

HIV and Adolescents: Research and Treatment

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Learning Objectives

At the conclusion of this presentation, participants should be able to:

- Review current epidemiologic trends in HIV-infected adolescents in order to identify potential implications for clinical practice strategies.
- Analyze current research and treatment issues related to managing HIV-infected adolescents in order to optimize clinical practices.

Epidemiology-Global

- Estimated 11.8 million young people aged 15-24 living with HIV/AIDS
- Two million young people are infected each year
 - Two thirds are female
- 50% of incident infections occur in young people
 - Of the 6,000 to 7,000 people infected every day, 50% are between 15 and 24
- The epidemic varies by area of the world
 - Eastern Europe and Central Asia- IVDU
 - Latin America, Asia, and industrialized countries- MSM
 - Heterosexual transmission linked to other risk behaviors including MSM, IVDU, sex trade

» Source: WHO

The New Patient

- 16 year old AA male
- Presenting symptoms to ED
 - Rectal bleeding and pain with defecation
 - Generalized malaise and a question of low-grade fever
 - Mild nausea and diarrhea
 - Minimal weight loss

The Patient

- Sexual history
 - Sexarche age 13
 - Condom use inconsistent
 - Eight total lifetime partners: three female and five male
 - Most recent partner: 38 year old man
 - Previous STD testing only entailed urine testing
 - Positive history for sexual abuse (uncle at age 5- charges were pressed)

The Patient

- Physical exam:
 - White plaque lesions on oropharynx
 - Multiple, diffuse, palpable lymph nodes
 - Pain on rectal examination with gross blood and mucous noted
- Significant laboratory values:
 - Elevated ESR=90
 - CBC with lymphopenia=19%
 - Mild elevation in LFT's
 - Anal gram stain with numerous WBC's with culture positive for GC
 - HIV Elisa/WB positive/DNA PCR positive

Issue # 1: Is HIV testing appropriate for this young man?

- Young Men's Survey
 - Six city survey of 5649 MSM aged 15-19
 - 573 (10%) tested positive for HIV
 - 77% unaware of their infection
 - » Mackeller et al. J Acquir Immune Defic Syndrome 2005; 38:603-614
- Missed Opportunities for the diagnosis of acute HIV infection
 - Review of 20 subjects with acute infection in NC
 - 17 reported an acute illness in the 3 months prior to testing- 14 had contact with the medical system (7 presented to an ED)
 - Only 2/14 had HIV considered in the differential diagnosis
 - » Hightow et al. CROI 2005, abstract #I-123

Issue # 1: Is HIV testing in the ED appropriate for this young man?

- Data from CHOP experience: first three years
 - 1287 patients approached for participation
 - 643 (50%) agreed to meet with the HE
 - 318 (49.5%) were tested
 - 187 (58.8%) returned for results
 - 2/318 (0.6%) were newly identified infected patients
 - » Mollen, Rudy AIDS Patient Care and STD's. 2008 22(6)

Issue #2: Linkage to care

- Direct linkage into comprehensive care essential
 - Care providers must forge relationships with counseling and testing programs
 - One model:
 - Case manager on call to meet with young person at time of diagnosis when needed
 - Case manager meets with young person initially with staff from counseling and testing program to make a direct linkage into care
 - Case manager maintains close contact with newly diagnosed young person between visits, including home or community visits

Issue #3: Assessing the Newly Diagnosed Adolescent: Laying the Foundation for Care

- Initial visit: psychosocial profile of the young person
- Second visit: initial medical intake examination including STD testing and HIV staging with CD4 + T cell counts and VL
- Third visit: mental health screening including cognitive testing and depression screening
- Fourth visit: Review CD4 counts and VL counts
- Fifth visit: Repeat CD4 counts and VL testing
 - » Level of evidence: expert opinion

Visit #1: Psychosocial Profile

- Understanding the needs of the patient is key to maintaining in care
 - Areas covered
 - Basic needs- housing, child care, food, clothing, education, etc.
 - Mental health/substance abuse
 - Health insurance
 - Perceived health
 - Legal issues
 - Support system
 - Disclosure- HIV status, sexual orientation
 - Special needs- language translation, hearing impairment, reading impairment, etc
 - Putting the new patient into a social context

Post-traumatic Stress and Trauma History in Adolescents and Young Adults with HIV

- 30 HIV-positive subjects 18-24 years of age
- 83% AA, 70% male
- 67% MSM for the males
- 60% reported traumatic stress symptoms consistent with PTSD or PTSS
- In response to HIV diagnosis, 16.7% reported symptoms consistent with PTSS and 13.3% met criteria for PTSD
- For other events, 23.3% reported symptoms consistent with PTSS and 26.7% met criteria for PTSD
- 50% reported that their HIV diagnosis was NOT the most traumatic event in their life
 - » Radcliffe et al AIDS Patient Care and STD's 2007, 21.

Visit #2: Addressing Medical Needs in Psychosocial Context

- Addressing initial medical concerns with psychosocial needs
 - Complete medical history including a sexual health history
 - HIV seroconversion illness
 - Previous HIV counseling and testing
 - HIV-related illnesses
 - Sexual health history
 - Sexarche, sexual abuse history, gender of partners and number of partners, sexual behaviors, history of STI's, birth control methods where appropriate

Visit #2

- Medical examination
 - Assessing for HIV-related illnesses
 - Wasting
 - Thrush or other signs of immunodeficiency
 - Adenopathy
 - Concomitant bacterial infections
 - Symptoms/signs of opportunistic infections
 - STI screening (where appropriate)

Visit # 3: Laying the Groundwork for Mental Health Services

- Cognitive Screening
 - Assessment of learning skills
 - Essential for developing individualized adherence interventions with youth who require therapy
- Depression Screening
 - Data from the REACH Project
 - Of 161 subjects prescribed HAART, only 41% adherent
 - Depression was strongest predictor of non-adherence
 - Murphy et al. AIDS Care 13:27-40

Visit #4

- Initial laboratories:
 - CD4 + T cells= 225 cells/mm³ (15%)
 - VL= 75,000 copies/ml
- Results from medical visit reviewed
- **Issue #4:**
 - Do we begin antiretroviral therapy on this subject?

