HIV PEP

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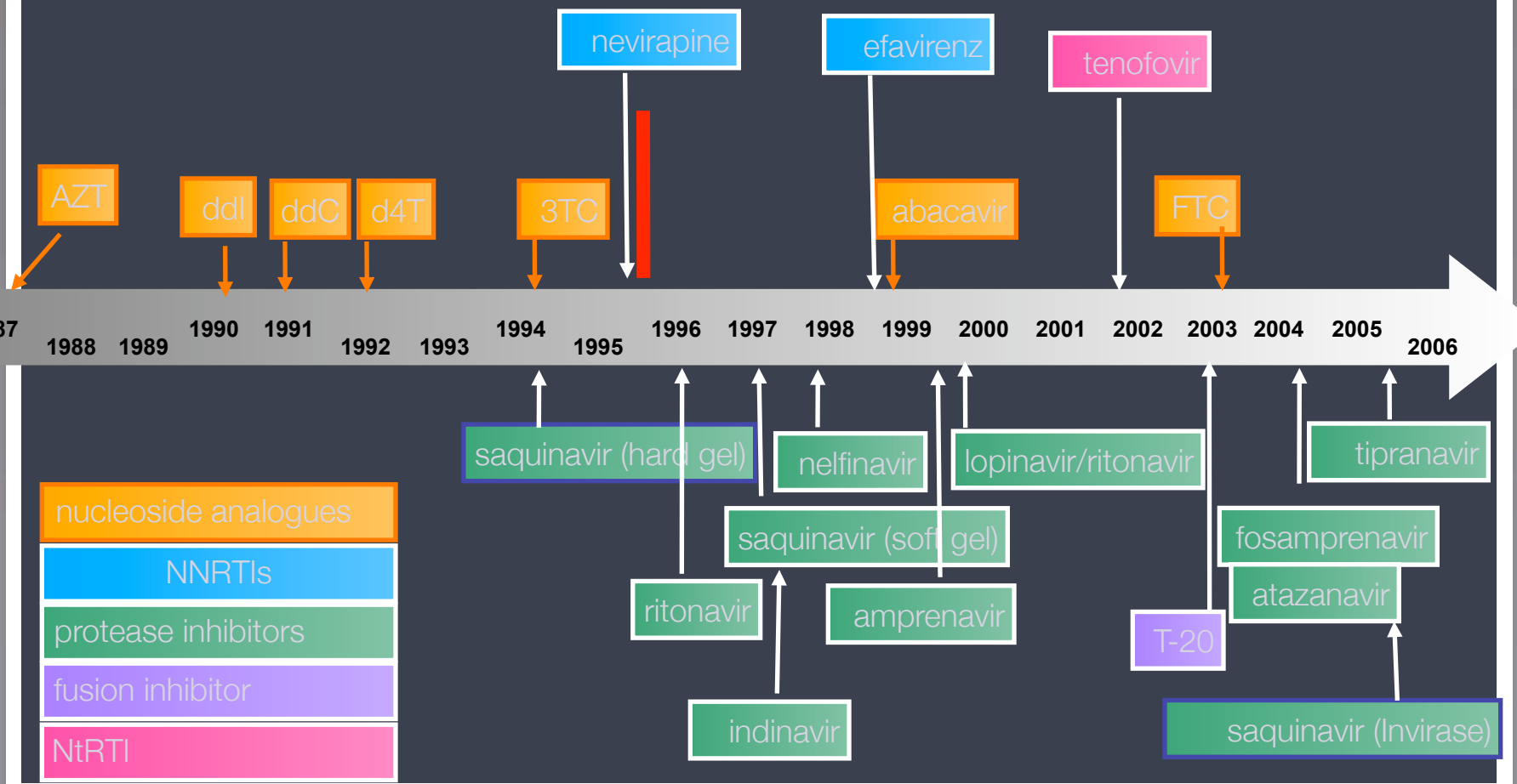
Programme

- Risks for transmission
- Evidence base for PEP
- Counselling considerations
- Scenarios

Licensed Antiretroviral Drugs



What are the risks of transmission?

- Needlestick injury 0.3%
- Mucous membrane exposure 0.1%
- Many factors: type of needle, needle in vein/artery or im, viral load of SP, depth of wound, volume of blood, probably viral and host factors too

Evidence for PEP for occupational exposure?

- No randomised controlled trials
- Single case control study provides only direct human evidence of benefit
- Indirect evidence from:
- Animal studies
- Reducing mother-child transmission

Animal studies

Journal of Acquired Immune Deficiency Syndromes
3:591–600 © 1990 Raven Press, Ltd., New York

Interferon-α and 3′-Azido-3′-deoxythymidine Are Highly Synergistic in Mice and Prevent Viremia After Acute Retrovirus Exposure

- Rauscher murine leukaemia virus model (retrovirus)
- AZT alone or with IFN-a reduces risk of acquisition when given 4hrs post-viral challenge

Monkey models early 90's

- Number of studies looking at Azt +/- interferon with variable but at most, modest protection against SIV
- May be due to overwhelming infectious doses used

JOURNAL OF VIROLOGY, May 1998, p. 4265–4273
0022-538X/98/$04.00+0

Vol. 72, No. 5

Effectiveness of Postinoculation (*R*)-9-(2-Phosphonylmethoxypropyl) Adenine Treatment for Prevention of Persistent Simian Immunodeficiency Virus SIV_{mne} Infection Depends Critically on Timing of Initiation and Duration of Treatment

- 24 macaques iv SIV
- 4 controls (sc saline)
- Tx 24, 48 or 72 hrs post-exposure with TFV for 28 days
- 2 more gps tx at 24 hrs for 3 or 10 days

