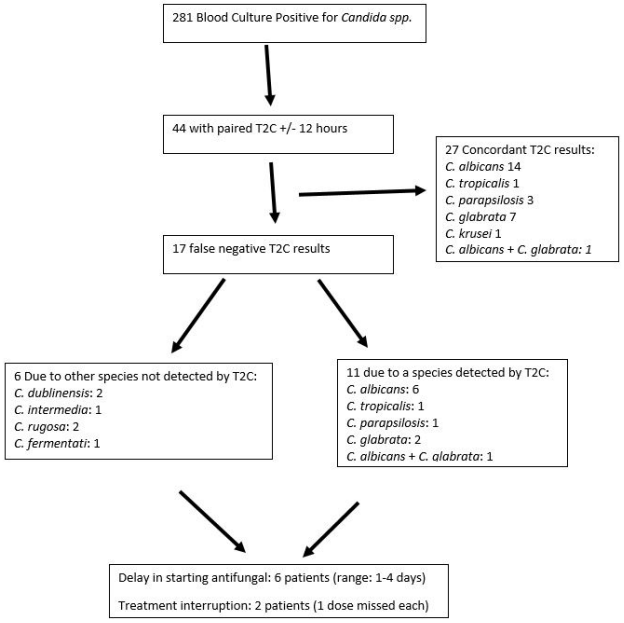
Figure 1



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

259. Racial Differences in Clinical Phenotype and Hospitalization of Blastomycosis Patients

Jennifer L. Anderson, BS[1]; Holly M. Frost, MD[2]; Jennifer P. King, MPH[1] and Jennifer K. Meece, PhD[1]; [1]Marshfield Clinic Research Institute, Marshfield, Wisconsin; [2]Denver Health and Hospital Authority, University of Colorado School of Medicine, Denver, Colorado

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Background. Dimorphic fungal infections, such as blastomycosis, cause significant morbidity and mortality. Most studies describing blastomycosis have focused on non-Hispanic Caucasians and our understanding of the clinical presentation and outcomes for patients of other race/ethnicities is limited. We evaluated whether clinical presentation and disease severity varied across racial/ethnic groups.

Methods. Blastomycosis patients were identified from Marshfield Clinic Health System and patient data were abstracted from electronic medical records. *Blastomyces* genotyping was performed for cases with available isolates. Univariate analyses using χ^2 tests and multivariate logistic regression modeling were used to determine the association of race/ethnicity with clinical presentation. Significance was defined as $P \leq 0.05$.

Results. In total 477 patients were included.Age differences were observed across race/ethnicity categories ($P < 0.0001$). Non-Hispanic, Caucasians were oldest (47 years, SD 20) and Asians were the youngest (30 years, SD 18). Underlying medical conditions were more common in non-Hispanic Caucasians (55%) and African Americans (AA) (52%) than Hispanic Caucasians (27%) and Asians (29%, $P = 0.0002$). Risk for hospitalization was highest for Hispanic Caucasian (aOR 2.9, 95% CI 1.2–1.7), American Indian Alaskan Native (AIAN) (aOR = 2.4; 95% CI 1.0–5.5), and Asian (aOR = 1.9; 95% CI 1.0–3.6) patients when compared with non-Hispanic Caucasian patients. Ninety percent of *B. dermatitidis* infections occurred in non-Hispanic Caucasians whereas blastomycosis in Hispanic Caucasian, AIAN, and Asian patients was frequently caused by *B. gilchristii* ($P < 0.0001$).

Conclusion. Hispanic Caucasian, AIAN, and Asian blastomycosis patients were younger and healthier, but more frequently hospitalized. Patients in these racial/ethnic groups may need more aggressive treatment and closer therapeutic monitoring. Underlying host factors along with organism virulence likely play a role in these differences.

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

260. Detection of Aspergillus fumigatus Infection in Mice with 2-Deoxy-2-[18F] fluorosorbitol

Yohan Yu, MD[1]; Seung ji Kang, MD[2]; Dong-Yeon Kim, PhD[3]; Ayoung Pyo, PhD[3]; Sehyeon Ji, Master[2]; Baigali Chuluunkhuu, MD[2]; Soosung Kim, MD[4]; Sung un Shin, MD[4]; Tae Hoon Oh, MD[4]; Uh Jin Kim, MD[5]; Seong Eun Kim, MD[4]; Hee-Chang Jang, MD, PhD[5]; Kyung-Hwa Park, MD, PhD[5]; Sook In Jung, MD, PhD[4] and Jung-Joon Min, MD, PhD[3]; [1]Infectious Diseases, Kangju, Kwangju-jikhalsi, Republic of Korea; [2]Chonnam National University Hwasun Hospital, Hwasun-gun, Cholla-namdo, Republic of Korea; [3]Chonnam National University Medical School and Hwasun Hospital, Hwasun-gun, Cholla-namdo, Republic of Korea; [4]Chonnam National University Hospital, kwangju, Kwangju-jikhalsi, Republic of Korea; [5]Chonnam National University Hospital, Kangju, Kwangju-jikhalsi, Republic of Korea

