

## **Among COVID-19 Patients Incidence and Risk Factors of an Invasive Fungal Lung Infection**

Researchers from Japan investigated the incidence and risk factors for COVID-19-associated pulmonary aspergillosis (CAPA) in severe and critical [coronavirus disease 2019](#) (COVID-19) patients.

They found that the incidence of CAPA ranged from 0.4% to 2.7%, and CAPA was associated with increased mortality in these patients. They further identified several risk factors associated with CAPA, including age, gender, [chronic lung disease](#), and immunosuppressant and steroid use.



### **Study**

The present study used administrative claims data from Japanese advanced treatment hospitals. Medical Data Vision (MDV) provided data from over 460 hospitals, covering approximately 26% of such hospitals in Japan. The data included patient demographics, diagnoses, [medical procedures](#), and survival status.

The study focused on 33,136 patients with severe or critical COVID-19, defined by [respiratory status](#). Those who did not progress to severe/critical COVID-19 or had a prior diagnosis of CAPA before severe disease progression were excluded from the study.

Severe and critical COVID-19 were defined according to the National Institute of Health (NIH) clinical spectrum, with critical illness including patients requiring admission to the intensive care unit (ICU), non-invasive positive pressure ventilation, high-flow oxygen therapy, or invasive ventilation. Severe illness refers to [COVID-19 patients](#) receiving oxygen but not meeting the criteria for critical illness.

A subgroup of 14,720 patients with critical COVID-19 was also analyzed. In both populations, the mean age slightly exceeded 65 years, with over 60% of the patients being male. Notably, more than 90% of COVID-19 cases in these groups were reported after November 2020. The prevalence of comorbidities in these populations was as follows: [Hypertension](#) (44.9–47.7%), diabetes (21.6–24.5%), dyslipidemia (18.0–18.9%), lung disease (24.8–28.8%), renal failure (7.0–7.6%), cancer (7.8–10.2%), and organ transplantation history (0.1–0.2%).

CAPA diagnosis was based on two definitions: A broad definition including suspected or diagnosed CAPA within two months of [COVID-19 progression](#) and a narrow definition that required both a CAPA diagnosis and antifungal medication use. Mortality analysis was conducted

within two months of severe or critical illness progression. Various demographic and clinical data, such as age, comorbidities, and admission to the ICU, were analyzed to identify risk factors. Statistical analysis involved the use of time-dependent propensity score matching, Cox proportional hazards regression, competing risk analysis, and multiple imputation for missing data.

### **Findings and Discussion**

The incidence of CAPA was found to vary between 0.4% and 1.7% in the severe or critical COVID-19 population and 0.5% to 2.7% in the critical COVID-19 subgroup. The median time from COVID-19 progression to [CAPA diagnosis](#) was 17 days for both groups.

Voriconazole and micafungin were the primary medications used for treating CAPA, accounting for over 80% of the treatment regimen. Significant risk factors for CAPA were identified, including older age, male sex, chronic lung disease, steroid and immunosuppressant use, ICU admission, [blood transfusion](#), and dialysis.

The study found that compared to those without CAPA, patients with CAPA showed increased mortality, with [hazard ratios](#) of 2.367 and 1.955 for the severe and critical COVID-19 populations, respectively.

The study calls for regular monitoring of CAPA in severe and critical COVID-19 patients, given its impact on mortality and prognosis. However, the study is limited by its reliance on physician-diagnosed CAPA, incomplete comorbidity data, lack of analysis on newer SARS-CoV-2 variants, exclusion of non-severe COVID-19 cases, and inability to assess prehospital medication use or detailed steroid and [immunosuppressant effects](#).

### **Conclusion**

In conclusion, CAPA is a serious complication in severe as well as critical COVID-19 patients, with risk factors including older age, chronic lung disease, [steroid use](#), immunosuppressants, ICU admission, dialysis, and blood transfusions. CAPA significantly worsens patient outcomes and should be closely monitored.

The findings highlight the need for targeted strategies to mitigate CAPA in high-risk COVID-19 patients, contributing to better clinical decision-making and [healthcare planning](#).

### **Source:**

<https://www.news-medical.net/news/20240924/Incidence-and-risk-factors-of-an-invasive-fungal-lung-infection-among-COVID-19-patients.aspx>