



LIFE Worldwide: Leading International Fungal Education

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Story in full

Childhood ABPA and SAFS

Allergic bronchopulmonary aspergillosis (ABPA) typically affects immunocompetent patients with a predisposing factor such as asthma or cystic fibrosis (CF), and can progress to bronchiectasis or pulmonary fibrosis if left untreated. It is a non-invasive condition that occurs when the body over-reacts to the presence of fungi such as *Aspergillus fumigatus* within the airways. Diagnostic criteria and treatment guidelines for children are extrapolated from adults, as there have been no paediatric clinical trials.

Dr [Kana Ram Jat](#) and colleagues in India recently published a review of the literature on childhood ABPA. Prevalence is challenging to measure because diagnosis is often delayed by up to 10 years, but has been reported in one systematic review (of 64 studies) as around 15-25% of children with poorly-controlled asthma, and 5-10% for children with CF. *Aspergillus* sensitisation has been estimated at around 29% of children with poorly-controlled asthma, but better estimates are needed. It is particularly important to monitor children on long-term oral steroids for side effects such as hypertension, growth problems or osteoporosis. Clinical trials of the use of itraconazole/voriconazole in children are urgently required.

► Read the paper: [Jat et al, 2018](#)

► Read a series of 42 cases of childhood ABPA in India: [Shah and Kunal, 2017](#)

News roundup

Children receiving voriconazole should receive ECG monitoring and electrolyte imbalance correction

Voriconazole occasionally induces [QTc prolongation \(QTcP\)](#) in adults, which can lead to life-threatening ventricular arrhythmia and [torsades de pointes \(TdP\)](#). However, rates for this side effect in children are not known, as most data are extrapolated from adult trials. Dr Pasternak and colleagues in Israel conducted a retrospective study of 55 children treated with voriconazole at a children's tertiary medical centre in Israel.

- The mean QTc interval was 402.8±27.9 ms initially, rising to 440.0±45.3 ms during voriconazole treatment. Prolongation >60 ms occurred in around a third of children receiving voriconazole.
- QTc reached >500 ms in 10 children (18%), including one 14yo girl who developed TdP.
- Even though the centre's guidelines specified that ECG monitoring is required for all patients receiving voriconazole, a further 96 patients were excluded from this trial due to missing ECG recordings (i.e. only around a third of patients were monitored according to their own guidelines).

They recommend ECG monitoring for all patients receiving voriconazole, and correction of electrolyte imbalances (especially potassium) before starting treatment – especially in children with chemotherapy-induced diarrhoea.

► [Read more: Pasternak et al \(2019\)](#)

Comparison of three MALDI-ToF libraries (MSI, Bruker, NIH) for identification of filamentous fungi

[MALDI-ToF mass spectrometry](#) has proven useful in identifying bacteria in clinical samples, but the technology has lagged behind in its use for filamentous fungi – in part because of a lack of strain/species libraries.

[Dr Markus Stein](#) and colleagues in Canada compared three libraries (MSI, Bruker v1.0 and NIH) for their ability to identify 63 reference strains and 158 local clinical isolates. They used the [Bruker Microflex](#)™ system to generate spectra that were then analysed using three different libraries: MSI 2016 library ([Normand et al, 2017](#)); Bruker Filamentous Fungi Library [v1.0](#) ([v2.0](#) now available); NIH library database ([Lau et al, 2013](#)).

- Around a quarter (23%) of moulds could not be identified even to genus by any of these libraries, which was similar to conventional identification methods (24%). In some cases, this was due to suboptimal extraction, but the authors suggest some may be non-clinically-relevant environmental contaminants that are not included in any of the libraries.
- Where identifications were made, they generally (95-98%) agreed with those made using Sanger sequencing (ITS2 etc).
- The Bruker software can be used on multiple libraries, which improved the identification rate.
- Dermatophytes were particularly challenging to identify.

► [Read more: Stein et al \(2018\)](#)

► Read a detailed review about MALDI-ToF in [identifying fungi](#) and [antimicrobial resistance](#)

New prospective open-label study on anidulafungin for invasive candidiasis in children

[IDSA guidelines](#) for [invasive candidiasis](#) recommend first-line treatment with an echinocandin as these are fungicidal against most *Candida* spp. However, recommendations for using anidulafungin (Ecalta/Eraxis) to treat invasive candidiasis in children are largely extrapolated from trials in adults. [Dr Emmanuel Roilides](#) and colleagues have published data from an open-label trial of 49 children (2-18 years), reporting a global response rate of 71%.

