Acute HIV infection

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November 13, 2007

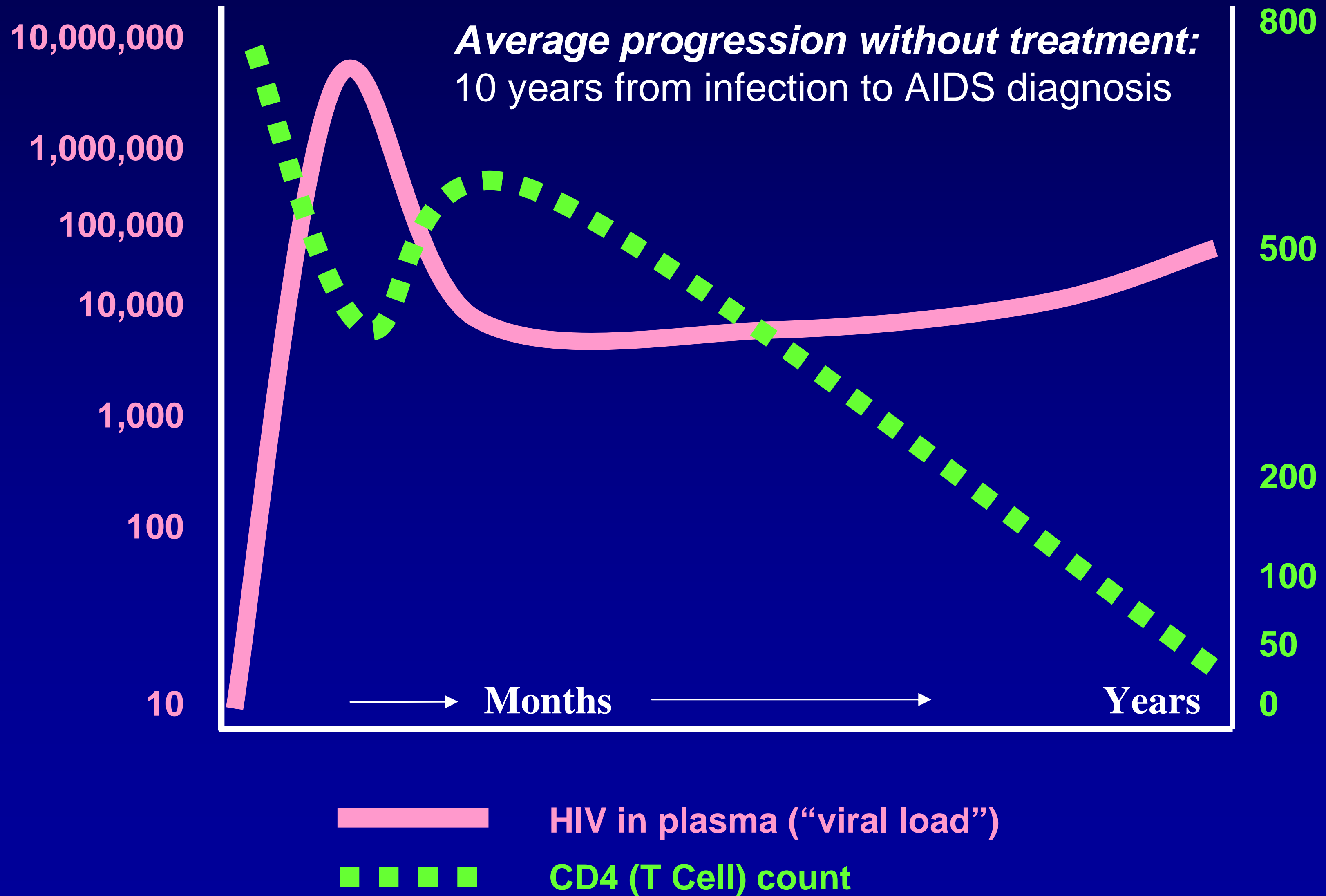
Case #1 J.F.

- 37yo gay white male, fever and body aches and headache; no sore throat, no cough, no GI sxs
- T 99.7, physical exam unremarkable, but “appears ill”
- Flu? March
- Chart review- treatment for urethritis exposure 2 months ago
- Multiple male sexual partners, inconsistent condom use
- HIV ab negative
- VL>750,000

Objectives

- Review the public health significance of capturing recently infected and seroconverting HIV infected individuals.
- Discuss seroconversion presentation and mechanisms to better identify acute infection.

