FACT SHEET FOR CLINICIANS

HIV DISEASE

DEFINITION: Human immunodeficiency virus (HIV) is a retrovirus that infects and destroys helper T cells (CD4 cells) of the immune system. If untreated, the HIV disease will progress to an advanced stage (acquired immunodeficiency syndrome or “AIDS”)1

HIV EPIDEMIC IN THE UNITED STATES:

- 1981: First recognized cases of HIV 2
- Currently approximately 1.1 million people living with HIV 2
- 1 out of 5 do not know they are infected because they have not been tested 3
- Approximately 50,000 new infections every year2
- Increased prevalence rate of new infections in African Americans, with African American females representing the greatest number of new cases 2-4
- Populations at risk also include: IV drug users; men who have sex with men (MSM)2,4

TRANSMISSION AND PREVENTION: 5

- Infection transmitted through bodily fluids: semen, vaginal fluid, blood, blood derived fluid, breast milk
- Routes:
  - Sex
  - IV drug use
  - Intrauterine or during birthing process
  - Blood to blood contact
- NOT transmitted through saliva, sweat, or tears
- HIV does not survive long outside of the body and cannot reproduce once outside of the host 2,5
- Standard Precautions should be taken with patients with HIV disease (as with all patients)

HIV SCREENING AND TESTING:

- Rapid HIV Antibody Testing
  - Typically involves oral swab or small volume blood sample6
  - Results in approximately 20 minutes 6
  - If positive, needs to be confirmed with Western Blot or Enzyme Immunoassay Test (EIA) 6-9, 11
- Ora-Quick 6,10
  - First FDA approved at home test for HIV
  - Utilizes oral swab testing
  - Can be purchased over the counter
- The potential of screening negative for HIV is possible up to 6 months post exposure. It is recommended that testing be completed every 3-6 weeks for 6 months post exposure.

TRACKING OF DISEASE PROGRESSION:

- CD4 Count: 12 CD4 count marks the degree of immunocompromise. It measures the number of CD4 cells per µL of blood. In a healthy individual the CD4 count should be between 500-1500 cells/µL. A person living with HIV is diagnosed with AIDS if their CD4 count falls below 200 cells/µL.
- C4:C8 Ratio: 12 This test looks at the CD4/CD8 lymphocyte ratio and is a reflection of immune system health. A normal ratio is between 1 and 4. Less than 1 is indicative of a decline in CD4 cells.
- Viral Load (VL):12-14 Viral load indicates the number of copies of HIV RNA/µL of plasma. This measurement is an indicator of the magnitude of viral replication. VL in a HIV+ individual who is successfully treated with anti-retroviral drugs should be “undetectable” (<20 copies/mL).
OPPORTUNISTIC INFECTIONS AND CO-MORBIDITIES ASSOCIATED WITH HIV DISEASE

- Co-morbidities can be related to the HIV infection itself and/or side effects of anti-retroviral drugs. Opportunistic infections may occur in individuals whose immune systems are compromised by a low CD4 count. A partial list of co-morbidities and opportunistic infection includes:

  - **Integumentary**
    - Oral Thrush, Kaposi’s Sarcoma, Oral Hairy Leukoplakia, Herpes Simplex 1 and 2, Molluscom Contagiosum
  - **Cardiopulmonary**
    - Hypercholesteremia, Elevated triglycerides, Pericarditis, Coronary Artery Disease, Endocarditis, Dyslipidemia, Pulmonary HTN
  - **Gastrointestinal**
    - Diarrhea, Dysphagia/Odynophagia, Hepatobiliary disorders, Anorectal Diseases, Abdominal pains
  - **Neurological**
    - Neuropathies, AIDS Dementia Complex, Depression, CNS Lymphomas, Cognitive Motor Impairment
  - **Musculoskeletal**
    - Avascular necrosis of bone, myositis, reactive or inflammatory arthritis, Reiter’s Syndrome, AIDS related muscular wasting, lipodystrophy

