Unexpected effects of PEP in Amsterdam

SIV (simian immunodeficiency virus) is related to HIV, and in susceptible monkeys SIV causes an AIDS-like condition. Experiments with monkeys have found that giving them anti-SIV drugs shortly after they are exposed to SIV greatly reduces their risk of becoming infected with that virus. This use of medicines shortly after exposure to a germ to prevent infection is called post-exposure prophylaxis (PEP).

Animal studies also suggest that PEP is most effective the sooner it is used after exposure, within a maximum of 72 hours post-exposure. PEP must be taken every day for four consecutive weeks to prevent HIV infection.

In most high-income countries, including Canada, PEP is freely available after a work-related exposure such as a needle-stick injury among health care workers. However, the use of PEP is not generally subsidized for accidental exposure because of consensual sex in Canada. Still, PEP combined with intensive counselling about risk behaviour may be a useful way of helping to limit the spread of HIV among sexually active people who are at high risk for HIV infection, particularly men who have sex with men (MSM).

Researchers in Amsterdam have been studying two groups of men, as follows:

- MSM who have received PEP because of possible exposure to HIV arising from consensual sex
- MSM who did not receive PEP but were being monitored to assess changes in their HIV infection status over time

Over the past decade, the Dutch researchers found that the rate of HIV infection among MSM generally increased. However, the rate of HIV infection among PEP users was significantly greater. This latter finding, together with disclosure of behaviours by participants, suggests that PEP users in Amsterdam continued to engage in unprotected anal intercourse after their course of PEP was complete. The results of the Dutch study demonstrate the need for more intensive counselling for MSM who use PEP to help protect them from HIV infection.

Study details

Men who sought PEP were first tested for HIV and, if negative, were prescribed a 28-day course of anti-HIV medicines. These men were also retested for HIV three and six months after their first HIV test within the study.

Whenever possible, doctors prescribed simple and tolerable combinations of drugs for PEP. As the study lasted for about a decade, the medicines used in PEP changed over the course of time as new drugs were approved for use.

Simultaneously with the PEP study, the research team was also conducting the Amsterdam Cohort Study (ACS). As part of the ACS, MSM not part of the PEP study were enrolled; they were monitored and regularly tested for HIV. The ACS took place over the same period as the PEP study. The findings of the ACS were used as a point of reference for estimating risks of HIV infection and assessing risk behaviours in other studies, such as the PEP study.

Results—PEP prescriptions

During the decade-long Dutch study there were 395 prescriptions for PEP that arose from possible sexual exposure to HIV among MSM in Amsterdam. A total of 355 men received one prescription for a 28-day course of PEP. The remaining MSM received between two and four prescriptions for PEP.

Prescriptions for PEP were distributed as follows:

- 61% of cases were exposed via unprotected receptive anal intercourse
- 37% of cases disclosed that exposure occurred with a sex partner known to be HIV positive
Most PEP users (86%) reported side effects. However, researchers stated that “the vast majority [94%] completed their PEP course.”

**HIV infections**

The Dutch PEP study was observational in nature and was not designed to, nor can it, assess the effectiveness of PEP. However, it seems that PEP was generally effective. A total of 11 men became HIV positive during the PEP study. These men were initially HIV negative but became HIV positive between three and six months after having used PEP. Moreover, most of these men disclosed that they had engaged in high-risk sexual behaviour after completing their course of PEP. Also, assessment of HIV among the 11 men who become HIV positive found that their virus was not resistant to treatment, which would have been likely had PEP failed to protect them.

Among 782 participants in ACS, the risk of HIV infection was about four times less.

When researchers examined specific periods of time over the course of their studies, they found that rates of new infections were similar in both groups of MSM around the year 2000 but by 2009, rates of infection had significantly diverged, increasing among the men given PEP.

Studies in Australia among MSM have found broadly similar trends, with more cases of HIV occurring in the recent era, particularly among PEP users.

The Dutch researchers found that some MSM requesting PEP presumed that they were HIV negative but rapid testing revealed that they were in fact HIV positive. This finding suggests that they had been infected prior to their most recent episode of unprotected sex. This underscores the need for sexually active adults to get frequent HIV tests if they are having unprotected intercourse.

The trend of increasing HIV infections in both the ACS and the PEP study indicates that high-risk behaviours are continuing in the present era when ART is widely available and that simply prescribing PEP to people is not sufficient to halt the spread of HIV over the long term.

**What is to be done?**

The Dutch researchers call for “a combination of more comprehensive preventive strategies,” including counselling, for MSM who engage in unprotected intercourse. In another study where men who were exposed to HIV were given counselling and PEP, 77% of participants reported a decline in unprotected sex after counselling.

The men in the present study who engaged in unprotected intercourse may also be good candidates for pre-exposure prophylaxis (PrEP) should this intervention become available.

— Sean R. Hosein

**REFERENCES:**

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