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Background. Invasive aspergillosis is a major cause of infectious morbidity and mortality in immunocompromised patients.However, definitive diagnosis of invasive Aspergillus infection is still difficult due to the lack of a rapid, sensitive and specific diagnostic methods. In this studies, we investigated 2-deoxy-2-[^{18}F]fluorosorbitol ([^{18}F]FDS) which has been reported to be accumulated in Gram-negative bacteria but not in Gram-positive bacteria or healthy mammalian or cancer cells, for the imaging detection of *Aspergullus fumigatus* infections with PET *in vivo*.

Methods. [^{18}F]FDS was synthesized by reduction of 2-deoxy-2-[^{18}F]fluoro-D-glucose ([^{18}F]FDG) using $NaBH_4$. When the reaction was complete, the mixture was adjusted to a pH value to 6.5–7.5. Subsequently, the solution was filtered directly into a sterile product vial through a Sep-Pak Alumina N cartridge with a sterile filter. The probe uptake assay was performed by incubating bacterial cell and fungi with [^{18}F] FDS (20 μCi) at 37°C for 2 h. Female BALB/c were immunosuppressed with cyclophosphamide and cortisone acetate prior to *A. fumigatus* intranasal, intramuscular, brain infection. The mircoPET images were obtained at 2 h after *i.v.* injection of [^{18}F] FDS in infected mice.

Results. In vitro uptake test revealed significantly higher accumulation of [^{18}F]FDS at 2 hin *A. fumigatus, C. albicans* and *R. oryzae* rather than with bacterial strains (Figure 1). PET imaging of BALB/c mice with pulmonary *A. fumigatus* infections showed obvious accumulation of [^{18}F]FDS in the infected lungs compared with control (Figure 2). [^{18}F]FDS PET imaging also detected *A. fumigatus* muscle and brain infection in mice. In infected shoulder muscle of mice, [^{18}F] FDS PET imaging showed high legion-to-background ratio at 2 h. (4.05 ± 1.59, Figure 3).

Conclusion. [^{18}F]FDS PET study demonstrated stable uptake in infected tissue with *A. fumigatus* and rapid clearance from the blood and other organs. [^{18}F]FDS could be a useful imaging probe visualizing the invasive aspergillosis *in vivo*.

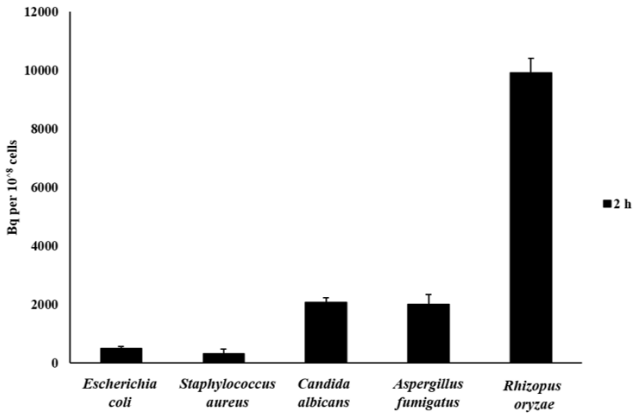

Figure 1. In vitro uptake of [^{18}F]FDS in *Escherichia coli* (positive control), *Staphylococcus aureus* (negative control), *Aspergillus fumigatus*, *Candida albicans* and *Rhizopus oryzae* after 2 hours of incubation.

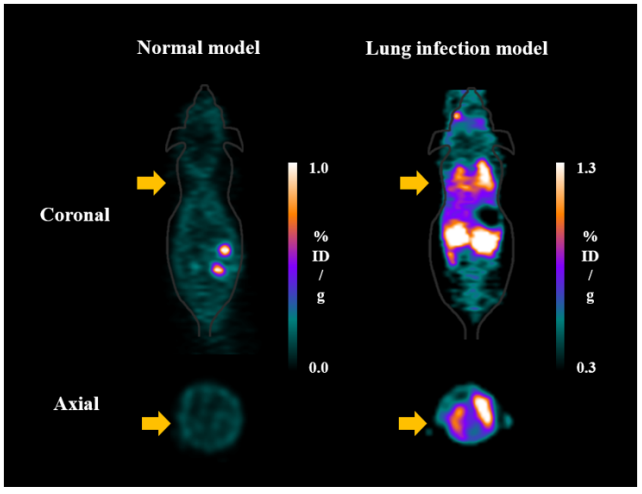

Figure 2. Coronal (upper) and transaxial (lower) images of a normal and lung infection model with *Aspergillus fumigatus* (yellow arrow) at 2 h post-injection of [^{18}F]FDS.

