Background. β-D-Glucan assay (BDG) has been recently introduced in India and is recommended for the early diagnosis of invasive candidiasis (IC), but there are a number of factors (eg β-lactam antibiotics, immunoglobulin and albumin infusions, bacteremia and surgical mesh) which may falsely elevate BDG levels.

Methods. This was a retrospective, observational study done in the 23 bedded multi-institutional ICU of a tertiary care hospital in South India. Case records of adult (> 18 years) non-neutropenic patients with severe sepsis or shock with ≥ 1 risk factor for IC were analyzed. As a standard practice, BDG assay was sent and effective antifungals were started on the day of suspicion of IC. All neutropenic, immunocompromised patients, those already on antifungal and those who were diagnosed with other invasive fungal infections were excluded from the study. FDA approved Fungitell assay was used to measure serum BDG levels (pg/mL).

Results. Patients were divided into 3 groups. Group A (n = 16) comprised of patients in whom diagnosis of IC was confirmed (blood culture or another sterile site grew candida). Group B (n = 30) comprised of patients in whom alternative diagnosis of severe sepsis or septic shock was found or they did not improve after administration of antifungals. Group C (n = 31) comprised of those patients in whom neither diagnosis of IC was confirmed nor an alternative explanation was found but they improved clinically on giving antifungal therapy. Mean BDG levels was significantly higher in Group A as compared with Group B and Group C (448.75 ± 88.30 vs 144.46 ± 82.49 vs 292.90 ± 137.0 pg/mL; P < 0.001). The mean value of the BDG was higher than the accepted cutoff of 80 pg/mL in all three groups (Figure 1). The use of agents which cause false elevation of BDG was significantly higher in Group B as compared with Group A (P = 0.02).

Conclusion. A BDG assay cutoff of 80 pg/mL leads to a higher number of false positive results in ICU patients, where false positive factors are unavoidable. The results of this study suggest that a higher cutoff of at least 144 pg/mL will be more specific for IC, although this may need further validation with larger trials.

Figure 1: Mean BDG values in various groups

Disclosures. All authors: No reported disclosures.

2079. PCR-based Diagnosis of Mucormycosis Targeting Mucorales-specific Genes
Clara Baldin, PhD1; Sameh Soliman, PhD2; Hweon Jeon, BS3; Tectelegoris Gebremariam, MS4; Sonoud Alkhaiazri, PhD5; Vincent Bruno, PhD2; John Edwards, MD6; and Ashraf Ibrahim, PhD1,2,6; Los Angeles Biomedical Research Institute at Harbor-UCLA Medical Center, Torrance, California, Department of Medical Chemistry, College of Pharmacy, University of Sharjah, Sharjah, United Arab Emirates; Department of Microbiology and Immunology, University of Maryland School of Medicine, Baltimore, MD, 2David Geffen School of Medicine at UCLA, Los Angeles, California

Session: 236. Diagnostics - Mycology
Saturday, October 7, 2017: 12:30 PM

Background. Mucormycosis is a life-threatening infection caused by fungi in the order Mucorales. Among the different species of Mucorales, Rhizopus spp and Mucor spp. are responsible for 50-70% of all cases of mucormycosis, followed by Mucor spp. and Lichtheimia spp. Standard treatment of mucormycosis involves surgical removal of infected tissue and antifungal therapy. However, the rapid progression of the disease and the current lack of early and reliable diagnostic assay contribute to the high mortality rates of 50%–100%.

Methods. We propose a PCR-based approach targeting the spore coating protein homolog encoding CotH genes. CotH genes are universally and uniquely present among Mucorales and they encode cell surface proteins that are required for mucormycosis pathogenesis. Bioinformatic analyses were used to identify short consensus sequences present in CotH homologs from different Mucorales to be used as PCR primers. Candidates were tested for the amplification of PCR-products from gDNA of different Mucorales. The sensitivity of selected primers was tested using biological samples spiked with different spores concentrations. Finally, the best candidate primers were used to detect the presence of pathogen DNA from biological samples taken from mice infected intratracheally with different Mucorales.

