Thursday 6 March

Contents

Monthly pre-exposure prophylaxis

Chasity Andrews, from the Aaron Diamond Research Institute in New York, and Gerardo-Garcia-Lerma, from the Centers for Disease Control in Atlanta, presenting at CROI 2014. Photo by Liz Highleyman, hivandhepatitis.com.

Injectable pre-exposure prophylaxis (PrEP) could be possible, new research involving monkeys suggests.

Two separate studies showed that injecting the investigational integrase inhibitor GSK744LA provided long-lasting protection against HIV.

In one study, a single dose was protective for an average of eight weeks. Results of a second study showed that none of the monkeys given the drug became infected when exposed to SHIV (a virus that mimics the course of HIV infection in monkeys), and drug levels remained at potentially protective levels up to five weeks after the last injection. On the basis of these results, investigators suggested that monthly injections with the product could be enough to protect against infection with HIV.

The first human studies assessing the efficacy of injected GSK744LA as PrEP for humans will start this year.

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HIV rates among young black MSM in the US

Over 12% of young black men who have sex with men (MSM) acquire HIV each year, research conducted in Atlanta, Georgia shows.

This rate of new infections is comparable to that seen in the worst HIV epidemics in resource-limited settings.

The research involved 562 black and white MSM aged between 18 and 39 years who were HIV negative at the start of the study, and their risk of acquiring HIV was monitored over two years.

Overall, 6.6% of black men were newly diagnosed with HIV compared to 1.7% of white men.

Among black men, HIV incidence was especially high among those aged 25 and younger – 12%. The corresponding incidence in young white men was 1.0%.

The researchers calculated that this incidence rate meant that a black MSM who became sexually active at 18 had a 60% chance of acquiring HIV by the age of 30.

Explanations for the high rate among young black men included having sexual partners exclusively from the black community, lack of health insurance and a high rate of incarceration.

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Maternal deaths in South Africa

Rates of mother-to-child transmission of HIV have fallen in South Africa, but this has not been accompanied by improvements in maternal mortality, a study conducted at a hospital in Johannesburg shows.

The investigators analysed data collected over 15 years. Between 1997 and 2012, the hospital delivered between 17,000 and 23,000 babies each year.

Approximately 23% of women giving birth at the hospital in 2012 were HIV positive; this compared to a peak of almost 31% in 2004.

A total of 589 deaths in mothers who had recently given birth were identified during the study period. Over a third of deaths were not pregnancy related. The proportion of women who died who were HIV positive increased from 54% in 2003-08 to 66% in 2011-12, far in excess of the local HIV prevalence.

The audit found that there had been no change in the proportion of maternal deaths caused by HIV since 2007, and over three-quarters of women with HIV who died had never started antiretroviral therapy.

Most of the deaths (54% in 2011-12) among mothers with HIV were not pregnancy related, with respiratory infections and tuberculosis (TB) being common causes. Haemorrhage and sepsis were the most common pregnancy-related causes.

The proportion of women tested for HIV increased over the study period from 54 to 66%, but this level of screening was still well below the level needed to eliminate vertical transmission of HIV (transmission from mother to child).

The rate of vertical transmission declined from 7 to 1.5%, but there was little improvement in the proportion of women taking HIV therapy – only 23% in 2011-12.

Three-quarters of the women who died had a CD4 count below 200 cells/mm^3. HIV-related deaths appear to have remained high because of lack of engagement in care and lack of treatment.

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Try our tool for women living with HIV in the UK who are pregnant or planning a pregnancy

HIV treatment – first-line ART

François Raffi of University Hospital in Nantes, France, presenting at CROI 2014. Photo by Liz Highleyman, hivandhepatitis.com.

HIV treatment guidelines have historically recommended combination antiretroviral therapy (ART) consisting of a pair of nucleoside/nucleotide reverse transcriptase inhibitors (NRTIs) plus a third drug from a different class, such as a non-nucleoside reverse transcriptase inhibitor (NNRTI) or protease inhibitor.

NRTIs cause side-effects and toxicities in some patients, however, and the advent of novel antiretroviral classes allows more flexibility to create NRTI-free regimens.

