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Session: 229. Diagnostics: Biomarkers and Novel Approaches
Saturday, October 6, 2018: 12:30 PM

Background. Intravenous immunoglobulin (IVIG) is used to treat an increasing number of conditions including hematologic, rheumatologic and immunodeficiency diseases. The immunomodulatory effects can be life-saving, however recent administration can complicate diagnostics when patients later present with symptoms necessitating serologic testing. We evaluated the serologic profile of IVIG for commonly ordered infectious diseases serologies.

Methods. Patients were enrolled if they received and were naïve to IVIG therapy. Blood was drawn prior to IVIG and 72–96 hours post-infusion. All samples were tested for: *Bartonella*, *Coccidioides*, *Brucella*, *Histoplasma*, *Coxiella*, West Nile, St. Louis, California, Eastern, and Western Encephalitis, Lyme, Dengue, HSV 1 and 2, *Chikungunya*, cytomegalovirus, varicella zoster, Epstein-Barr and *Toxoplasma* by standard methodologies (ARUP, Salt Lake City, UT). Pre- and post-infusion antibody concentrations were evaluated to determine the potential false-positive rate of serologic testing.

Results. Seven patients received IVIG (renal transplant rejection, two patients; Guillain–Barre syndrome, three patients; bone marrow transplant, two patients). Six of seven patients receiving IVIG had at least one evaluated serology become positive 72 hours after IVIG infusion. Antibodies for CMV, HSV-2, and EBV early antigen D turned positive in three patients. Antibodies for WNV, *Coccidioides* IgG, and *Histoplasma* yeast IgG became positive in two patients.Finally, antibodies for HSV-1 and -2, and EBV nuclear antigen each turned positive in one patient. Patients received between 20 and 112.5 g. Of the three patients who received more than 100 g of IVIG, two had at least four serologies turn positive. Of the patients who received <100 g (20–50 g), none had >3 turn positive ($P < 0.05$). One patient had three serologies turn negative (*Coccidioides*, HSV 2, and EBV Early D) after infusion of 36.5 g of IVIG, with none turning positive.

Conclusion. Use of IVIG has increased significantly over the past decade; however, the potential pitfalls in serologic diagnostics associated with receipt of IVIG have not been studied systematically and is likely a confounder in serologic diagnostics causing both false-positive and false-negative results. We found a number of screening and diagnostic serologies can be artificially altered after infusion of IVIG.

Disclosures. **All authors:** No reported disclosures.

2032. Predictors of 6-Week Mortality in Patients with Positive Bronchoalveolar Lavage (BAL) Galactomannan (GM)

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Session: 230. Diagnostics: Mycology
Saturday, October 6, 2018: 12:30 PM

Background. BAL-GM is a mycologic criterion for diagnosis of probable invasive aspergillosis (IA). However, in a contemporary cohort of consecutive patients with BAL-GM measured as part of their workup for potential IA, we previously showed that 42% of positive (≥0.5) BAL-GM values can be falsely positive; positive predictive value was increased by using higher cutoffs and in patient groups with high pre-test probability for IA. In this study from the same cohort, we analyze the prognostic value of BAL-GM and identify predictors of 6-week mortality, the main outcome in most studies of mold-active antifungal drugs.

Methods. We reviewed clinical and microbiologic data of patients who had ≥1 positive BAL-GM (≥0.5), at Brigham and Women's Hospital (November 2009–March 2016). We applied EORTC/MSG invasive mold infection (IMI) definitions to classify cases as possible, probable or proven IMI, excluding BAL-GM result as mycologic criterion, and used Cox regression to identify factors associated with 6-week all-cause mortality.

Results. We studied 134 patients (median age 58 years, 49% women, 55% with hematologic malignancy, 10% solid-organ and 34% hematopoetic stem-cell transplant recipients). APACHE II score, liver disease, acute kidney injury, and shock were independently associated with higher 6-week mortality. ICU stay, mechanical ventilation, corticosteroids, hypertension, EORTC/MSG category, serum-GM and antifungal treatment were associated with higher mortality in univariate, but not multivariate analyses. BAL-GM value was independently associated with 6-week mortality (adjusted HR 1.24(continuous variable), 95% CI 1.1–1.39, $P < 0.001$). The association of BAL GM strata with 6-week crude mortality was significant in patients with possible, probable or proven IMI, but not in those without IMI (Figure 1).