MEDICAL MANAGEMENT

- **Goals of Highly Active Antiretroviral Therapy (HAART)**
  - Suppress HIV viral load
  - Restore and/or preserve immunologic function
  - Reduce morbidity and mortality
  - Improve quality of life
  - Reduce HIV transmission
- Rx for an individual patient determined by virologic efficacy, toxicity, pill burden, drug interactions, resistance-testing results, and co-morbidities
- **Success directly related to adherence**
- **Classes of anti-retroviral drugs**
  - Entry/Fusion Inhibitors
  - Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTI)
  - Nucleoside/Nucleotide Reverse Transcriptase Inhibitors (NRTI)
  - Integrase Inhibitors
  - Protease Inhibitors (PI)
- **Indications for Starting HAART**
  - AIDS defining illness (Opportunistic Infections, HIV wasting or dementia)
  - CD4 <350 copies/µL (or earlier)
- **Recommended HAART Combinations**
  - NNRTI + 2 NRTIs
  - Boosted PI + 2 NRTIs
  - Integrase inhibitor + 2 NRTIs
- **Partial List of Possible Side Effects**
  - Immune reconstitution syndrome
  - GI problems such as nausea
  - Rash
  - Metabolic problems such as lipodystrophy or insulin resistance
  - Peripheral Neuropathy
  - Lactic acidosis
  - Bone problems such as AVN
  - Liver or Kidney problems
  - Cardiac complications
  - Pancreatitis
IMPLICATIONS FOR THE PHYSICAL THERAPIST IN WORKING WITH INDIVIDUALS LIVING WITH HIV DISEASE 15-20

- **Systems Review:** A comprehensive systems review should be completed for each patient. Patients may present with multi-system involvement.
- **History:** Questions should focus on common HIV related symptoms consistent with infection or drug side effects including, but not limited to:
  - Fever and Night Sweats
  - Weight loss
  - Respiratory symptoms
  - Diarrhea/Urinary symptoms
  - Visual changes
  - Skin rashes/lesions
  - Changes in neurological function/mental status
  - Pain
- **Examination:** Identify impairments in body function and structure, activity, limitations and participation restrictions related to chronic HIV disease, side effects of HAART, co-morbidities, or opportunistic infections.
- **Interventions** directed toward impairments and functional limitations may include:
  - Patient education
  - Manual therapy
  - Exercise
  - Pain management techniques
  - Neuromuscular re-education
  - Balance training
  - Adaptation/Return to work strategies
  - Wellness

EDUCATION ROLE OF THE CLINICIAN 15, 20-22

- **Optimizing Patient Adherence to Antiretroviral Therapy**
  - Promote healthy choices conducive to adherence such as exercise, stress management, and smoking cessation
  - Promote adherence: “I see you are taking your antiretroviral medication regularly; are you having any issues?”
  - Provide positive feedback on evidence of adherence: “I see you viral load is undetectable that is terrific! Keep up the good work!”

- **Continuum of Care**
  - Multiple courses of rehabilitation may be indicated because of possible episodic disability associated with HIV disease
  - Community outreach programs can help with stress management and life skills
  - Educate patients on the benefits and importance of referrals to other health care providers:
    - Nutritionists
    - Psychologists
    - Addiction counselors
    - Spiritual counselors
    - Counseling/Support groups

- **Help minimize stigma**
  - Discuss HIV disease openly (while maintaining patient privacy), as you would any disease process
  - Avoid Judgments
**IMPLICATIONS FOR PHYSICAL THERAPY BY STAGE OF HIV DISEASE**

**STAGE 1**
**ASYMPTOMATIC HIV DISEASE**
- No limitations on maximum graded exercise testing
- Metabolic parameters are within normal limits for most individuals
- Exercise should consist of resistance, cardiovascular, flexibility, balance, and mind-body training

**STAGE 2**
**SYMPTOMATIC HIV DISEASE**
- Obtain medical clearance before beginning an exercise program
- May see reduced exercise capacity, VO₂ max, and O₂ pulse max; may see elevated heart rate reserve and breathing reserve
- Various symptoms or emerging co-morbidities may influence course of therapy
- Exercise (aerobic, PREs) is indicated UNLESS contraindicated due to a particular comorbidity or complication

**STAGE 3**
**ADVANCED HIV DISEASE/AIDS**
- Reduced exercise capacity, vital capacity, VO₂ max, and O₂ pulse max; elevated heart rate and breathing reserve
- Increased risk for neurological, cardiopulmonary and musculoskeletal injury or immunologic compromise
- Careful monitoring of patient due to co-morbidities and/or opportunistic infections
- Exercise on a symptom limited basis with emphasis on function and ADLs
- Focus of care is on enhancing quality of life, optimizing function, and pain control
- Protect immunosuppressed patients from community pathogens (colds, flu, etc.)

**USEFUL LINKS:**


APTA HIV Disease Special Interest Group: [http://www.oncologypt.org/special-interest-groups/hiv-aids- oncology-sig/index.cfm](http://www.oncologypt.org/special-interest-groups/hiv-aids- oncology-sig/index.cfm)


References


