Table 1: Demographics of Patients Monoinfected with Babesiosis Versus Patients Coinfected with Babesiosis and Lyme Disease.

N= 40 **Only those Tested for Lyme	Infection		
	Babesiosis Monoinfection (N=22)	Babesiosis and Lyme Disease Coinfection (N=18)	P-Value
Mean Age (SD)	62.9 (15.0)	63.3 (15.1)	0.8597
Gender, n (%)			
Female	6 (27.27)	4 (22.22)	1.0000
Male	16 (72.73)	14 (77.78)	
Race, n (%)			
White/ Caucasian	14 (70.0)	11 (61.11)	0.7658
Hispanic	4 (20.0)	5 (27.78)	
Asian	1 (5.0)	0 (0.0)	
Other	1 (5.0)	2 (11.11)	
Admitted to Hospital, n (%)			
No	3 (13.64)	0 (0.0)	0.2385
Yes	19 (86.36)	18 (100.0)	
Length of Stay in days			
Median (IQR)	3.0 (2.0)	5.5 (5.0)	0.0295
ICU Admission, n (%)			
No	18 (81.82)	14 (77.78)	1.0000
Yes	4 (18.18)	4 (22.22)	
Hypertension, n (%)			
No	9 (69.23)	9 (64.29)	1.0000
Yes	4 (30.77)	5 (35.71)	
Diabetes, n (%)			
No	10 (76.92)	10 (83.33)	1.0000
Yes	3 (23.08)	2 (16.67)	
If Diabetic, Median HbA1c (IQR)	5.6 (0.90)	5.9 (2.3)	0.5412
Heart Conditions (CHF, CAD, Arrhythmias), n (%)			
No	8 (53.33)	9 (56.25)	1.0000
Yes	7 (46.67)	7 (43.75)	
Blood Disease, n (%)			
No	10 (90.91)	10 (83.33)	1.0000
Yes	1 (9.09)	2 (16.67)	
Cancer, n (%)			
No	8 (61.54)	10 (90.91)	0.1660
Yes	5 (38.46)	1 (9.09)	
Chronic Kidney Disease, n (%)			
No	10 (90.91)	9 (81.82)	1.0000
Yes	1 (9.09)	2 (18.18)	
COPD/Asthma, n (%)			
No	10 (83.33)	8 (61.54)	0.3783
Yes	2 (16.67)	5 (38.46)	
Liver Disease, n (%)			
No	10 (90.91)	11 (84.62)	1.0000
Yes	1 (9.09)	2 (15.38)	
Autoimmune Disease, n (%)			
No	10 (100.0)	9 (90.0)	1.0000
Yes	0 (0.0)	1 (10.0)	
Immunocompromised, n (%)			
No	11 (84.62)	11 (78.57)	1.0000
Yes	2 (15.38)	3 (21.43)	

Conclusion: It is remarkable that despite no differences in lab values on admission, comorbidities, and demographics, patients with a coinfection had a longer hospital stay than those with only babesiosis. This suggests that having a coinfection with babesiosis and LD may lead to a more severe illness than a single infection with babesiosis.

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747. Diagnostic Performance of Bronchoalveolar Lavage Fluid Galactomannan Assay in Patients with Negative Serum Galactomannan Assay Suspected with Invasive Pulmonary Aspergillosis

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Session: P-30. Eukaryotic Diagnostics

Background: There are limited data in real clinical practice on the diagnostic value of BAL (bronchoalveolar lavage) fluid galactomannan (GM) assay in patients with suspected invasive pulmonary aspergillosis (IPA) who had negative serum GM results.

Methods: This study was performed at Asan Medical Center, a 2700 bed tertiary-care hospital in Seoul, South Korea between May 2008 and April 2019. All patients with suspected IPA whose serum GM assays revealed negative results and sequentially underwent BAL were enrolled in this study. Patients were classified as proven, probable, possible or not IPA by the revised 2019 EORTC/MSG definition.

Results: A total of 341 patients with suspected IPA including 4 proven IPA, 38 probable IPA, 107 possible IPA, and 192 not IPA were enrolled. Of these 341 patients, 107 (31%) with possible IPA were excluded from the final analysis. Of 42 patients with proven or probable IPA who had initial negative serum GM results, 24 (57%) revealed positive BAL GM results (n=24) or BAL fungal culture (n=8). Among the remaining 18 (43%), 2 (5%) were diagnosed as proven IPA by the histopathologic exam from transbronchial lung biopsy, 6 (14%) as probable IPA by subsequent sputum fungal culture, and 10 (24%) as probable IPA by repeated serum GM assay after BAL. Of 192 patients with not IPA, 14 (7%) revealed positive BAL GM results (n=14) or BAL fungal culture (n=8). The diagnostic performance of various tests is shown in Table 1.

