HIV as a Chronic Disease & STD
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Disclosure

- Consultant: Allergan

HIV as a Chronic Disease
Who knew......
A brief Re-Cap…..

- 1970’s reports of "Gay Bowel" disease.
- 1981 rare infections in Gay men [PCP, KS]
  - 232 cases reported to CDC, 121 died by year end.
- 1984 retrovirus HTLV-III/LAV linked to AIDS
  - Broder, Gallo Nov NEJM, Dec 1984
- 1985 HTLV-III causative agent of AIDS
- 1989 One hundred thousand cases of AIDS reported

Where we were

- 1994 AIDS is leading cause of death US ages 22-45
- 1995 First 500,000 AIDS cases – United States
  - MMWR November 24 1995 44 (46) 849-853
- 1995 HAART –first Protease Inhibitor FDA approved (saquinavir)
- 1996 new AIDS cases diagnosed in the U.S. declines for the first time since the beginning of the epidemic.
- 1998 First Human Aids vaccine trial

Where we are

- Life Expectancy
  - Without Treatment
    - median survival of patients with advanced HIV infection (CD4 cell count <50 cells/microL) is 12 to 18 months
  - With Treatment
    - High Income Environment
      - 20 y/o = 43.3 years
    - Middle/Low Income Environment
      - 20 y/o = 28.3 years

## HIV Treatment Options

**A quick tour**

<table>
<thead>
<tr>
<th>Year</th>
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*No longer available most markets*

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^“boosted”
### HIV Treatment Options

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### Fixed-Dose Combinations

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Non AIDS Related Complications

- Hypertension
- Cardiovascular disease
- Osteopenia/Osteoporosis
- Peripheral neuropathy
- Diabetes/Insulin resistance
- Premature aging
- Liver failure
- Renal disease
- Dementia
- Pulmonary Hypertension
- Cancer

Medication Related Complications

- Anemia
  - AZT
- Lipodystrophy
  - d4T, AZT [atrophy]
- Hyperlipidemia
- Bone Mineral Density
  - TDF, PI's
- Insulin Resistance
- Renal Insufficiency
  - IDV, ATV, TDF
- Lactic acidosis
  - d4T, DDI
- Abacavir hypersensitivity reaction
  - ABC
Medication Related Complications

- Pancreatitis
  - DDI, d4T
- Myopathy
  - ZDV
- Steatohepatitis
  - d4T, DDI
- Myopathy
  - DDI, d4T

HIV and Cancer

AIDS defining and Non-AIDS Defining

- Cervical Cancer (invasive)
- Kaposi's Sarcoma
- Lymphoma (Burkett's type)
- Lymphoma (immunoblastic type)
- Primary CNS lymphoma

- Anal/colorectal Cancer
- Breast Cancer
- Liver Cancer
- Lung Cancer
- Hodgkin Lymphoma
- Head & Neck Cancer
HIV and Cancer

- Non-AIDS defining cancers increasing in number/outnumber AIDS-defining
- Breast and Lung cancer appear to have earlier onset
- Hodgkin lymphoma (HL) appears to have later onset
- Mortality from HL, lung, prostate cancer higher in HIV infected individuals.


HIV and Cancer
AIDS Defining

- Cervical cancer
  - Abnormal cytology 10-11 times more common
  - Associated with presence of oncogenic Human Papilloma Virus (HPV)
    - 51-73% excess cases
- Lymphoma
  - Most caused by Epstein Barr Virus infection (EBV)


HIV and Cancer
AIDS Defining

- Kaposi’s Sarcoma
  - Almost all cases of KS (caused by human herpesvirus 8)
    - Incidence declined in ART era
- Primary CNS Lymphoma
  - EBV infection.
    - Incidence declined in ART era
HIV and Cancer (Non-AIDS defining)

- Anal/colorectal cancer
  - Anal cancer (human papillomavirus [HPV]) occurred in excess
    - 83% excess anal cancer cases in MSM
    - 71% excess anal cancer cases >5 yrs or more HIV positive
- Lung Cancer
  - 52% excess cases, most associated with tobacco use
  - Increase with IDU
  - 22% of excess cancers in IDU were lung cancer

Lung Cancer

- 52% excess cases, most associated with tobacco use
- Increase with IDU
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Liver Cancer

- Excess cases in IDU
- 36% excess cases
  - associated with HBC/HCV

Head & Neck

- Oral cavity/pharyngeal
  - HPV associated
  - tobacco

Liver Cancer

- Excess cases in IDU
- 36% excess cases
  - associated with HBC/HCV

HIV & Neurologic Complications

- HIV associated dementia
  - Cognitive
  - Motor
  - Mood/Behavior
  - Incidence decreased from 6.49/1000 pre-ART to 0.66/1000 post-ART

- CNS “viral escape syndrome”
  - Acute neurologic decline due to CNS viral replication in patient on ART with suppressed viral load.
What’s New in STD?
A FEW quick points…..

Syphilis

- Incidence
  - Increasing
    - 2.1 cases per 100,000, 2000
    - 7.5 cases per 100,000 population, 2015
  - States with highest rates: LA, CA, NC, NV, FL.

- Protean Manifestations
  - Outbreak of ocular disease 2016, Seattle, San Francisco
  - posterior uveitis and panuveitis most common

Late Diagnostic Testing:
- Order Syphilis Antibody/Treponemal with reflex to RPR.
- Post treatment titers can be < 1:8-1:16
- Repeat titer 6-12 months
- Fourfold decline in titer = good response
- "serofast" patients
- Treat/retreat for fourfold rise in titer

References:
Syphilis

- Treatment of Primary/Secondary/Early Latent Syphilis
  - Penicillin G Benzathine 2.4 million units IM once
  - Preferred: supply issues since 2016
  - Doxycycline 100mg PO BID X 14 days
  - Tetracycline 500mg PO QID X 14 days
  - Ceftriaxone 1-2G IM/IV QD X 14 days

Gonorrhea

- Resistance
  - Fluoroquinolone-resistant *N. gonorrhoeae*, 2007
  - Cefixime resistance
- Treatment Recommendations
  - Ceftriaxone 250mg IM
  - PLUS
  - Azithromycin 1G

Conclusion

- HIV infection treated with ART is a chronic illness.
- Treatment options include many single pill regimens.
- Long term complications include excess of non-AIDS related cancers.
- Neurocognitive complications persist in treated patients.