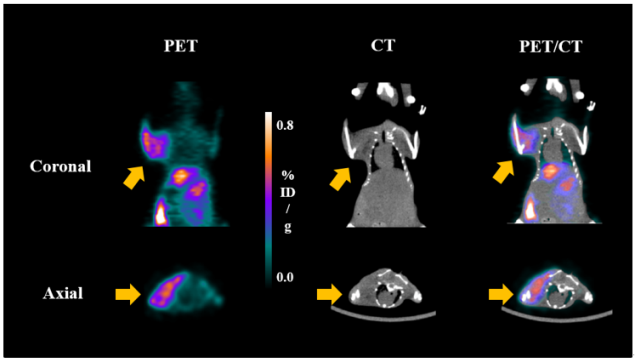

Figure 3. MicroPET, CT and PET/CT fusion images of a muscle infected model with *Aspergillus fumigatus* (yellow arrow) at 2 h after *i.v.* injection of [^{18}F]FDS.

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

261. A Retrospective Evaluation of Coccidioidomycosis Skin Testing in Patients with Pulmonary Coccidioidomycosis in an Endemic Region

Neema Mafi, MD[1]; Marlene Girardo, M.S[2] and Janis E. Blair, MD[3]; [1]Mayo Clinic Hospital Arizona, Phoenix, Arizona; [2]Mayo Clinic, Scottsdale, Arizona, [3]Mayo Clinic Hospital, Phoenix, Arizona

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Background. Making the decision to stop antifungal therapy in patients with coccidioidomycosis can be challenging in patients with risk factors for relapsed infection. Spherulin-based coccidioidal skin testing was re-introduced to the market in 2014 and approved for the detection of delayed-type hypersensitivity in patients with a history of pulmonary coccidioidomycosis

Methods. We searched electronically for patients who had a spherulin skin test placed in our institution from January 1, 2015 through March 1, 2017, and then included patients age 18 years and older who met the definition for confirmed or probable pulmonary coccidioidomycosis. A retrospective chart review was conducted, and included details of clinical illness, antifungal treatment, serology, and chest imaging

Results. From January 1, 2015 to August 31, 2017, 172 patients with coccidioidomycosis had a spherulin skin test placed. We included for further study the 129 patients who had primary pulmonary coccidioidomycosis, followed for a median of 18 months (range 0–50 months); 56 (43.4/%) were male, 108 (85.7/%) Caucasian, median age was 55 years (range18–89).19/12914.7%)) were smokers, 14/129 (10.9%) were diabetic, 2 patients had HIV (1.6%) and 15/129 (11.6) we immunocompromised without HIV. 116/129(89.9%) % received antifungal treatment. Median time from illness to skin test was 13.5 months (range 0–78). Eighty-nine of 129 patients (69%) had a positive skin test, 40 (31%) had a negative test. Antifungal treatment was subsequently discontinued in 75/89 (84%), and one patient (1.2%) with a positive test, experienced relapsed infection. Among 30/40 with negative CST, antifungals were discontinued and none relapsed.

Conclusion. The presence of delayed-type hypersensitivity to coccidioidomycosis, manifested by a positive spherulin skin test, was associated with discontinuation of antifungal therapy, and a low percentage of relapsed infection.

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

262. Assessment of Serum Galactomannan Test Results of Pediatric Patients with Hematologic Malignancies According to Different Threshold Levels and Consecutive Positivity in Terms of Invasive Aspergillosis Diagnosis: Cross-Sectional Research in a Tertiary Care Hospital

İlknur Çağlar, MD[1]; Duygu Özkerim, MD[1]; Neryal Tahta, MD[2]; Mine Düzgöl, MD[1]; Nuri Bayram, MD[3]; Bengü Demirağ, MD[1]; Tuba Hilkay Karapınar, MD[1]; Yelda Sorguç, MD[1]; Salih Gözmen, MD[1]; Vecihe Dursun, MD[4]; Yeşim Oymak, MD[1]; Canan Vergin, MD[5] and İlker devrim, Prof. Dr.[4]; [1]Dr. Behçet Uz Children's Hospital, İzmir, Turkey; [2]Dr. Behçet Uz Children's Hospital, Izmir, Turkey; [3]Dr. Behçet Uz Children's Hospital İzmir, Izmir, Turkey; [4]Dr. Behçet Uz Child Disease and Pediatric Surgery Training and Research Hospital, Izmir, Turkey; [5]Dr.Behçet Uz Children's Hospital, Izmir, Turkey

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Background. The aim of this study was to evaluate the diagnostic utility of serum galactomannan (GM) test by investigating the impact of positivity according to different threshold levels and consecutiveness in terms of invasive aspergillosis (IA) in pediatric hematology-oncology patients.