A study reported at the conference has shown that an NRTI-sparing regimen of raltegravir (*Isentress*) plus boosted darunavir (*Prezista*) worked as well as antiretroviral therapy containing the NRTIs tenofovir and FTC (the drugs in *Truvada*) in people starting HIV treatment for the first time.

The trial, conducted in 15 countries in Europe, involved 805 people living with HIV, who had not previously taken HIV treatment. Participants were randomly assigned to either take 400mg raltegravir twice daily or *Truvada* once daily, both with ritonavir-boosted darunavir. They were followed-up for 96 weeks.

The researchers defined criteria for treatment failure, to include having to change treatment because of insufficient response before week 32 and viral load going above 50 copies/ml after week 32. At 96 weeks, by these criteria, raltegravir was shown to be non-inferior to *Truvada*. The probability for meeting one of these criteria was 17% for raltegravir and 14% for *Truvada*, but this difference was not statistically significant.

Based on their findings, the researchers concluded that raltegravir plus darunavir/ritonavir “represents an alternative option” to tenofovir/FTC plus darunavir/ritonavir.

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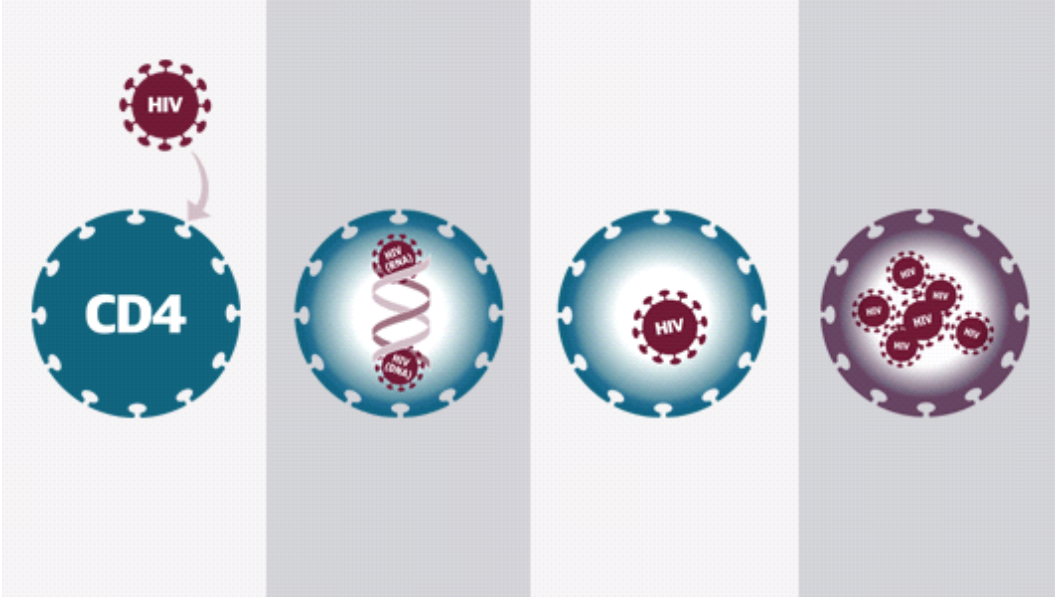
HIV treatment – new drug class



Detail from the NAM leaflet *How treatment works*, showing different stages of the HIV lifecycle targeted by antiretroviral drugs. See www.aidsmap.com/thebasics

HIV treatment combines drugs from different classes, that interfere with different steps of the viral lifecycle, but no existing drugs target the very first step – the initial attachment of the virus to a vulnerable host cell.

The conference heard that combination therapy using a novel HIV attachment inhibitor demonstrated good safety and effectiveness, offering the promise of a new antiretroviral class that may be particularly beneficial for people with extensive resistance to current drugs.

A multi-national trial evaluating the safety and efficacy of the attachment inhibitor currently known as BMS-663068 involved 253 treatment-experienced people. Participants had a mean CD4 cell count of around 230 cells/mm^3 and many had experienced treatment failure with first- or second-line HIV treatment.

