

# **IDSA Endemic Mycoses Guidelines**

Ryan Bariola, MD

# Endemic Mycoses

- Prior Guidelines Issued in 2000
- Updated in 2007/2008
  - Sporotrichosis
  - Blastomycosis
  - Histoplasmosis

# Common Themes

- Increased role for lipid formulations of Amphotericin B
- Step down therapy with AmB followed by azoles
- Possible role of voriconazole and posaconazole
- Therapeutic drug monitoring

# Clinical Practice Guidelines for the Management of Sporotrichosis: 2007 Update by the Infectious Diseases Society of America

**Carol A. Kauffman,<sup>1</sup> Beatriz Bustamante,<sup>4</sup> Stanley W. Chapman,<sup>2</sup> and Peter G. Pappas<sup>3</sup>**

<sup>1</sup>Infectious Diseases Section, Veterans Affairs Medical Center, University of Michigan Medical School, Ann Arbor; <sup>2</sup>Division of Infectious Diseases, University of Mississippi Medical Center, Jackson; <sup>3</sup>Division of Infectious Diseases, University of Alabama at Birmingham, Birmingham; and <sup>4</sup>Department of Infectious Diseases, Universidad Peruana Cayetano Heredia, Lima, Peru

**CID 2007:45 (15 November)**

# Sporotrichosis

- *Sporothrix schenckii*
- Usual inoculation is cutaneous
- Manifestations
  - Cutaneous/lymphocutaneous disease
  - Osteoarticular disease
  - Pulmonary
  - Disseminated
  - Meningitis

# Unchanged Recommendations

- Cutaneous/Lymphocutaneous Disease
  - Itraconazole preferred
  - 2-4 weeks after lesions resolve (3-6 months)
  - Local hyperthermia therapy
  - Terbinafine
  - SSKI

# Unchanged Recommendations

- Osteoarticular
  - Itraconazole x 12 months
- Mild to moderate pulmonary disease
  - Itraconazole x 12 months
  - Surgical resection in select cases

# Changes in Guidelines: Sporotrichosis

## 2000

- Cutaneous
  - Itraconazole 100-200 mg
  - Fluconazole 2<sup>nd</sup> line
- Osteoarticular
  - Fluconazole 3<sup>rd</sup> line

## 2007

- Cutaneous
  - Itraconazole 200 mg
  - Fluconazole only if itra, SSKI, or terbinafine are ineffective
- Osteoarticular
  - Fluconazole not recommended

# Changes in Guidelines: Sporotrichosis

**2000**

- Severe disease
  - Amphotericin B deoxycholate
- Meningitis
  - AmB deoxycholate 1-2 gm

**2007**

- Severe disease
  - Lipid AmB followed by itraconazole
- Meningitis
  - Lipid AmB 4-6 weeks followed by itraconazole

# Changes in Guidelines: Sporotrichosis

- Role of voriconazole and posaconazole
  - No published data
  - Voriconazole has no *in vitro* activity

# Clinical Practice Guidelines for the Management of Blastomycosis: 2008 Update by the Infectious Diseases Society of America

**Stanley W. Chapman,<sup>1</sup> William E. Dismukes,<sup>2</sup> Laurie A. Proia,<sup>3</sup> Robert W. Bradsher,<sup>4</sup> Peter G. Pappas,<sup>2</sup> Michael G. Threlkeld,<sup>5,a</sup> and Carol A. Kauffman<sup>6</sup>**

<sup>1</sup>University of Mississippi Medical Center, Jackson; <sup>2</sup>University of Alabama at Birmingham; <sup>3</sup>Rush Medical Center, Chicago, Illinois; <sup>4</sup>University of Arkansas for Medical Sciences, Little Rock; <sup>5</sup>Germantown, Tennessee; and <sup>6</sup>University of Michigan Medical School, Veterans Affairs Ann Arbor Healthcare System, Ann Arbor, Michigan

**CID 2008:46 (15 June)**

# Blastomycosis

- *Blastomyces dermatitidis*
- Inhalational inoculation
- Manifestations
  - Pulmonary
  - Cutaneous
  - Osteoarticular
  - Genitourinary
  - CNS
  - Virtually any organ



# Unchanged Recommendations

- Mild to moderate pulmonary disease
  - Itraconazole x 6-12 months
- Mild to moderate disseminated disease
  - Itraconazole x 6-12 months
- Osteoarticular
  - Itraconazole x 12 months

# Changes in Guidelines: Blastomycosis

## 2000

- Severe Disease
  - AmB deoxycholate 1.5-2.5 gm total
- Immunosuppressed
  - AmB deoxycholate 1.5-2.5 gm, followed by oral azole therapy indefinitely