All patients reported at least one adverse event, with the most common being diarrhoea (22%), vomiting (25%) or pyrexia (18%). However, only around 1/3 (37%) of these were judged by investigators to be possibly related to the treatment. Around half of the patients (51%) switched to fluconazole, and 10% discontinued due to AEs. Around 2/3 of patients (65%) had central venous catheter involvement. IDSA recommend removing a catheter as soon as possible where this is thought to be the site of infection.

► [Read more: Roilides et al \(2019\)](#)

► Read reviews on paediatric use of [anidulafungin](#), [caspofungin](#), or [micafungin](#) for invasive candidiasis

Other news

- [Oropharyngeal histoplasmosis: a manifestation of disseminated disease](#)
- [ECCMID 2019 presentations: burden of fungal disease estimates for Namibia, Paraguay and Kyrgyzstan](#)
- [Neocucurbitaria keratinophila: an emerging opportunistic pathogen?](#)
- [1 in 15 TB sufferers go on to develop chronic pulmonary aspergillosis, treatment could save 1000s](#)
- [Indwelling catheters and immune disorders are risk factors for systemic Malassezia infection](#)
- [How well is long-term fluconazole tolerated?](#)
- [Rapid detection of by qPCR in a wide range of clinical specimens: has culture had its day?](#)

Section in the spotlight: Prevention of histoplasmosis

Exposure to histoplasmosis is very common in areas where this fungus is endemic, but most people will suffer only a mild illness or be asymptomatic. However, heavy exposure can result in life-threatening infection, generally starting in the lungs. *Histoplasma* thrives in bat and bird guano and is particularly a threat to manual workers in the construction and poultry farming industries, or those entering caves or abandoned buildings.

NIOSH and the CDC have provide a guide for preventing disease through the use of personal protective equipment (they describe in detail how to select an appropriate respirator) and working practices such as wetting down dusty surfaces.

► Read more about [acute pulmonary histoplasmosis](#) and [its prevention](#)

► [Download the NIOSH/CDC guide](#)

Featured LIFE video

Invasive candidiasis

Candida causes a spectrum of disease from mild vaginal thrush to life-threatening infections that can spread through the bloodstream. Risk factors include surgery, stays in ICU, chemotherapy or haemodialysis. It is vital to remove the source of the infection where possible, for example by draining an abscess or removing a catheter.

[Watch it](#)

Really important review

Reactivation of latent infections

Dr Kevin Brunet and colleagues in France reviewed the evidence for different mechanisms of reactivation, which can occur in patients who become immunocompromised weeks or even years after a fungal infection that had apparently been resolved. Granulomas have been found to act as a reservoir for *Histoplasma* and perhaps *Cryptococcus*.

[Read it](#)

New book

Antifungal Therapy (2nd edition)

Edited by Mahmoud Ghannoum and John Perfect, the second edition of this book was released last month. Illustrated with clinical colour photos, it includes useful tabulated pharmacokinetics data. It covers a wide range of clinical scenarios, from transplants to endemic mycoses to paediatrics, and includes a Q&A section for commonly-encountered issues.

[Order it](#)

Courses and conferences

- China-Netherlands Course in Medical Mycology. 18-26 May. Suzhou, China. [Email organiser](#)
- BSMM Course in Diagnostic Medical Mycology. 10-14 June. Leeds, UK. [Contact organiser](#)
- 3rd Workshop on AIDS-related Mycoses. 10-12 July. Cape Town, South Africa. [Website](#)
- Antimicrobial Stewardship Research Workshop. 14-15 Nov. Maryland, USA. [Website](#)
- 9th Advances Against Aspergillosis and Mucormycosis (AAAM). 27-29 Feb 2020 Lugano, Switzerland. [Website](#)



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We are delighted to announce that the free fungal microscopy course at [Microfungi.net](#) is now accredited by the Royal College of Pathologists, allowing participants to gain CPD points for module 2 (18 points), module 3 (24 points) and module 4 (30 points). Organized in partnership between the Fungal Infection Trust and the University of Manchester, this is the only free online university-accredited course currently available.



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