Methods. Positive GM test results between January 2015 and August 2017 were reviewed, retrospectively. The children with hematological malignancies and GM positivity were included in the study and grouped according to the presence of IA. Impact of single and consecutive (3-day interval) GM positivity on IA diagnosis were evaluated according to different galactomannan index (GMI) threshold values of >0.5, >0.7, >1.0, and >1.5.

Results. There were 104 positive GM results from 70 patients. Forty-one patients (58.6%) had no clinical evidence of IA and categorized as the non-IA group. Invasive aspergillosis diagnosis was identified in 29 (41.4%) of the patients; 2 of them were proven and 27 were probable. Demographic characteristics and clinical findings of the patients were reviewed in Tables 1 and 2. According to different cutoff GMI values, the number of positive results was 104 for >0.5, 76 for >0.7, 57 for >1.0 and 32 for >1.5. The PPVs were low at a single GMI of >0.5 (39.4%) and reached to 50.0% with single GMI of >1.0. There was not a statistically significant difference between IA and non-IA groups in terms of different thresholds of a single GM positivity ($P > 0.05$) (Table 3). The number of two consecutive positive results was 34 for GMI of >0.5, 20 for GMI of >0.7, 13 for GMI of >1.0 and 4 for GMI of >1.5. In the IA group, GM positivity of consecutive results was significantly higher than non-IA group ($P < 0.05$). The PPVs of two consecutive positive results for GMI >0.5, GMI >0.7, GMI >1.0, and GMI >1.5 were 58.8%, 65.0%, 84.6%, and 100.0%, respectively. The effect of the GMI increase between two consecutive GM results on IA diagnosis (GM2-GM1 >0.5) was also evaluated and the PPV was found 53.8% without a statistical significance between two groups (Table 4).

Conclusion. When evaluated with consecutive GM positivity, the GM assay would have higher PPVs independently from the GMI cutoff value chosen. Since it may be more effective on IA diagnosis, consecutive sampling should be performed in pediatric patients at high risk.

Table 1. Demographic characteristics of the patients

	Total	IA	Non-IA	p
Patients	n=70 (%)	n=29 (%)	n=41 (%)	
Age (years)*	5.0 (1.0-16.0)	8.0 (1.0-15.0)	4.0 (1.0-16.0)	>0.05
Gender				>0.05
Female (%)	35 (50)	15 (51.7)	20 (48.8)	
Male (%)	35 (50)	14 (48.3)	21 (51.2)	
Underlying disease				>0.05
ALL	53 (75.7)	21 (72.4)	32 (78.0)	
AML	17 (24.3)	8 (27.6)	9 (22.0)	
Chemotherapy	54 (77.1)	23 (79.3)	31 (75.6)	>0.05
Induction	6 (8.6)	3 (10.3)	3 (7.3)	
Re-induction	3 (3.0)	2 (1.0)	1 (2.4)	
Consolidation	7 (10.0)	1 (3.4)	6 (14.6)	
Maintenance				

Table 2. Clinical characteristics of the patients

	Total	IA	Non-IA	p
Patients	n=70 n (%)	n=29 n (%)	n=41 n (%)	
Fever duration (days)	20 (28.6)	10 (34.5)	10 (24.4)	> 0.05
Neutropenia	59 (84.3)	26 (89.6)	33 (80.5)	> 0.05
Neutrophile count	47 (67.1)	22 (75.9)	25 (61.0)	> 0.05
<500/mm3	27 (38.6)	12(41.4)	15 (36.6)	
<100/mm3				
Neutropenia duration (days)	13.0 (2.0-115.0)	16.5 (2.0-115.0)	10.0 (2.0-51.0)	> 0,05
Neutropenia duration > 14 days	29 (41.4)	17(58.6)	12 (29.3)	**< 0.05**
Antifungal prophylaxis	30 (42.9)	15 (51.7)	15 (36.6)	> 0.05
Fluconazole	18 (25.7)	8	10	
Voriconazole	9 (12.8)	5	4	
Posaconazole	3 (4.2)	2	1	
Antibiotic treatment				> 0.05
Piperacillin tasobactam	37 (52.9)	16(55.2)	21 (51.2)	
Amikacin	26 (37.1)	15 (51.7)	11 (26.8)	
Meropenem	19 (27.1)	11 (37.9)	8 (19.5)	
Vancomycin	21 (30.0)	10 (34.5)	11 (26.8)	