Disclosures. All authors: No reported disclosures.

2052. Performance of the Biofire FilmArray Meningitis/Encephalitis Panel in Cryptococcal Meningitis Diagnosis
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Background. Diagnosing meningitis and encephalitis is challenging in the immunosuppressed population. Cerebrospinal fluid (CSF) culture is the gold standard diagnostic test for cryptococcal meningitis (CM), but is time intensive and requires a high index of suspicion. The BioFire FilmArray Meningitis/Encephalitis (ME) panel offers an option for rapid diagnostic testing. Recent studies suggest similar performance of the ME panel compared with CSF culture in the initial diagnosis and relapse of CM. We investigated the performance of the ME panel in the diagnosis of cryptococcal disease in patients presenting with meningitis.

Methods. A retrospective observational study was performed at an 800 bed regional medical center between June 1, 2016 and March 1, 2018. Laboratory results for all patients admitted with CSF or serum cryptococcal testing were reviewed. We abstracted the results from 14 distinct hospitalizations involving 12 patients (Figure 1) with CM who had an ME panel and CSF culture. Diagnostic performance was determined by comparison of ME panel to CSF culture.

Results. The ME panel demonstrated a 71.43% (95% CI: 29.04–96.33) sensitivity and 100% (95% CI: 59.04–100) specificity for diagnosing CM for the population described in Table 1. The ME panel detected all four patients with an initial diagnosis of CM and one of three patients with culture positive relapse.

Conclusion. Our findings suggest that a negative cryptococcal result on the ME panel should not be ruled out cryptococcal disease, particularly in patients with a previous diagnosis of CM. Additional testing may increase cost, but until larger studies validate the use of rapid diagnostics, fungal culture remains the gold standard for the diagnosis of CM and should not be eliminated from routine evaluation.

Table 1. ME and culture results of 14 CSF cryptococcal antigen positive specimens.

| Demographics | ME positive | Culture positive | ME negative | Culture negative |
|--------------|------------|-----------------|------------|-----------------|
| Male, % (no.) | 86 [12/14] | 44              | 8 [1/4]    | 48              |
| Age (years), mean | 44          | 30 [3/10]       | 30 [3/10]  | 30 [3/10]       |
| History of CM, % (no.) | 71 [10/14] | 70 [7/10]       | 70 [7/10]  | 70 [7/10]       |
| WBC count/μL, median [IQR] | 52.5 [6-179] | 52.5 [6-179] | 52.5 [6-179] | 52.5 [6-179] |

*Two patients with no recorded opening pressure.

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2053. Tissue-Based Molecular Diagnostics: A Sensitive and Specific Way for the Identification of Invasive Fungal Infections in the Combat-Related Setting
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Background. Combat-associated invasive fungal infections (IFI) of the deep skin and soft tissue are an infectious disease. Reliance on conventional techniques to diagnose IFIs has limitations as culture is insensitive and time-delayed and histopathology cannot provide a species-level or even a genus-level identification (ID). Molecular-based methods are rapid, provide species-level ID, and have been studied to a limited extent in the trauma setting although they may prove overly sensitive as soil (thereby funga) contamination is common. In this study, we examined the performance characteristics of a panfungal PCR for the diagnosis of IFI among subjects injured in Afghanistan operations.

Methods. Formalin-fixed paraffin-embedded (FFPE) tissue samples obtained during debridement from IFI cases with angioinvasion (AI) and controls (combat-injured with negative histopathology) were evaluated with a panfungal PCR targeting the internal transcribed spacer (ITS 1 and ITS 2) of the fungal genome.

Results. We assessed 41 injury sites where culture, histopathology, and FFPE specimens were available contemporaneously. Fungus was cultured from 32 sites (78%) with the order Mucorales represented in 18 sites (44%, five sites with Saksenaea spp.) and Aspergillus spp. in six (15%) sites. When compared with the gold standard (histopathology), the sensitivity, negative, and positive predictive value were 83, 94, and 98%, respectively. Specificity was calculated to be 99.2% based upon the identification of one false-positive among 118 controls.

Conclusion. Concerns about PCR being overly sensitive for the diagnosis of trauma-related IFI are not upheld. The PCR-based method was sensitive, specific, and had a high negative predictive value for the diagnosis of AI IFI. Re-demonstrated is the inability of culture to identify fungi of the order Mucorales and the need for anti-fungal coverage targeting fungi of the order Mucorales and Aspergillus in AI IFI. As Saksenaea is the dominant fungus identified in this setting, study of the virulence characteristics and antifungal susceptibility is warranted.

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2054. Physician Responses to Positive Rapid Diagnostic Tests for Candida Fungemia in the Absence of Concomitant Positive Blood Cultures
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Background. Candida species are the fourth leading cause of nosocomial bloodstream infections in the United States. Unfortunately, detection, identification and susceptibility testing using standard instrumented blood culture systems and routine microbiological techniques may take 4–10 days. Moreover, sensitivity of routine blood cultures for candidemia is only ~50 to 75%. The T2 Candida Panel (T2CP) is an FDA-approved assay that rapidly detects the presence of five Candida species directly from whole blood in 3–5 hours. We examined mortality and antifungal therapy (AFT) decisions based on positive (pos) results of a T2CP in patients with negative (neg) blood cultures.

Methods. We performed a case series of all patients who had a pos T2CP with concomitant neg blood cultures at our institution from March 1, 2016 to March 1, 2018. If a patient had multiple valid T2CPs, only the first pos result was used for analysis. Medical records were reviewed for demographics, comorbidities, risk factors for candida infection, length of stay, use and duration of AFT, and 14-day and in-hospital mortality from the time of the T2CP.

