Background. Intraoperative 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 naive to IVIG therapy. Blood was drawn prior to IVIG and 72–96 hours post-infusion. All samples were tested for: Bartonella, Coccidioides, Brucella, Histoplasma, Coxella, 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 antiviral 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.

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

Lavage (BAL) Galactomannan (GM)

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Background. BAL-GM is a mycologic criterion for diagnosis of probable invasive candidiasis (IC). BAL-GM is a mycologic criterion for diagnosis of probable invasive candidiasis (IC). However, in a contemporary cohort of consecutive patients with invasive candidiasis (IC) and diagnostic serologies can be falsely positive; positive predictive value was increased by using high 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 (≥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, hypermetension, EORTC/MSG category, serum-GM and anti-fungal 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.

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Results. The Aliquot BdAg ELISA showed 95.7% (22/23), 96.8% (61/63) and 96.5% (83/86) positive, negative and overall agreement with the MVDx BdAg EIA, respectively. Seventeen of the 22 samples positive for BdAg by both assays resulted positive by a H. capsulatum antigen ELISA (IMMY, Benton, OK). Of the five well-characterized patients, one was diagnosed with blastomycosis based on a positive B. dermatitidis immunodiffusion result; this patient was positive by both BdAg assays. All urine samples positive for S. pneumoniae or L. pneumophila antigen were negative by the Aliquot BdAg ELISA, while all five samples positive by the IMMY H. capsulatum antigen ELISA were also positive by the Aliquot BdAg assay.

Conclusion. The Aliquot BdAg ELISA demonstrated excellent agreement with the MVDx BdAg EIA. Cross-reactivity between B. dermatitidis and H. capsulatum antigen detection assays has been previously established and is a notable limitation to the Aliquot BdAg assay. Further evaluation of this assay using specimens from well-characterized patients with and without blastomycosis is warranted.

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