WHO Staging System for HIV/AIDS in Resource Limiting Settings

Masoud Mardani MD, MPH, FIDSA
Shahid Beheshti Medical University
Learning Objectives

- Describe how the WHO staging system is used to assist management of HIV/AIDS
- List the clinical conditions that characterize each WHO stage of HIV/AIDS
The Natural History of HIV Infection

WHO Staging System for HIV/AIDS: Overview

- Tool used to guide management of HIV patient in resource limited settings with limited laboratory access
- Clinically based; CD4 count not required
- Simple, flexible and widely used
- Recently revised: Interim African version 2005
- Utilizes 5 clinical stages based on the degree of immunocompromise and prognosis
  - Primary HIV Infection, I, II, III, IV
WHO Staging System for HIV/AIDS: Overview (2)

- Performed at each clinical visit
  - Diagnosis
  - Entry to clinical care (pre-ART)
  - Follow-up
- Stage assessment can be adjusted upwards or downwards over time according to response to ART and/or clinical progression
WHO Staging of HIV/AIDS

- Primary HIV Infection
- Stage I - asymptomatic
- Stage II - mild disease
- Stage III - moderate disease
- Stage IV - advanced immunocompromise
WHO Stage I

• Asymptomatic or
• Persistent generalized lymphadenopathy (PGL)
Persistent Generalized Lymphadenopathy (PGL)
WHO Stage II

- Moderate unexplained weight loss (<10% of presumed or measured body weight)
- Recurrent respiratory tract infections (RTIs, sinusitis, bronchitis, otitis media, pharyngitis)
- Herpes zoster
- Angular cheilitis
- Recurrent oral ulcerations
- Papular pruritic eruptions
- Seborrhoeic dermatitis
- Fungal nail infections of fingers
Pruritic Papular Eruption (PPE)

- Epidemiology
  - Substantial cause of HIV-related morbidity in sub-Saharan Africa
  - Prevalence ranges from 12-46%
  - Uncommon in HIV negative patients (PPV of 82-87%; may play role in diagnosing HIV)
  - Probably related to hypersensitivity to arthropod bites
Pruritic Papular Eruption (2)

• Clinical Manifestations
  • Intensely pruritic, discrete, firm, papules; variable stages of development
  • Excoriation results in pigmentation, scarring and nodules
  • Predilection for extremities, but may involve trunk and face
  • Severity of rash correlates with CD4 count

• Treatment
  • Topical steroid and oral antihistamines; however often refractory
Pruritic Papular Eruption

Courtesy of Charles Steinberg MD
Pruritic Papular Eruption

Courtesy of Charles Steinberg MD
Aphthous Ulcer

Herpes Zoster

Courtesy of Tom Thacher, MD

Courtesy of the Public Health Image Library/CDC
Herpes Zoster

Courtesy of Samuel Anderson, MD
Molluscum Contagiosum
Oral Candidiasis

Courtesy of Samuel Anderson, MD

Courtesy of Dr. R. Ojoh
Oral Candidiasis (2)

Source: http://members.xoom.virgilio.it/Aidsimaging
Aphthous Lesions
Clinical Types

Minor (Lip)
Minor (Tongue)
Major
Oral Hairy leukoplakia

HIV Web Study (www.HIVwebstudy.org)  Supported by HRSA

Courtesy of Dr. R. Ojoh
WHO Stage III

- Conditions where a presumptive diagnosis can be made on the basis of clinical signs or simple investigations
  - Severe weight loss (>10% of presumed or measured body weight)
  - Unexplained chronic diarrhea for > one month
  - Unexplained persistent fever (intermittent or constant for > one month)
  - Oral candidiasis
  - Oral hairy leukoplakia
  - Pulmonary tuberculosis (TB) diagnosed in last two years
  - Severe presumed bacterial infections (e.g. pneumonia, empyema, pyomyositis, bone or joint infection, meningitis, bacteremia)
  - Acute necrotizing ulcerative stomatitis, gingivitis or periodontitis
WHO Stage III (2)

- Conditions where confirmatory diagnostic testing is necessary
  - Unexplained anemia (<8 g/dl), and or
  - neutropenia (<500/mm3) and or
  - thrombocytopenia (<50 000/ mm3) for more than one month
Pyomyositis

- Large muscle groups, may be bilateral
- Pathophysiology unclear
- Tends to occur with advanced HIV infection
- Diagnosis requires:
  - High index of suspicion
  - CT, ultrasonography
- Staphylococcus aureus is the most commonly implicated organism
- Treatment usually requires needle aspiration and/or surgical incision and drainage in addition to intravenous antibiotics
Pyomyositis