About half the participants had HIV with at least one major resistance mutation, but to be included in the study they had to have HIV that was still sensitive to raltegravir (*Isentress*), tenofovir (*Viread*, also in some co-formulations) and atazanavir (*Reyataz*).

Participants were randomised to five groups, four groups taking different doses of the trial drug and one control group taking atazanavir boosted with ritonavir. All groups also took raltegravir and tenofovir.

At week 24, all dosing groups had similar results: 80% of people taking 400mg twice daily, 69% taking 800mg twice daily, 77% taking 600mg once daily and 72% taking 1200mg twice daily had a viral load below 50 copies/ml, compared with 75% in the atazanavir control arm.

BMS-663068 was generally well tolerated at all doses and there were no signals of safety issues.

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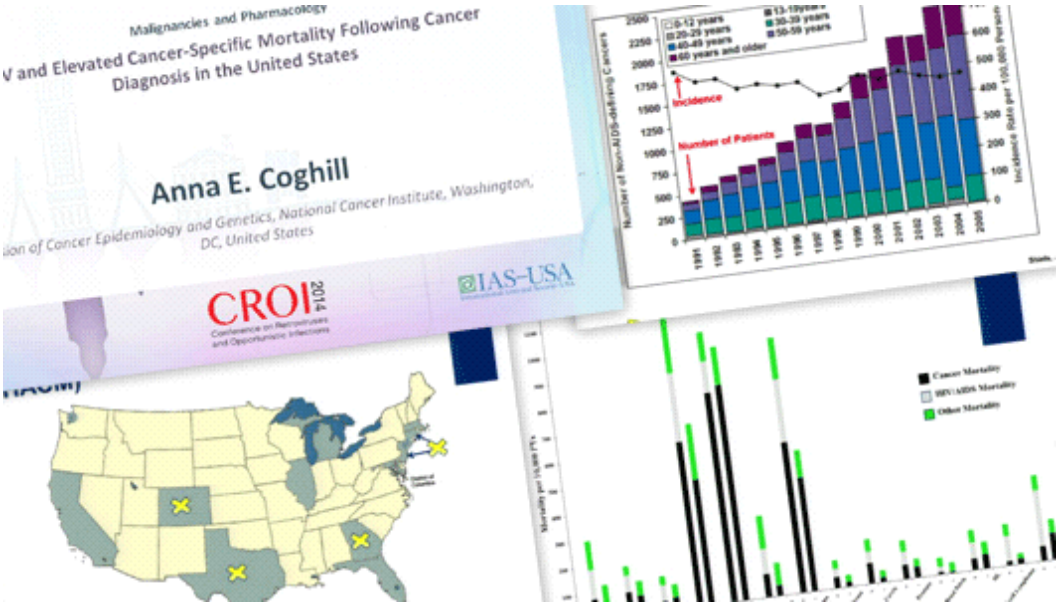
Cancer outcomes



Slides from the presentation by Anna Coghill, of the US National Cancer Institute, delivered at CROI 2014.

Cancer-related mortality is higher in people living with HIV compared to HIV-negative individuals, new US research shows.

The investigators are uncertain of the reasons, but believe differences in care and an HIV-related effect may be causes.

Many people living with HIV now have a normal life expectancy. But previous research has found that rates of some non-AIDS-related cancers are higher in people with HIV compared to the general population.

Now researchers wanted to see if HIV had an impact on survival after cancer diagnosis.

They therefore compared survival rates between HIV-positive and HIV-negative people after diagnosis with 14 common cancers: oropharyngeal, colon and rectum, anus, liver, pancreas, larynx, lung, melanoma, breast, cervix, prostate, kidney & pelvis, Hodgkin lymphoma and diffuse B-cell lymphoma.

Mortality rates were elevated among people living with HIV who were diagnosed with nine of these malignancies. For breast cancer, the risk was elevated 270%; the risk was increased by 80% for prostate cancer and by 25% for lung cancer.

But why? Inadequate cancer screening and lower rates of referral for treatment may explain the differences. Delegates also speculated that poorer responses to chemotherapy and dropping out of HIV care could be possible causes.

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