Results

- All 4 controls infected
- None of 24hr gp tx for 28 days infected
- Half tx for 10/7 and none for 3 days protected
- Commencing PEP 48 or 72 hrs post-exposure (28/7 tx) gave gradually less protection than starting at 24hrs

JOURNAL OF VIROLOGY, Oct. 2000, p. 9771–9775
0022-538X/00/$04.00+0

Vol. 74, No. 20

Efficacy of Postexposure Prophylaxis after Intravaginal Exposure of Pig-Tailed Macaques to a Human-Derived Retrovirus (Human Immunodeficiency Virus Type 2)

- 16 macaques exposed to HIV-2 intravaginally (4 x 4, 1 control gp)
- TFV PEP given for 28/7 starting 12, 36 or 72 hrs later
- 3/4 controls infected
- 12 and 36 hr gps, fully protected
- 72 hr gp, 1/3 infected

Human studies

The New England Journal of Medicine

VOLUME 337 NOVEMBER 20, 1997 NUMBER 21

A CASE–CONTROL STUDY OF HIV SEROCONVERSION IN HEALTH CARE WORKERS AFTER PERCUTANEOUS EXPOSURE

- Cases - National surveillance systems UK, France, Italy, US (n=33)
- Controls - prospective surveillance project of HCW exposed to HIV but no sero-conversion (n=665)

Results - risk factors for seroconversion

- Deep injury (OR 15 (6-41))
- Injury with device visibly contaminated with SPs blood (OR 6.2 (2.2-21))
- Needle placed in SPs artery/vein (OR 4.3 (1.7-12))
- SP died within 2/12 of AIDS (OR 5.6 (2-16))
- Case pt < likely to have taken AZT PEP (OR 0.19 (0.06 - 0.52))

MTCT studies

ORIGINAL ARTICLE

Volume 331:1173-1180 November 3, 1994 Number 18 Next ▸

Reduction of Maternal-Infant Transmission of Human Immunodeficiency Virus Type 1 with Zidovudine Treatment

Edward M. Connor, Rhoda S. Sperling, Richard Gelber, Pavel Kiselev, Gwendolyn Scott, Mary Jo O'Sullivan, Russell VanDyke, Mohammed Bey, William Shearer, Robert L. Jacobson, Eleanor Jimenez, Edward O'Neill, Brigitte Bazin, Jean-Francois Delfraissy, Mary Culnane, Robert Coombs, Mary Elkins, Jack Moye, Pamela Stratton, James Balsley, for The Pediatric AIDS Clinical Trials Group Protocol 076 Study Group

- 409 HIV+ve women not on ARV
- 415 live births
- Double-blinded and randomised to AZT or placebo from 2nd trimester
- Neonates given 6/52 AZT if mum had AZT
- 67.5% reduction in risk if given AZT (25.5-8.3%)
- <50% explainable by reduction in maternal VL

The New England
Journal of Medicine

VOLUME 339 NOVEMBER 12, 1998 NUMBER 20

ABBREVIATED REGIMENS OF ZIDOVUDINE PROPHYLAXIS AND PERINATAL TRANSMISSION OF THE HUMAN IMMUNODEFICIENCY VIRUS

- 939 HIV-exposed infants (NY) - mum didn't get ACTG 076 regimen of AZT:

No AZT - 26.6% transmission

AZT neonate within 48 hrs 9.3%

Day 3 or later 18.4%

Evidence for PEP?

- Evidence from animal models that is possible to prevent retrovirus infections with AZT or TFV PEP
- Evidence from MTCT studies that ‘PEP’ to neonate reduces risk of transmission
- Evidence from 1 case control study that AZT PEP reduces transmission by 80%
- No evidence for combination PEP

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- Explain that taking PEP will prob reduce chance of acquisition by about 80-90%

Counselling HCW

- Needs to be taken for 28 days + reg
- Side effects of regime:
  - Truvada -1% risk renal toxicity (reversible) nausea,
  - kaletra- nausea, diarrhoea
- Will be given maxolon + imodium to counteract
- If still can't tolerate, change regime

Counselling HCW

- Be clear to check concomitant medication and check interactions
- Pregnancy (not contraindication)
- Advice about protected sexual intercourse until -ve test at 6/12
- Start asap
- If source pt not known +ve but suspected, needs rapid same day test

Counselling HCW

- Rapid same day test for all consenting SPs (taxi sample and phone virology lab)
- Remember, cannot test SP who lacks capacity unless in THEIR best interest (human tissue act sep 2006)
- If SP from high prevalence part of world, gay man, IVDU, sex worker, has evidence of other BBV infection, consider as HIV+ve until tested

Key messages

- Tried to keep it simple
- Start PEP asap
- If SP has risk factors for HIV, consider +ve
- Test all SPs in real time if consent given
- Refer to local service (at NMGH ID consultant or registrar)

Importance of resistance

- 7-16% of antiretroviral-naïve pts have evidence of resistance to 1 or more antiretrovirals
- If SP on HAART or has previously received HAART, will need to consider alternate PEP regimen

Follow-up

- Need open access if not tolerating PEP as may need to be changed
- Review at about 2 weeks and check FBC/U+E/LFT
- F/U by OH at 6/52 and 3 + 6/12 for HIV Ab test

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- **What PEP do you put her on?**

Scenario 2

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- **How would you manage him?**

Questions

Significant exposure

- Percutaneous injury, or contact of mucous membrane OR non-intact skin:
  - Blood, or blood stained body fluid
  - CSF, synovial fluid, pleural or peritoneal fluid, pericardial and amniotic fluid
  - Semen and vaginal secretions

Non-infectious body fluids (unless visibly blood-stained)

- Faeces, nasal secretions, saliva, sputum, sweat, tears, urine, vomit