Courtesy of Samuel Anderson, MD
WHO Stage IV

- Conditions where a presumptive diagnosis can be made on the basis of clinical signs or simple investigations
  - HIV wasting syndrome
  - Pneumocystis pneumonia
  - Recurrent severe or radiological bacterial pneumonia
  - Chronic herpes simplex infection (orolabial, genital or anorectal of more than one month’s duration)
  - Oesophageal candidiasis
  - Extrapulmonary TB
  - Kaposi’s sarcoma
  - Central nervous system (CNS) toxoplasmosis
  - HIV encephalopathy
WHO Stage IV (2)

- Conditions where confirmatory diagnostic testing is necessary:
  - Extrapulmonary cryptococcosis including meningitis
  - Disseminated non-tuberculous mycobacteria infection
  - Progressive multifocal leukoencephalopathy (PML)
  - Candida of trachea, bronchi or lungs
  - Cryptosporidiosis
  - Isosporiasis
  - Visceral herpes simplex infection
WHO Stage IV (3)

- Conditions where confirmatory diagnostic testing is necessary:
  - Cytomegalovirus (CMV) infection (retinitis or of an organ other than liver, spleen or lymph nodes)
  - Any disseminated mycosis (e.g. histoplasmosis, coccidiomycosis, penicilliosis)
  - Recurrent non-typhoidal salmonella septicemia
  - Lymphoma (cerebral or B cell non-Hodgkin)
  - Invasive cervical carcinoma
  - Visceral leishmaniasis
Severe Chronic Herpes Simplex Ulcers
Disseminated Cutaneous Cryptococcosis

Courtesy of Samuel Anderson, MD
Disseminated cutaneous cryptococcosis (2)

Courtesy of Samuel Anderson, MD
**HIV wasting syndrome**

- Weight loss >10% body weight
  
  *plus*

- Unexplained chronic diarrhea (>1 mo) or

- Unexplained fever (>1 mo) plus chronic weakness
HIV encephalopathy
(AIDS dementia complex)

- Dementia - persistent cognitive decline with preserved alertness
- Complex - concomitantly altered motor performance and, at times, behavior; myelopathy may be prominent
- Disabling condition that interferes with activities of daily living
- Progresses over weeks to months
- Absence of concurrent illness or condition that could explain findings
- Limited treatment options; ART may be helpful
Kaposi’s sarcoma

**Epidemiology**
- Human herpesvirus-8 (HHV-8) necessary but not sufficient for KS to develop
- most common AIDS-associated neoplasm
- increased frequency in all HIV transmission groups compared to the general population

**Clinical manifestations**
- Variable, from an indolent process to a disseminated, aggressive disease
- skin lesions
- oral lesions
- others sites
Kaposi’s Sarcoma: Management

- ART: an essential component of KS management; lesions may regress
- Local irradiation: bulky-obstructive lesions (e.g. oropharyngeal)
- Systemic IFN-alfa: slow progressive disease
- Systemic chemotherapy: rapid, life threatening disease including pulmonary or severe lymphedema
Kaposi’s Sarcoma

Courtesy of Tom Thacher, MD
IMMUNOLOGICAL STAGING OF HIV INFECTION

- Clinical staging can be used effectively without access to CD4 or other laboratory testing.
- However, CD4 testing is useful for determining the degree of immunocompromise, and where CD4 facilities are available they should be used to support and reinforce clinical decision-making.
- Data on CD4 levels are not a prerequisite for starting ART and should only be used in conjunction with consideration of the clinical stage. Presents
- CD4 levels is directly related to the severity of immunosuppression.
• For clinical purposes long term prognosis has been shown to be related to the nadir or lowest-ever value of CD4.

• It should be noted that the immunological staging of disease reverses with successful ART.

**CD4 LEVELS IN RELATION TO THE SEVERITY OF IMMUNOSUPPRESSION**

• Not significant immunosuppression >500/mm³
• Mild immunosuppression 350 – 499/mm³
• Advanced immunosuppression 200 – 349/mm³
• Severe immunosuppression <200/mm³
Clinical and Immunological Criteria for Initiating ART in Adult

Clinical stage ART:

4 Treat.

3 Consider treatment: CD4, if available, can guide the urgency with which ART should be started.

1 or 2 Only if CD4 <200/mm3.
When to start?

- Not too early
- Not start too late
Key Points

• WHO Staging of HIV/AIDS is an important tool used for management of HIV in resource limited settings
• Staging is based on clinical conditions that correlate with the degree of immunocompromise and prognosis
• Staging should be assessed at time of HIV diagnosis, prior to starting ART, and with each follow-up visit to assess response to ART