## 2008

- Severe Disease
  - Lipid AmB 1-2 weeks, followed by itraconazole
- Immunosuppressed
  - Lipid AmB 1-2 weeks, followed by oral azole therapy at least 12 months

# Changes in Guidelines: Blastomycosis

**2000**

- CNS Disease
  - AmB deoxycholate  
2 gm total

**2008**

- CNS Disease
  - Lipid AmB 4-6 weeks,  
followed by itraconazole,  
voriconazole, or high dose  
fluconazole

# Changes in Guidelines: Blastomycosis

- Ketoconazole and fluconazole largely removed from guidelines
- Voriconazole and posaconazole have activity against *B. dermatitidis*
- Clinical reports of successful treatment with voriconazole, especially CNS disease
- No reports yet of posaconazole use for *B. dermatitidis*

# Changes in Guidelines: Blastomycosis

- Therapeutic Drug Monitoring
  - Itraconazole levels 2 weeks after starting therapy
    - 1.0-10.0  $\mu\text{g/mL}$
  - Voriconazole levels?

# Clinical Practice Guidelines for the Management of Patients with Histoplasmosis: 2007 Update by the Infectious Diseases Society of America

**L. Joseph Wheat,<sup>1</sup> Alison G. Freifeld,<sup>3</sup> Martin B. Kleiman,<sup>2</sup> John W. Baddley,<sup>4,5</sup> David S. McKinsey,<sup>6</sup> James E. Loyd,<sup>7</sup> and Carol A. Kauffman<sup>8</sup>**

<sup>1</sup>MiraVista Diagnostics/MiraBella Technologies and <sup>2</sup>Indiana University School of Medicine, Indianapolis, Indiana; <sup>3</sup>University of Nebraska Medical Center, Omaha; <sup>4</sup>University of Alabama at Birmingham and <sup>5</sup>Birmingham Veterans Affairs Medical Center, Alabama; <sup>6</sup>ID Associates of Kansas City, Missouri; <sup>7</sup>Vanderbilt University Medical Center, Nashville, Tennessee; and <sup>8</sup>Veterans Affairs Medical Center, University of Michigan Medical School, Ann Arbor

**CID 2007:45 (1 October)**

# Histoplasmosis

- *Histoplasma capsulatum*
- Inhalational exposure
- Manifestations
  - Asymptomatic infection
  - Pulmonary/Mediastinal disease
  - Disseminated
  - CNS
  - Visceral involvement, especially mucosal involvement
  - Rheumatologic manifestations

# Unchanged Recommendations

- No indication for antifungal therapy
  - Localized pulmonary disease
    - Symptoms < than 4 weeks
  - Rheumatologic complications
  - Pericarditis
    - Unless steroids given for severe pericarditis
  - Histoplasmosis
  - Broncholithiasis
  - Asymptomatic granulomatous mediastinitis

# Unchanged Recommendations

- Treatment recommended
  - Acute pulmonary disease, > 4 wks symptoms
  - Severe pulmonary disease
    - Antifungal therapy + steroids
  - Chronic cavitory pulmonary disease
  - Mild to moderate disseminated disease
    - Itraconazole

# Changes in Guidelines: Histoplasmosis

## 2000

- Severe disease
  - Amphotericin B, sometimes for entire course
- CNS disease
  - Amphotericin B 3 months, then fluconazole

## 2007

- Severe disease
  - Lipid AmB, followed by itraconazole
- CNS disease
  - Liposomal AmB 4-6 weeks, then itraconazole

# Changes in Guidelines: Histoplasmosis

- Antifungal discontinuation in AIDS patients
  - At least 1 year of itraconazole
  - Negative blood cultures
  - Serum and urine antigen levels  $<2$  ng/mL
  - CD4  $>150$  cells/mm<sup>3</sup>
  - On HAART

# Changes in Guidelines: Histoplasmosis

- Voriconazole and posaconazole have activity against *H. capsulatum*
- Decreased voriconazole sensitivity in patients that have failed fluconazole therapy
- After itraconazole, all other azoles are considered second-line alternatives

# Changes in Guidelines

- Therapeutic Drug Monitoring
  - Itraconazole
    - 1.0-10.0  $\mu\text{g}/\text{mL}$
  - Voriconazole
    - Trough at least 0.5  $\mu\text{g}/\text{mL}$
    - Peak at least 2  $\mu\text{g}/\text{mL}$
  - Posaconazole
    - Random level at least 0.5  $\mu\text{g}/\text{mL}$

Thank You