HIV Disease Progression



HIV Antibody Response in Acute Infection

Onset of symptoms: **5-30 days** after exposure to HIV

Ab response (ELISA): **17-90 days** after onset of symptoms

Significant period of time (2 weeks to 3 months) when HIV antibody test will not be diagnostic; need HIV RNA PCR to diagnose acute infection in this period

Importance of recognizing seroconverion

- Public health issue
  - High viral load = high transmissibility
  - Acute HIV infection = Sexually active person with a recent history of unsafe sex
  - Identification means possibility of contact tracing and partner notification, potentially impacting chains of transmission in communities

Seroconversion and transmission of HIV

Transmission data

- 44 true acute infections
- Rapid STAT (Screening & Tracing Active Transmission) partner counseling and referral services
- Seroconversion seen in 8 of 24 (33%) previously HIV-negative contacts (3 of whom were acutely infected)
- HIV transmitted at a rate of more than 1 in 13-18 unprotected coital acts during acute HIV infection

Sexual Transmission Risk and Rapid Public Health Intervention in Acute HIV Infection, Christopher D Pilcher*, et al. Univ of North Carolina at Chapel Hill, US and 2North Carolina Div of Publ Hth, Raleigh, US, Abstract 371CROI 2006

Diagnosis of seroconversion

- University research clinic. Patients with primary HIV infection who enrolled in the study a median of 51 days after HIV seroconversion
- 41 of 46 patients (89%) developed an acute retroviral syndrome
- Primary HIV infection was infrequently diagnosed at the initial medical encounter (26%)

Clinical and epidemiologic features of primary HIV infection. Schacker T; Collier AC; Hughes J; Shea T; Corey L Ann Intern Med 1996 Aug 15;125(4):257-64.

Diagnosis of seroconversion

- HIV Ab testing alone misses a significant number of patients who are seroconverting at the time of HIV testing
- North Carolina: added nucleic acid amplification testing (batched PCR) to standard HIV antibody tests to detect acute HIV infection in viremic but antibody-negative
- 109,250 HIV tests,
  - 606 HIV+ result
  - 107 were identified as recent infections (detuned assay)
  - 23 acutely infected (Ab-negative) persons were identified with the use of the nucleic acid amplification

Detection of acute infections during HIV testing in North Carolina. Pilcher CD, et al. Engl J Med 2005 May 5;352(18):1873-83.

Callen-Lorde Community Health Center

Mission and Services

- Mission:

  Provide sensitive, quality health care and related services primarily to the lesbian/gay/bisexual/transgender community in New York, in all of its diversity, including those living with HIV/AIDS, regardless of ability to pay.

- Services:

  Primary care; HIV care; Women's health; Adolescent health; STI screening/treatment; HIV counseling, testing, and prevention counseling; Mental health and psychiatry; Outreach and education

- ~1/3 of our patients do not identify as LGBT

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High-Risk Patients

2006

- >11,000 patients
- >45,000 visits
- 1900 HIV+
- >250 HIV tests/month (>3000/yr)
- 5.4% seroprevalence rate

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High-Risk Patients

- >70 STI prevention, screening and treatment appointments per week
- Among HIV+ patients (2006):
  - 121 treated for syphilis
  - 352 treated for an STI other than syphilis
  - MRSA
  - LGV on the rise
  - Acute hep C on the rise
- HIV seroconversion-high level of awareness among providers

Seroconversions

Questions

- **How many cases** were we diagnosing annually?
- **Who?** presentation, demographics and risk behavior
- **How many** might we be **missing**?
- **Why** were they missed?
- **Interventions**?