2008 Recommendations of the IAS- USA Panel:

- Symptomatic HIV Disease: ARV therapy recommended
- Asymptomatic HIV Disease with CD4 cell count <350/mm³: ARV therapy recommended
- Asymptomatic HIV Disease with CD4 cell count >350/mm³: ARV therapy individualized
 - High VL >100,000 copies
 - Rapid CD4 decline >100/mm³ per year
 - Hepatitis B or C
 - HIV associated nephropathy
 - Risk factors for non-AIDS diseases (CV risk factors)
 - » Hammer et al. JAMA 2008; 300(21)

- Data from ATN 022
 - Cross sectional study of 342 HIV- positive youth engaging in care at 15 ATN sites
 - Used sensitive/less sensitive strategy to discriminate between recent and chronic infection
 - Mean age 20.4 yrs; 211 males (62%); 308 ethnic minority (91%)
 - 31.1% of subjects classified as recently infected
 - » Sill A et al. XVII International AIDS Conference 2008, abstract no. CDCO141

Visit #5

- Repeat CD4 + T cells and viral load
 - CD4+ T Cells= 335 cells/mm³
 - Viral Load= 12,000 copies/ml

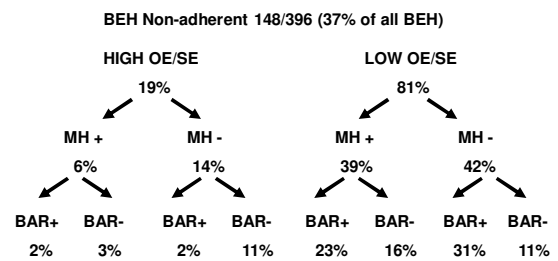
Discussion with patient:

- Visits 1 through 5
 - Foundation laid for treatment discussion
 - Patient has been educated around HIV/AIDS and has formed relationships with team members
 - Patient has worked with staff to identify areas to address which could affect adherence
 - How serious is adherence in this population?

Barriers to Adherence

- Barriers can be broken down into three areas
 - Personal
 - Mental health
 - Cognitive/behavioral
 - Self efficacy
 - Outcome expectancy
 - Structural
 - Medication-related
 - Health care delivery system
 - Chesney. *Clin Infect Dis.* 2000; 30(2):171-176.

Percent Distribution: BEH Non-adherent



Rudy et al. International Conference on Adherence; Jersey City, 2008

How well do adolescents respond to HAART?

- PACTG 381
 - Observational cohort study
 - Population: 120 behaviorally-infected adolescents, 11-22 years of age
 - HAART: minimum of two NRTI's plus either a PI or Efavirenz
 - Adherence measured by self report
 - "Perfect adherence" defined as no missed doses in previous three days

PACTG 381

- 69/120 (58%) subjects achieved viral suppression by weeks 16-24
- Perfect adherence was the only predictor of viral suppression
- 55/69 (80%) continued to maintain viral suppression to week 60
 - Thus, early adherence very important for short and long term virologic success with HAART
 - Flynn et al. *J Infect Dis.* Jul 15 2004;190(2):271-279.
 - Rudy et al. *AIDS Research and Hum Retro* 2006; 22.

Final Results:

- Of 120 subjects, only 41 (34%) stayed on study treatment
- 20 remained on study but off medications and 58 were lost to follow-up
- 24/41 were on their original HAART regimen
- 29/69 (42%) who originally had virologic success continued with virologic success to week 156.

» Flynn P, Rudy BJ, Lindsey J, et al. (2007). *AIDS Res Hum Retroviruses*, 22 (3): 213-221.

Back to the patient:

- Issues that the patient has identified as areas where he needs assistance
 - Disclosure of sexual orientation to family
 - Disclosure to sexual partners/family
 - Need for assistance with negotiating safer sex
 - Help with re-entry into school
 - Depression-need for counseling (subject and depression screening)

Decision

- In discussion with patient
 - CD4 + T cells below 350 cells/mm³ on re-testing
 - Although subject initially anxious to start HAART, barriers need to be addressed
 - Decision:
 - Consider beginning ART unless level of social barriers OR level of depression require immediate attention to these issues
 - IF ART is delayed, there must be a plan for re-assessing and a plan to closely monitor CD4 AND clear discussion of the importance of medications and the clear reasons for temporary delay
 - Discuss the need for a treatment "buddy" or support person
 - » Level of evidence: expert opinion

What if we decided to treat?

- Resistance testing?
 - Baseline data from subjects enrolled into the REACH Project demonstrated no significant ART resistance
 - However, as more persons are treated, this pattern may change
 - In a recent ATN study of 55 subjects recently infected with HIV
 - 10/55 (18%) had major mutations
 - 8 (15%) had NNRTI mutations
 - 2 (4%) had NRTI mutations
 - 2 (4%) had PI mutations
 - Viani et al. *J Infect Dis*. 2006; 194(11)
- What is the best regimen?
- No randomized controlled data specific to adolescents exist
 - PACTG 381-compared youth who began a PI-based regimen to those who began an NNRTI-based regimen
 - No difference noted in suppression in PI vs. NNRTI based regimens
 - Flynn et al. *J Infect Dis*. Jul 15 2004;190(2):271-279

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