Results. Fifteen patients were identified who met inclusion criteria. Eight patients were immunocompromised: four (26.7%) solid cancer malignancy, three (20%) hematologic malignancy, and one kidney transplant recipient. Pos T2CP results by species were as follows: 53.3% C. albicans/C. tropicalis, 40% C. parapsilosis, and 6.7% C. glabrata/C. krusei. Median SOFA, Charlson comorbidity index, and Candida scores were 6, 6, and 9, respectively. Fourteen-day mortality was 40% and in-hospital mortality was 53.3%. Only two patients were on prophylactic AFT due to an echi-nocandin in response to the pos T2CP. Of the remaining 13 patients who were not on prophylactic AFT, all were started on AFT pos T2CP result. Conclusion. Early escalation or initiation of AFT therapy based on pos T2CP in severely ill patients who had negative blood cultures. Unfortunately, the population had high severity index scores and high mortality despite initiation or escalation of AFT. We hypothesize that earlier testing and detection of Candida fungemia may lead to faster initiation of AFT and better outcomes.

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2055. Utility of Aspergillus Galactomannan Assay in Allogeneic Stem Cell Transplant Recipients Sabeen Dagher, PharmD3, Catherine Medley, PharmD3, Nina Haste, PharmD, PhD4, and Randeep Taplitz, MD5. 1University of CA, San Diego; 2La Jolla, California; 3Pharmacy, University of California, San Diego, San Diego, California; 4Division of Infectious Diseases, University of California San Diego Health Centers, San Diego, California

Background. Allogeneic hematopoietic stem cell transplantation (HSCT) is a valuable treatment option for patients with some blood/malignant disorders. However, this procedure may be complicated by life-threatening infections, including invasive aspergillosis (IA). Diagnosis of IA is challenging due to nonspecific symptoms that present similar to other infections and delays in initiation of treatment are associated with poor outcomes. The galactomannan assay (GM) is a widely used test for the early diagnosis of IA and allows for prompt initiation of antifungal therapy. However, a positive (+) GM result requires further workup for a definitive diagnosis. Furthermore, false-positives can lead to unnecessary treatment with expensive and potentially toxic antifungal medications. At UC San Diego Health, allogeneic HSCT patients not on mold-active agents for antifungal prophylaxis have GM tested weekly until 100 days post-HSCT. This study aims to describe the frequency of positive GM assays in this HSCT population.

Methods. This is a retrospective single-center study of patients >18 years of age post-allogeneic HSCT at UC San Diego Health from January 2015 to December 2016 with GM results reported in the electronic medical record. Data includes patient demographics, GM results up to 100 days post-HSCT, antifungal prophylaxis, further testing performed, diagnosis of possible, probable, and proven IA, and outcome of infection.

Results. In total, 108 patients met criteria for enrollment in this study. There were a total of 1,354 GM results, of which only 2.8% (38) were positive (≥1 GM) in 25 patients (23% of all patients). Of these, 20 (65%) were found to be false-positives. In total, 108 patients were diagnosed with possible/probable IA. Of these patients, 5 had 0 +GM, and two had 1 +GM. In the two with 1+GM, IA diagnosis was notably made prior to the +GM result. In only three of the seven cases did +GM screening lead to diagnosis of IA; of these, two patients had acute GVHD and one developed infection during neutropenia, in the first 2 weeks post-HSCT.

Conclusion. Routine GM testing adds to cost and is not a useful predictor of IA infection in the studied population. Studies to determine what populations, if any, would most benefit from routine pre-emptive GM or other fungal screening are needed.

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2056. Trypanosoma cruzi DNA Detection by PCR in Dried Blood Spots Preserved in Filter Paper Analia Vitale, Biochemist1; Jorge Rey, Biochemist/Professor2; Marcelo Rodriguez Ferremin, Professor/PhD12; and Lucía Gallo, Biochemist; 1Universidad de Buenos Aires, Facultad de Medicina y Bioquímica; 2Universidad de Buenos Aires; Buenos Aires, Argentina, Buenos Aires, Argentina

Background. Trypanosoma cruzi DNA detection by PCR in dried blood spots preserved in filter paper is an attractive alternative for the conservation and handling of samples. The aim of this study was to optimize the detection of Trypanosoma cruzi DNA from dried blood spots preserved in filter paper.

Methods. Fixed sections of Whatman filter paper with different concentrations of T. cruzi were prepared (10^1/10^11/mL) and stored at room temperature, 4 °C, and –20°C in the presence or absence of a desiccant. Samples (8 mm) were taken at 7, 60, 90 and 240 days of preservation. Endpoint PCR, targeting 185 base, was used for the detection of T. cruzi DNA directly on the filter paper.

Results. T. cruzi DNA was detected at all sampling times up to the 10^11/mL concentration independently of preservation. The effect of humidity was observed at 240 days preservation with the observation of faded bands in agarose gels. For the 10^11/mL concentration, T. cruzi DNA was detected only at 7 days regardless of preservation. When comparing T. cruzi DNA detection using increasing sections of filter paper (8, 16 and 24 mm), T. cruzi DNA was detected in all areas tested in the concentration of 10^10 parasites/mL and only when using 24 mm for the concentration of 1 parasite/mL.

Conclusion. Dried blood spots preserved in filter paper allowed detection of T. cruzi DNA by endpoint PCR in the different conservation conditions up to 8 months. The detection of parasite DNA was improved by increasing the area of paper used for testing. The conservation of blood on filter paper would provide a safe transport of diagnostic material to distant specialized laboratories to perform diagnosis using molecular techniques.

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