TRANSLATING SCIENCE TO END HIV IN SOUTHERN AFRICA

AIDS 2018 POST-CONFERENCE SYMPOSIUM

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Novel HIV Prevention Methods for Women

Vaginal rings, long-acting injectables, antibody-mediated prevention and implants

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Towards 2030
Ending the Epidemic

• To date, significant progress towards ending the AIDS epidemic by 2030 has been made.
• Globally, number of people accessing treatment almost tripled from 2010 to June 2017:
  – From 7.7 million people on treatment to 20.9 million
• New HIV infections declined by 18%, from 2.2 million in 2010 to 1.8 million in 2016.

• Progress is slow
• However, 15.8 million people are still in need of treatment.
• To reach the target of 200 000 new infections by 2030 HIV prevention efforts must be significantly stepped up.

East and Southern Africa (2017)

19.6m people living with HIV
6.8% adult HIV prevalence (ages 15-49)
800,000 new HIV infections
380,000 AIDS-related deaths
66% adults on antiretroviral treatment*
59% children on antiretroviral treatment*

*All adults/children living with HIV

Source: UNAIDS Data 2018

Number of people newly infected with HIV

Source: UNAIDS/WHO estimates

www.iasociety.org
Oral PrEP Adherence and uptake

Adherence: Oral PrEP works when taken

Initiations: Zimbabwe

By the end of 2017, a total of 3,073 clients were initiated on PrEP in Zimbabwe.

PrEP Initiations by Country, April 2019

Source: Implementation plan for HIV PrEP in Zimbabwe

Figure 6: Clients initiated on Oral PrEP in Zimbabwe by Category, August 2016-August 2017

Choice: What women want

Long-acting agents
Various forms and formulations:
- Long-acting injectables
- Implants
- Vaginal rings
- Monoclonal antibodies

Stated product formulation preferences for HIV pre-exposure prophylaxis among women in the VOICE-D (MTN-003D) study

Ellen H Luecke, Helen Cheng, Kubashni Woebber, Teopista Nakyanzi, Imelda C Mudukutire-Mahaka and Ariane van der Straten on behalf of the MTN-003D Study Team

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Dapivirine Vaginal Ring for HIV Prevention

- **ASPIRE/MTN-020 and IPM 027/Ring**: multicenter, randomized, double-blind phase III trials of dapivirine ring PrEP vs placebo for HIV-negative women in sub-Saharan Africa
  - Adherence was lowest in women aged 21 yrs or younger
- **Women who participated in the Phase III trials** were offered open access to the dapivirine vaginal ring.
- **HOPE and DREAM programs** implemented open-label extension dapivirine ring studies.
- These studies have shown **increased adherence and sustained the safety profile**.
- Comparisons of HIV-1 incidence using statistical modelling suggested **HIV-1 risk was reduced by > 54%** in both open-label studies. 63% - DREAM

Long acting injectables: Pros and cons

Advantages

- Injection every 1-3 months could address adherence issues

- Different drug, not used heavily for treatment → less concern for resistance/cross-resistance

Disadvantages

- Cannot be removed once given → prolonged side effects

- Long pharmacologic tail after last injection (up to 48 weeks) → safety and resistance if becomes HIV+
HPTN-084

- 3,200 women
- 18 – 45 years
- HIV negative
- Sexually active,
- VOICE score >3
- In general good health per clinical and laboratory assessments
- Willing to undergo all study procedures
- 20 research sites in 7 countries in Sub-Saharan Africa
- Zimbabwe has enrolled 512/3200 – 19 June 2019
HPTN-084 Sites

Sub-Saharan Africa

Botswana (1) • Eswatini (1) • Kenya (1) • Malawi (2) • South Africa (7) • Uganda (3) • Zimbabwe (5)
Neutralizing Antibodies
Preventing HIV Infection

An example of a neutralising antibody is VRC01
Passive Antibody Protection
Phase IIb Efficacy Studies

AMP = Antibody Mediated Prevention

Can a passively infused monoclonal antibody prevent HIV-1 infection in high risk adults:
MSM in Americas & Heterosexual Women in sub-Saharan Africa?

Two harmonized cohorts:
2,700 MSM + TG in North & South America, Switzerland
1,900 Heterosexual women in sub-Saharan Africa
Both trials opened in April/May 2016
The AMP Studies

• Placebo controlled trial of VRC01 mAb (IV), given on q2 month schedule
• Two cohorts:
  - 2,700 MSM + TG in North & South America
  - 1,900 Women in sub-Saharan Africa
• Powered to detect 60% efficacy; and to associate VRC01 plasma level with protection
• Both trials fully enrolled
• Retention and adherence - excellent
A specific example from HVTN 130/HPTN 089

Thanks to Lisa Donohue for these images.
Multiple antibody neutralization against HIV

Thanks to Lisa Donohue for this video.
Subcutaneous PrEP Implants

- Many strategies
- Simple insertion AND removal
- Long-acting (months to years)
- PrEP + contraception?
- Current development:
  - TAF, EFdA (MK-8591), Cabotegravitir

Summary

• Exciting new long-acting HIV prevention options in the field and in development.
• Injectable PrEP has been safe and tolerable. ISRs are common but mild.
• CAB can be detected in some people for >1 year after last injection.
• Covering the long “tail” will be important for implementation.
• Use of antibodies in for HIV prevention is a promising new approach.
• Research in combination mAbs which will have a higher coverage and potency to prevent HIV underway.
• PrEP implants are on the horizon.
Thank you!