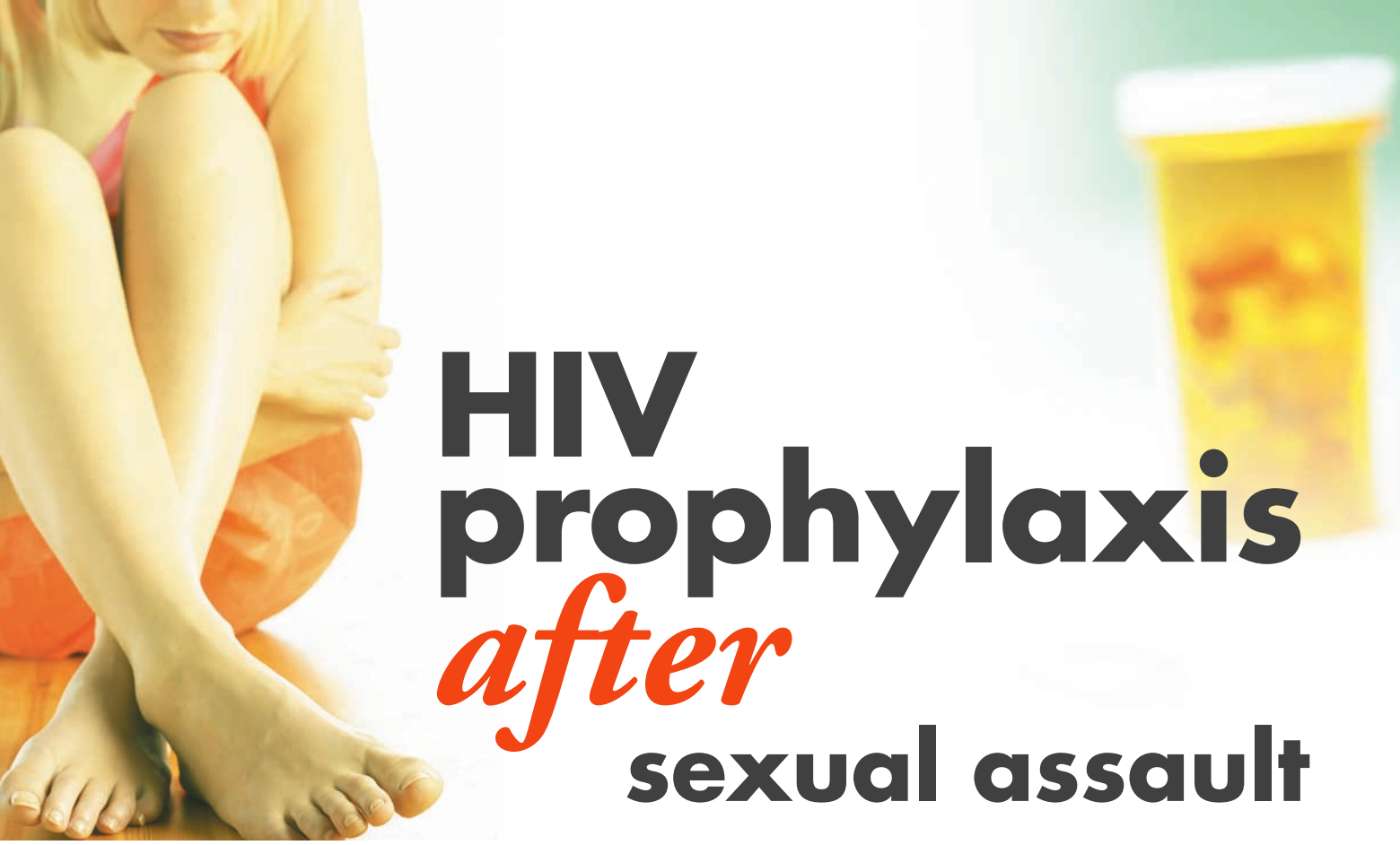

HIV prophylaxis *after* sexual assault

Dr. Mona Loutfy

Immediately following sexual assault, survivors deal with trauma and the numerous medical consequences of assault, including the possibility of contracting a sexually transmitted disease. The human immunodeficiency virus (HIV) is a sexually transmitted infection with potentially fatal consequences; however, with the relatively recent development of more effective antiretroviral medications, prophylactic treatment has become possible.