Results. Our best candidate primers could amplify the specific sequence from Rhizopus oryzae1, M. circinelloides, L. corymbifer and Cunninghamella bertholletiae. These primers had a sensitivity of detecting 10 spores into a spiked sample. The specificity for the unique CotH target enabled us to differentiate between Mucorales and closely related filamentous fungus, e.g., Aspergillus fumigatus. Genomic DNA extraction was successful from all considered biological samples; remarkably, infection was successfully detected from biological samples taken from mice infected with different Mucorales as early as 24 hours post infection.

Conclusion. We have successfully developed a simple PCR-based approach which is fast, reliable and sensitive enough to detect Mucorales gDNA in murine biological samples as early as 1 day post infection as a target will allow a better differentiation between Mucorales species and other closely related filamentous fungi.

Disclosures. All authors: No reported disclosures.

2080. Invasive Candidiasis in Pediatric Patients at King Fahad Medical City in Riyadh, Saudi Arabia: A 5-year Retrospective Study
Zainah Almoosa, post doctoral; Pediatrics, king abdulaziz hospital, hofuf, Saudi Arabia

Session: 236. Diagnostics - Mycology
Saturday, October 7, 2017: 12:30 PM

Background. Invasive candidiasis in children is associated with high morbidity and mortality. We aim to identify predisposing factors, species distribution, antifungal susceptibility, and outcomes among patients with candidemia.

Methods. A data collection form composed of seven sections including 51 questions was designed to gather demographic and clinical information. We collected data from all 129 patients with invasive candidiasis from January 2010 to January 2015.

Results. The 129 patients had the following risk factors: 30 (23.26%) were premature, 34 (26.36%) had low birth weight, 59 (45.74%) had a central venous catheter, 29 (22.46%) had a malignancy, 20 (15.3%) received immunotherapy, and 56 (43.41%) received ventilator support. A multivariate analysis revealed a more than two-fold mortality rate in patients who had vegetation in the heart (OR 2.9), and patients who had Candida isolated from their blood were more than twice as likely to die as patients with Candida isolated from other sites (OR 2.2). A total of 48.33% of patients on ventilator support died, and 26.09% of patients who were not on ventilator support died (P = 0.009); 43.75% of patients in the intensive care unit (ICU) died vs. only 24.49% of patients who were not in the ICU (P = 0.03). C. parapsilosis exhibited the highest mortality rate among all Candida species (56.2%).

Conclusion. The study revealed that C. albicans was the most common isolate among all Candida species. Mechanical ventilation and an ICU stay were significant risk factors for death in children with invasive candidiasis.

Disclosures. All authors: No reported disclosures.

2081. Does a Negative Rapid Diagnostic Test for Detection of Candida Bloodstream Infection Lead to Less Antifungal Use?
Tanaya Bhowmick, MD2; Rashi Sharma, MD2; Melvin Weinstein, MD3

Session: 236. Diagnostics - Mycology
Saturday, October 7, 2017: 12:00 PM

Background. Invasive candidiasis in children is associated with high morbidity and mortality. We aim to identify predisposing factors, species distribution, antifungal susceptibility, and outcomes among patients with candidemia.

Methods. A data collection form composed of seven sections including 51 questions was designed to gather demographic and clinical information. We collected data from all 129 patients with invasive candidiasis from January 2010 to January 2015.

Results. The 129 patients had the following risk factors: 30 (23.26%) were premature, 34 (26.36%) had low birth weight, 59 (45.74%) had a central venous catheter, 29 (22.46%) had a malignancy, 20 (15.3%) received immunotherapy, and 56 (43.41%) received ventilator support. A multivariate analysis revealed a more than two-fold mortality rate in patients who had vegetation in the heart (OR 2.9), and patients who had Candida isolated from their blood were more than twice as likely to die as patients with Candida isolated from other sites (OR 2.2). A total of 48.33% of patients on ventilator support died, and 26.09% of patients who were not on ventilator support died (P = 0.009); 43.75% of patients in the intensive care unit (ICU) died vs. only 24.49% of patients who were not in the ICU (P = 0.03). C. parapsilosis exhibited the highest mortality rate among all Candida species (56.2%).

Conclusion. The study revealed that C. albicans was the most common isolate among all Candida species. Mechanical ventilation and an ICU stay were significant risk factors for death in children with invasive candidiasis.

Disclosures. All authors: No reported disclosures.