Seroconversions

Methods

- Data on acute seroconversion not captured in EHR

<u>Three sources of data for chart reviews:</u>

- Provider/HIV counselor recollection – past 15 months
- HIV testing report: previous HIV negative test followed by an HIV+ test
- Patients with first CD4/VL in our system in the past 15 months, reviewed all charts with initial HIV VL >200K

(Imperfect/under-representative, particularly of the missed seroconverters)

Seroconversions

Results

15 seroconverters found in charts:

- 10 diagnosed as seroconversions:
  - 7 “true” seroconverters – HIV test negative and viral load positive
  - 3 seroconverters already HIV Ab+ but presenting with negative HIV test <6 weeks prior
- 5 “missed” seroconversions

Serconversions

Symptoms

- 2/15 asymptomatic
- 13/15 symptomatic:

Fever	13/13 (8/13 >101, 5/13 <101)
Sore throat	9/13
Myalgia/arthralgia	7/13
Oral +/- anal ulcers	5/13
Headache	4/13
Cough	4/13
Diarrhea	3/13
Rash	3/13

Missed seroconversions

- Five patients with “missed” seroconversions
  - Tested negative at C-L within the previous 6 months
  - Presented for urgent care visit, not suspected to be seroconverting, subsequently found to have HIV, either on routine testing or because pt asked to be tested due to concern of seroconversion
- Chart review: Unusual presentation? Subtle symptoms? Assumption of low risk? Provider missed it?

Missed seroconversions

Case 1 – R.O.

- Frequent (~q3 months) HIV testing for past 3 yrs due to being in a long-term relationship with an HIV+ partner
- “Consistently” uses condoms for insertive/receptive anal sex; unprotected insertive/receptive oral sex w/o ejaculation
- 3/06 – routine Oraquick negative
- Later in 3/06 – p/w low-grade fever, sore throat, cough, congestion; sexual hx not documented at visit
- 7/06 - routine Oraquick positive
- Reveals one episode of receptive UAI

Missed seroconversions

Case 2 – J.T.:

- 3/06 – Routine Oraquick negative
- 4/06 – p/w fever (101.3), sore throat, headache, chills
- sex hx not documented, throat culture done, dx viral syndrome
- 6/06 – Routine Oraquick positive
- Revealed Hx 25 partners since prior HIV test (3/06), open relationship, no condoms used in primary relationship

Missed seroconversions

Case 3 – B.W.:

- 2/06 – Routine Oraquick negative
- Reported 100% condom use for anal sex
- 5/06 – p/w sore throat, fatigue, cough, congestion x 3 weeks. T=99.4. No sex hx documented, dx viral syndrome
- Labs showed AST=42, ALT=56, GGT=121, increased lymphocytes and monocytes
- 9/06 – tested again due to not feeling well: Oraquick positive

Missed seroconversions

<u>Case 4 – M.M.:</u>

- 3/06 – routine Oraquick negative
- 9/8/06 – p/w bilateral ear pain, bodyache and fever; sex hx not documented; T=100; tx for otitis
- 9/21/06 – p/w worry about seroconversion; Oraquick positive
- Revealed hx multiple sex partners, no condoms, EtOH and cocaine

Serconversions

Missed seroconversions

Case 5 – A.B.:

2/06 – Routine Oraquick negative

9/18/06 – p/w “flu-like symptoms,” fever, night sweats, diarrhea, fatigue, rash; sexual hx not documented

T101, rash, dx secondary syphilis, bicillin

10/4: Sore throat and fever, diagnosed 2 d prior with strep, given amox, presents with continuing ST and rash, fever

dx: Strep with allergic reaction to PCN, r/o RSV, mono- mono test done, change abx

10/16: Low grade temps, blisters in throat and anal- viral throat, hsv rectal, culture, RPR and Valtrex

10/24: Comes in for HIV testing, worried about seroconversion, Oraquick positive

Missed seroconversions: summary

Most frequent reason for missing is common respiratory/viral symptoms coupled with a lack of sexual risk hx- missed even in a high risk setting

2-3 cases classic enough to have been identified, particularly in a high risk setting

Fever-even low grade, and sore throat- most common presentation-keep HIV in the differential diagnosis

Oral/anal ulcerations should lead to a high level suspicion

High index of suspicion in serodiscordant couples

Summary and Next Steps

- Seroconversion usually presents with a symptom complex that can be recognized with a high level of awareness
- Diagnosis requires an HIV viral load as the HIV antibody test is negative at the onset of symptoms
- High transmission rate-unique opportunity for intervention and public health measures
- Callen-Lorde:

  Continuing provider education regarding seroconversion

  Developing strategies for prevention and contact tracing with seroconverting patients

  Data collection- electronic medical record