

# COVID-19 Complications, Co-infections, and Clinical Outcomes



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## Background

- Patients (pts) with coronavirus disease 2019 (COVID-19) may be at risk of developing secondary bacterial and fungal infections
- Data on the clinical characteristics and outcomes of COVID-19 pts with fungal infections are limited
- We evaluated the risk factors and mortality of hospitalized COVID-19 pts with fungal infections

## Methods

**Study Design:** Retrospective chart review

**Study Period:** 3/2020 - 5/2020

**Setting:** 877 bed hospital in Detroit, MI

**Data Collected:** Demographics, comorbid conditions, complications, and outcomes, including relapse, readmission & mortality

**Statistics:** Descriptive analysis

**Table 1. Fungemic Inpatient Demographics**

	Total Patients (N = 51)	Positive COVID-19 History (N = 31)	Negative COVID-19 History (N = 20)
Mean Age (Range)	61.1 (26-87)	66.2 (34-87)	53.1 (26-81)
Male Sex	24 (47.1%)	14 (45.2%)	10 (50%)
Abnormal Lung Imaging	38 (74.5%)	27 (87.1%)	11 (55%)
Septic Shock	22 (43.1%)	13 (41.9%)	9 (45%)
Central Venous Line	43 (84.3%)	25 (80.6%)	18 (90%)
Antibiotics > 3 Days Prior to Diagnosis	40 (78.4%)	25 (80.6%)	15 (75%)
Surgery < 30 Days Prior to Admission	7 (13.7%)	1 (3.2%)	6 (30%)
Mean Days from Admission to Fungemia (Std Dev)	13.6 (12)	13.1 (8.8)	14.5 (16.8)
Asthma	5 (9.8%)	3 (9.7%)	2 (10%)
Coronary Artery Disease	11 (21.6%)	8 (25.8%)	3 (15%)
Cancer	14 (27.5%)	5 (16.1%)	9 (45%)
Chronic Kidney Disease	12 (23.5%)	7 (22.6%)	5 (25%)
Congestive Heart Failure	14 (27.5%)	10 (32.3%)	4 (20%)
COPD	7 (13.7%)	5 (16.1%)	2 (10%)
Diabetes Mellitus	25 (49%)	16 (51.6%)	9 (45%)
Hypertension	30 (58.8%)	23 (74.2%)	7 (35%)
Immunosuppression	15 (29.4%)	7 (22.6%)	8 (40%)

**Table 2. Etiology of Fungemia and Treatment Outcomes**

	Total Patients (N = 51)	Positive COVID-19 History (N = 31)	Negative COVID-19 History (N = 20)
<b>Pathogen:</b>			
Aspergillus Species	8 (15.7%)	4 (12.9%)	4 (20%)
Candida Species	40 (78.4%)	23 (74.2%)	17 (85%)
Cryptococcus neoformans	1 (2%)	1 (3.2%)	0
<b>Therapy:</b>			
Antifungal Therapy	39 (76.5%)	22 (71%)	17 (85%)
Systemic Steroids	32 (62.7%)	26 (83.9%)	6 (30%)
<b>Outcome:</b>			
ICU Admission	43 (84.3%)	28 (90.3%)	15 (75%)
Relapse of Fungemia	1 (2%)	1 (3.2%)	0
Inpatient Mortality	24 (47.1%)	16 (51.6%)	8 (40%)
30-Day Readmission	4 (7.8%)	2 (6.5%)	2 (10%)

## Conclusions

- COVID-19 pts with fungal infections had multiple comorbidities, prolonged hospitalization, and a high in-hospital mortality rate
- Prevention of fungal infections in COVID-19 pts is paramount