A new HIV care program, developed and piloted in Ontario, found that sexual assault survivors are receptive to HIV counseling and the offer of postexposure prophylaxis (PEP), which may protect against the development of the virus if their attacker is HIV positive. This approach represents a major advance in dealing with an issue that has been an ongoing challenge for those working in the field of sexual assault.

Although there is limited evidence that PEP for HIV can prevent seroconversion following unprotected sexual exposure, research published in other areas is of assistance in assessing the efficacy of PEP following sexual assault:

- *Animal studies* have shown that when macaques are given antiretroviral drugs, then infected with HIV intravenously or through genital secretions, the drugs can block HIV acquisition.
- *Mother-to-child transmission studies* have shown that providing antiretrovirals to an HIV-positive mother during pregnancy or to the baby immediately following birth prevents HIV infection in the child.
- *Occupational exposure and needle-stick injury studies* using antiretrovirals found that a group receiving azidothymidine (AZT) had a 79% reduction in HIV seroconversion following exposure compared with a control group who did not use AZT.
- In 1997 the *Centers for Disease Control and Prevention* (CDC) and the Department of Health and Social Services (DHSS) in the United States came out with PEP guidelines for occupational

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exposure that recommended a 3-drug regimen.

Due to increased use of antiretroviral therapy following occupational exposure, discussion naturally turned to the potential for PEP following unprotected sex or exposure from intravenous drug use. In 1998, the CDC and DHSS released guidelines as a result of an expert consensus conference stating that, despite a lack of data, antiretrovirals could possibly be recommended in non-occupational, high-risk situations. These guidelines were updated in January 2005.

Conducting any study on PEP following unprotected sex or sexual assault poses a number of ethical and methodological problems, which is why there is little information in this area.

Before the Ontario pilot study, the largest study in this area was conducted in Vancouver at the British Columbia Centre for Excellence in HIV/AIDS.[1] The centre has a program for occupational and non-occupational HIV exposure and provides PEP free of charge to high-risk sexual assault victims across the province. Data from this study were collected retrospectively. The centre used a 3-drug combination therapy following unprotected sexual intercourse if the individual was at high risk of HIV acquisition (e.g., the assailant or source was known to be HIV positive or was at high risk for HIV infection — a man who has sex with men, an intravenous drug user or someone from a country where HIV is endemic).

A key limitation of this study was that most sexual assault victims for whom data were collected did not return for follow-up; thus factors contributing to completion of the HIV PEP by these patients were not determined. Similar limitations were also found during evaluation of a study by the San Francisco Department of Public Health.[2]

Evidence that PEP prevents seroconversion following unprotected sexual exposure comes from a study in Brazil involving approximately 600 participants. Half the participants received antiretroviral prophylaxis within 72 hours following sexual assault. Participants who did not present within 72 hours of their assault were followed. Four cases of seroconversion were noted in those who presented more than 72 hours postexposure, but no cases were reported in those who were given prophylaxis within 72 hours of exposure — a statistically significant finding

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In Ontario, sexual assault treatment is coordinated through 34 sexual assault treatment centres (SATCs), which form a network to ensure that sexual assault care is standardized across the province. As a result of their need for an HIV PEP program, a project was funded by the Ontario Ministry of Health and Long-Term Care to evaluate the viability and sustainability of such a program.

Over the last 3 years, we have developed a universal HIV PEP program to provide HIV counseling and HIV risk assessment, to offer HIV PEP to those at risk of HIV acquisition and to follow and support those who accept the medications. Development of this program has included compiling and creating counseling documents that constitute a key element of the program.

Components of the HIV PEP program

- All clients receive counseling about potential HIV risks.
- All clients whose assault poses any risk of HIV infection (known or unknown) are offered prophylactic medication.
- Prophylaxis begins within 72 hours of exposure.
- Prophylaxis is prescribed for 28 days (twice daily: Combivir, 1 pill plus Kaletra, 3 capsules).
- An intensive schedule of 5 follow-up visits is arranged to help clients who choose the prophylactic drugs to cope with side effects and complete the medication course.

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The whole program was developed under the direction of an expert advisory board and sexual assault experts.