Table 1. Diagnostic performance of various diagnostic tests in patients with suspected IPA who had negative serum GM results

Proven or Probable IPA vs Not IPA	Sensitivity % (n/N[a],95% CI)	Specificity % (n/N[b],95% CI)	PPV % (95% CI)	NPV % (95% CI)	Positive Likelihood (95% CI)	Negative Likelihood (95% CI)
BAL GM or fungal culture	57.1 (24/42, 42.2–72.1)	92.7 (178/192, 89.0-96.4)	63.2 (47.8–78.5)	90.8 (86.8–94.9)	7.8 (4.4–13.8)	0.46 (0.3–0.7)
BAL GM	57.1 (24/42, 42.2–72.1)	92.7 (178/192, 89.0-96.4)	63.2 (47.8–78.5)	90.8 (86.8–94.9)	7.8 (4.4–13.8)	0.46 (0.3–0.7)
Subsequent repeated serum GM	35.7 (15/42, 21.2–50.2)	92.7 (178/192, 89.0-96.4)	51.7 (33.5–70.0)	86.8 (82.2–91.5)	4.9 (2.6–9.4)	0.7 (0.6–0.9)
Sputum fungal culture	38.1 (16/42, 23.4–52.8)	97.4 (187/192, 95.1-99.6)	76.2 (58.0–94.4)	87.8 (83.4–92.2)	14.6 (5.7–37.7)	0.6 (0.5–0.8)
Tissue biopsy[c]	40.0 (4/10, 9.6–70.4)	100 (11/11, 100-100)	100 (100-100)	64.7 (42.0–87.4)	Not applicable	0.6 (0.4–1.0)

[a] Number of patients with a positive test result/number of patients tested among diagnosed as proven or probable IPA.

[b] Number of patients with a negative test result/number of patients tested among diagnosed as not IPA.

[c] Included transbronchial lung biopsy (n=3) and lobectomy (n=1).

Conclusion: Sequential BAL in patients with suspected IPA who had initial negative serum GM results provided additional diagnostic yield in about half of patients.

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748. Epidemiology and Outcomes of Invasive Fungal Infections Following Civilian Trauma

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Session: P-30. Eukaryotic Diagnostics

Background: Invasive fungal infections (IFI) following traumatic injury are devastating complications that threaten life and limb. In military combat wounds, post-traumatic IFI patients have up to 6 times higher mortality rates and 2.6-5.1 times higher rate of high-level amputations compared to non-IFI patients, though no such data exists for the civilian population. This study is the first cohort to analyze a post-traumatic civilian population for IFI, its epidemiology and outcomes.

Methods: We conducted a single-center retrospective cohort study of all trauma patients over the age of 18 years admitted to a large tertiary referral hospital between 2004 to 2015 who required surgery for their injury and had operative cultures submitted from their wounds. Patient demographics, comorbid conditions, mechanisms of trauma, environmental exposures, and laboratory data were included for analysis. Patients with positive culture for fungus from a site compatible with IFI were considered IFI patients. Data was analyzed using descriptive statistics with $p \leq 0.05$ considered significant.

Results: Our cohort includes 1,107 patients that met inclusion criteria. Of these, 120 patients had a positive culture for fungus, 454 patients had a positive culture for bacteria and 533 patients had no positive culture from a site of interest. Basic patient demographics, geographical setting of the trauma, and anatomical site of injury were not significantly associated with having a positive fungal culture. Necrosis was present in 19 (15.8%) IFI vs. 74 (7.5%) non-IFI patients (p=0.002). Soil contamination of a wound was present in 6 (5.0%) IFI vs. 11 (1.1%) non-IFI patients (p=0.001). 55.8% of 120 IFI wounds penetrated below fascial layers compared to 26.7% of 987 non-IFI wounds ($p < 0.001$).

Presence of IFI increased likelihood of requiring amputation (6.7% vs. 2.7%, p=0.02) and prolonged hospitalization >14 days (77.5% vs. 57.4%, $p < 0.001$) compared to those without.

Conclusion: IFI significantly increased patient risk for amputation and prolonged hospital length of stay following traumatic injury in a civilian population. Presence of IFI was associated with wounds penetrating below the fascial layer, presence of wound necrosis, and soil contamination of a wound.

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749. Impact of Infectious Disease Consultation in Patients with Candidemia: A Retrospective study, Systematic Literature Review and Meta-analysis

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