Conclusion. Higher BAL-GM values were an independent predictor of 6-week mortality, having prognostic value in patients with possible, probable or proven IMI, but not in patients who did not meet other criteria for IMI. We propose critical reassessment of BAL-GM cutoff values in different patient populations.

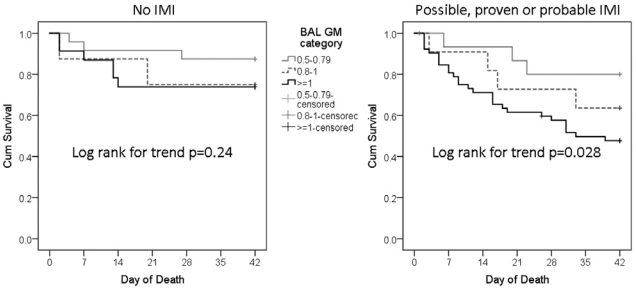

Figure 1. Kaplan–Meier (KM) curves for different cutoffs of BAL GM.

Disclosures. **All authors:** No reported disclosures.

2033. Incorporating T2Candida Testing into Rational Antifungal (AF) Management: A Successful Pilot Study of Diagnostic Stewardship (DS) Directed Toward Specific Intensive Care Unit (ICU) Patients At-Risk for Sepsis due to Invasive Candidiasis (IC)

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Session: 230. Diagnostics: Mycology
Saturday, October 6, 2018: 12:30 PM

Background. Blood cultures (BC) are ~50% sensitive for diagnosing IC. T2Candida (T2) detects five leading Candida spp. directly in blood and was ≥90%/90% sensitive/specific (S/Sp) for candidemia in clinical trials. Optimal use of T2 in clinical practice is unclear. We targeted T2 to specific ICU patients at-risk for IC, and implemented AF management algorithms developed with ICU teams.

Methods. A DS team ordered concurrent T2 and BC, and used results to guide AF in patients fulfilling pre-specified criteria for septic shock (medical ICU (MICU)), sepsis after abdominal surgery (trauma ICU), or sepsis with mechanical circulatory support (cardiothoracic ICU). We focused on groups with anticipated pre-test IC probabilities of ~3–15%. Proven IC was defined if BC+ and possible IC if BC- but a compatible clinical picture was observed.

Results. Seven percent (6/88) of BC in ICU patients with sepsis were Candida +. T2 and BC results are shown in the table. Using BC as gold standard, T2 S/Sp and PPV/NPV were 50%/87% and 33%/96%, respectively. Including possible IC, T2 S/Sp increased to 69%/96%, and 67% (4/6) of T2+/BC– results were likely true positive; two false-positive results were for *C. parapsilosis*. We focused on MICU outcomes initially since 75% (66/88) of tests were performed here. Empiric AFs were discontinued in 12 patients following a T2- result; AFs were avoided in all others. Median combined days of therapy (DOT)/month for caspofungin and fluconazole as empiric or definitive treatment prior to and after introducing DS were 26 (range: 10–53) and 15 (3–32), respectively ($P = 0.0047$). AF consumption was decreased 47% (figure).

Conclusion. Targeted DS using T2 in select ICU patients with sepsis significantly reduced AF usage. 14% of patients with sepsis were diagnosed with IC using either T2+ or BC+, compared with 7% with BC+ alone, as would be expected if BC S was 50%. T2 S and T2–/BC+ results were lower and higher, respectively, than previously reported, indicating that treatment decisions should be based on results of both tests. Most T2+/BC– results were ascribed to possible IC.

Table. Rates of T2 and BC Positive Results and Corresponding *Candida* Species

	% (*n*) tests	Candida spp.
T2+	10% (9)	5 CP, 4 CA/CT
BC+	7% (6)	5 CA, 1 CP
T2+/BC+	3% (3)	2 CA, 1 CP
T2+/BC-	7% (6)	2 CA/CT, 4 CP
T2-/BC+	3% (3)	3 CA
T2-/BC-	86% (76)	