The Big News From the 2016 International AIDS Conference

A roundup of the major presentations on HIV science at the international conference held July 22 to 28 highlights many exciting developments.

August 1, 2016 By Benjamin Ryan

The 21st International AIDS Conference in Durban, South Africa (AIDS 2016), held July 18 to 22, featured numerous pivotal presentations on HIV science. Conference goers absorbed cutting-edge information about antiretrovirals (ARVs), including treatment for the virus, treatment as prevention (TasP) and pre-exposure prophylaxis (PrEP), as well as the effort to test and treat the global HIV population, HIV among women, and the search for a vaccine and a cure.

Below is a recap of the major scientific findings presented at the conference. To read more about any of these studies, click the hyperlinks. To see a newsfeed of all AIDS 2016 reporting from POZ, click here or on the #AIDS2016 hashtag at the bottom of any article, including this one.

Vaccine:

Following a pilot study's promising findings of an HIV vaccine's ability to spur the immune system, researchers intend to begin enrolling participants into the Phase IIb/III HVTN 702 vaccine trial in southern Africa this fall. This will be the seventh major HIV vaccine efficacy trial. The vaccine under investigation is a retooled version of the one that in 2009 showed some success in preventing HIV among Thai participants.

Long-Acting HIV Treatment:

A long-acting injectable version of the ARVs cabotegravir and Edurant (rilpivirine), dosed every four weeks, will enter Phase III trials during the latter half of 2016, with initial results coming two years later. The Phase IIb LATTE-2 trial tested injections of the treatment given every four and eight weeks and found that the more frequent dosing schedule suppressed HIV more effectively.

Treatment as Prevention (TasP):

Three major studies underlined the considerable power of HIV treatment to prevent the spread of the virus, adding greater scientific heft to the notion that it may in fact be impossible to transmit

HIV with a fully suppressed viral load.

In 2011, interim results from the HPTN 052 trial found that starting HIV treatment early rather than delaying was associated with a 96 percent reduced risk of transmission among mixed-HIV-status heterosexual couples. Now, final results from the study have showed that there were no transmissions within couples when the HIV-positive member was on ARVs and had a fully suppressed virus.

Interim results from the PARTNER study, which included both heterosexual and male-male mixed-HIV-status couples, also found no transmissions between partners when the virus was fully suppressed.

Also, the Partners PrEP study examined the effect of providing mixed-HIV-status heterosexual couples Truvada (tenofovir/emtricitabine) as pre-exposure prophylaxis (PrEP) for the HIV-negative partner as a "bridge" to the HIV-positive partner being on ARVs for at least six months. This protocol slashed HIV risk by 95 percent.

PrEP:

Gilead Sciences, manufacturer of Truvada, conducted an analysis of data from 80 percent of U.S. retail pharmacies and found that nearly 80,000 people had filled at least one prescription for the drug's use as PrEP between January 2012 and December 2015. (If all sources of PrEP prescriptions could be accounted for, this number would likely be quite a bit greater.) Between the fourth quarters of 2012 and 2015, quarterly new PrEP prescriptions rose 738 percent, from 1,671 to 14,000, largely among men. This upward trend shows no signs of abating.

The IPERGAY study of an intercourse-based PrEP dosing protocol among men who have sex with men (MSM) in France and Canada found that the participants used condoms less frequently after they shifted from the trial's placebo-controlled phase to its open-label portion in which everyone knew they were receiving Truvada. Despite such a shift in sexual risk taking, the men's HIV rate was low during the open-label phase. The study's researchers believe they now have enough evidence to support the notion that the dosing protocol itself was indeed responsible for reducing the risk of HIV among the men, rather than the mere fact that men were on average taking Truvada about four times a week. (Previous research has shown that taking Truvada that often offers maximum protection.)

Researchers found that teenagers given PrEP may need monthly monitoring to adhere well to a daily Truvada regimen. (PrEP is not currently approved for minors in the United States, and current guidelines stipulate monitoring every three months.) A separate study found that Truvada-related bone loss is reversible after young men stop PrEP and that the drug was not associated with fractures during the study's follow-up period.

Another study found that among black MSM receiving PrEP, men were more likely to adhere to the regimen if they were older than 25, had more than a two-year advanced degree, did not use

multiple medications that they were not prescribed and had a primary partner.

Women:

A follow-up of the previously reported MTN-020/ASPIRE study of an ARV-containing vaginal ring found that HIV-negative women who used the monthly ring well had a 56 percent reduced risk of contracting the virus compared with women receiving a placebo ring. Those who used the ring at the highest level cut their HIV risk by 75 percent or greater.

Two studies provided excellent news regarding the prevention of mother-to-child transmission of HIV. A nationally representative study found that just 4 percent of children born to HIV-positive women in South Africa contracted the virus by 18 months of age. Another trial found that HIV treatment could practically halt the transmission of HIV through breast feeding.

A collection of three studies provided new insight into why HIV rates among young women in South Africa are so high. In one study, researchers found that HIV transmission among adolescent girls and young women is driven by their sexual relations with men who are an average of eight years older. Two other studies suggest that particular bacteria in women's vaginas may facilitate transmission.

Cure:

Researchers have developed a consortium to help develop and study stem-cell transplant cures for HIV that would replicate the success of the pair of such transplants that cured the famed Berlin Patient while also treating his leukemia. They already have a few transplant recipients who, while still taking HIV treatment, show very small amounts of the virus in their viral reservoirs. These individuals would need to stop taking ARVs for researchers to determine whether they may have been cured of the virus.

A study found that treating HIV within 15 days of infection prevented the development of antibodies to the virus among a group of South African women. Such early treatment also preserved their immune function. The study's ethics committee believes the women should remain on treatment for two to three years before researchers may discuss with the participants the possibility of taking them off treatment to see whether the virus rebounds.

On the subject of viral rebound after a treatment interruption, an experimental treatment with the HDAC inhibitor (a kind of cancer drug) vorinostat, the immunosuppressant hydroxychloroquine and the ARV Selzentry (maraviroc) had no effect on viral rebound after an HIV treatment interruption.

90-90-90:

The Joint United Nations Programme on HIV/AIDS (UNAIDS) has called for, by 2020, getting 90 percent of the world's HIV population diagnosed, 90 percent of that group on treatment for the virus, and 90 percent of that group virally suppressed. Achieving the 90-90-90 targets would mean

that, of all people living with the virus, 90 percent would know their status, 81 percent would be treated and 73 percent would be virally suppressed.

Research suggests that nations are advancing toward these targets, with 17 million people on treatment in 2015. One intervention in particular has surpassed the targets in certain rural Ugandan and Kenyan communities. But UNAIDS executive director Michel Sidibé raised serious concerns at AIDS 2016 that a retreat of major donor commitments from paying for HIV care and treatment worldwide could stymie such progress.

An analysis of spending by the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) found that foreign aid dollars go disproportionately to epidemics more generalized across a national population than to those concentrated among MSM or injection drug users (IDUs).

In another wrinkle, the first major study of the public-health effects of programs to aggressively test and treat HIV found that, in South African communities receiving such an intervention, providing immediate treatment rather than following national guidelines was not associated with any difference in the rate of new HIV cases.

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