At the Ontario SATCs, all sexual assault victims are counseled about their potential risk of HIV exposure. Clients are assessed on a case-by-case basis and the factors that contribute to their HIV risk are discussed (e.g., HIV risk of the assailant; higher HIV risk from anal sex vs. vaginal sex; presence of other factors that increase HIV risk, such as trauma, bleeding and multiple assailants).

Clients who present within 72 hours following an assault and are assessed to be at risk of HIV acquisition (either high risk or unknown risk) are informed of the availability of HIV PEP medications and offered treatment. During the course of the study, HIV PEP was strongly recommended in high-risk cases.

All clients who accept HIV PEP are followed for 28 days. Unique to our study is the intensity of this follow-up schedule. After initial presentation, clients are seen at 5 follow-up visits (on day 2–4 and 1, 2, 3 and 4 weeks after the initial visit). The decision to take HIV PEP medications is reviewed at length during the day 2–4 visit.

We recommend HIV testing for all clients at baseline. If testing is not done then and the person becomes HIV positive later, it cannot be proved in court that the infection is due to the assault.

Three years ago, when we started the program, the drug regimen we chose was quite controversial: Combivir (a formulation of AZT and 3TC) at a dose of 1 pill twice daily and Kaletra (a formulation of lopinavir and ritonavir) at a dose of 3 pills twice a day. Although this was not standard, our panel of HIV experts agreed that it was the most potent and tolerable regimen. An ongoing challenge in HIV research is that advances in drug development are incredibly fast moving. Decisions contributing to a study's drug regimen are often obsolete by the time the study is completed and published.

Our study, including its drug regimen, is still valid today. In January 2005, the CDC and DHSS came out with new guidelines for the treatment of non-occupational HIV exposure and their recommendations included use of the Combivir–Kaletra combination. An advisory committee is being assembled to provide ongoing support to the HIV PEP program and it will be responsible for providing updated recommendations as new drugs emerge. Currently, 20 antiretroviral medications are available and, in a couple of years, we may be using a different drug regimen.

As expected, the most common side effects reported were headache and fatigue from the AZT and nausea and diarrhea from Kaletra. The side effects are not inconsequential and for those taking the medications they are understandably a big issue. During follow-up counseling sessions, we frequently suggested a number of over-the-counter drugs to assist in countering the side effects and advised that side effects typically lessen over time.

The HIV PEP study captured data on all sexual assault victims at the baseline visit and follow-up data on all those who accepted HIV PEP medications. There was some debate about whether to offer the drug regimen only to high-risk clients (as in British Columbia) or to those who were also at unknown risk of HIV acquisition. It was incredible that in the setting of sexual assault the number of people who accepted PEP and completed the treatment was equally high in the unknown- and high-risk groups.

Findings from this study have shed light on victim assessment of their own risk. Although we as physicians

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might think the risk of HIV exposure for a client assessed to be at high risk is much greater than for one at unknown risk, the clients in the "unknown" category were concerned enough to choose to take the antiretroviral medications. We will be recommending that the Ministry of Health and Long-Term Care fund HIV PEP for both high- and unknown-risk groups.

Although outcomes data from the study have been submitted for peer-reviewed publication, the reality is we are never going to be able to provide a definitive answer on whether this approach can prevent seroconversion. Our study was designed as a feasibility study, using completion rates as a surrogate marker.

There is no reason why physicians who do not have access to referral to a sexual assault program cannot initiate HIV PEP on their own. Advice about timing of prophylaxis is critical. Although other jurisdictions use times ranging from 48 to 96 hours after assault as the window for initiating PEP, we say that after 72 hours it's no longer PEP, but early treatment. This is a completely different scenario and the patient should be referred to an HIV expert.

Don't ask patients to think about PEP and come back the next day. Suggest the victim to take the first dose, take the next dose while they're thinking about it and, if they want to stop then, stop. The key is to start as soon as possible. Swift action in initiating PEP is crucial. Generally, sexual assault victims are young and healthy and do not have comorbidities. One or two doses of antiretrovirals will not make a difference; any family or emergency physician can be comfortable giving those first vital doses.

Drug interactions are probably the most important issue. Kaletra contains ritonavir, which causes increases in levels of many other drugs. Caution is necessary in patients taking selective serotonin reuptake inhibitors, psychotropic medications or narcotics. Kaletra also lowers the level of other medications, such as those that prevent seizures. However, as most of this population is not on any other drugs, you can often advise patients not to take these medications while taking the antiretrovirals.

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