

Pediatric Invasive Fungal Infections

Fact Sheet

- The incidence and severity of invasive fungal infections in immunosuppressed patients has been increasing in children and adults in the past decades.¹
- Physicians caring for hospitalized children are increasingly confronted by children with complex chronic conditions – often they have underlying malignant, autoimmune or immunodeficiency disorders requiring aggressive chemotherapy, long-term in-dwelling catheters, and prolonged courses of broad-spectrum antibiotics. All these are risk factors for invasive fungal diseases such as *Candida* species and aspergillosis.²

Invasive candidiasis

- *Candida* (a type of yeast) is a fungus that is normally found in the mouth, skin, female genital tract, and gastrointestinal tract.³
- For individuals with impaired immune systems, such as individuals undergoing chemotherapy treatment for cancer, organ transplants or with HIV, *Candida* may become invasive—and life-threatening—when it invades the bloodstream or any organ and spreads throughout the body.^{4,5}
- Invasive candidiasis is most often caused by *C. albicans*; however, there has been an increase in non-*albicans* infections, including *C. glabrata*, *C. parapsilosis*, *C. tropicalis* and *C. krusei* among others.^{6,7}

Invasive aspergillosis

- *Aspergillus* is a fungus commonly found in the environment. It grows on dead leaves, stored grain, bird droppings, compost piles or other decaying vegetation. Diseases caused by *Aspergillus* are called ‘aspergillosis’.
- Invasive aspergillosis occurs when the fungus spreads throughout the body via the bloodstream to other parts of the body such as the heart, brain, kidneys and eyes. People who get infected by invasive aspergillosis usually have seriously damaged or impaired immune systems (e.g. people who have low white cell counts after cancer treatment, who have AIDS or major burns or who have had a bone marrow transplant). This form of aspergillosis can be deadly with a mortality rate ranging from 65 to 100 per cent.⁸
- Invasive aspergillosis is a major cause of morbidity and mortality in immunocompromised children.⁹

References

1. Costa V, Ungar W. *Caspofungin in the empiric treatment of febrile neutropenia in pediatric patients: a comparison with conventional and liposomal amphotericin B*, The Hospital for Sick Children (TASK), Report No. 2008-01, September 6, 2008.
2. Perkin RM, Swift JD et al. Pediatric Modern Medicine Lippincott Williams & Wilkins, Second Edition (2008), p 502.
3. Edwards JE "Candida Species." Principles and Practices of Infectious Diseases. Mandell G., Bennett J. E., Dolin Raphael. Philadelphia: Churchill Livingstone, Fifth Edition.
4. "Candidemia" Infectious Diseases. Gorbach Sherwood L., et al. Philadelphia: W.B. Saunders Company, 1998.
5. "Invasive Candidiasis" Center for Disease Control website accessed July 14, 2009 at http://www.cdc.gov/nczved/dfbmd/disease_listing/candidiasis_gi.html#31
6. Pfaller MA, et al. "Bloodstream Infections Due to Candida Species: SENTRY Antimicrobial Surveillance Program in North America and Latin America, 1997-1998." Antimicrobial Agents and Chemotherapy Mar. (2000): 747-751.
7. Kao Annie S, et al. "The Epidemiology of Candidemia in Two United States Cities: Results of a Population-Based Active Surveillance." Clinical Infectious Diseases 29 (1999): 1164-70.
8. Health Canada, Bureau of Infectious Diseases, *Construction-related Nosocomial Infections for Hospitalized Patients: Decreasing the Risk of Aspergillosis, Legionella and other Infections*, March 1999.
9. Burgos, A Zaoutis TE et al. "Pediatric Invasive Aspergillosis: A Multicenter Retrospective Analysis of 139 Contemporary Cases" *Pediatrics* Vol 121 Number 5, May 2008.