

Introduction

Covid-19 infection is associated with a lack of immune resilience that may potentially be magnified using certain immunomodulators to suppress the cytokine storm, facilitating the emergence of opportunistic infections. We describe six cases of cryptococcal infection complications among Covid-19 hospitalized patients.

Materials and Methods

This was a retrospective cohort study based on chart review performed at the Audie Murphy Veteran Affairs Hospital from 8/2020 to 04/2022; a level 1A facility with 232 beds and an active bone marrow transplantation program. We included patients aged ≥18 with a diagnosis of Covid-19 and subsequent Cryptococcal infection based on cultures or antigen testing. Cases were identified based on positive cultures or cryptococcal antigen tests during the study period.

Results

Our patients were all male with ages ranging between 64 to 80 years. Three had underlying type II diabetes, hypertension, and two had end-stage renal disease. Only one had underlying immunosuppression with hydroxychloroquine for rheumatoid arthritis and one had underlying cirrhosis. Four patients had disseminated disease/fungemia while one had localized pulmonary disease. All the cases had low CD4 counts (158-300) and low CD8 counts (92-290). Two of the fungemia cases were diagnosed by blood culture and the other two by serum cryptococcus antigen test. All the patients had received corticosteroids with or without remdesivir, while one received additional tocilizumab, one baricitinib and one convalescent plasma infusionFour cases of fungemia received liposomal amphotericin B and three of them received additional flucytosine. The patient with cryptococcal pulmonary disease received only fluconazole. Four patients expired at 28 days after diagnosis, only one recovered and is still alive at 1-year follow up.

Case s	Age/S ex	Comorbiditi es	Underlying immunosuppr ession	Cd4/cd8	Cirrhosis	Cryptococcu s disease	Antigen titer (serum)	Therapy for covid	Therapy for cryptococcus	Outcome at 28 days	Outcome at one year
1	70M	ESRD,DM2, HTN,A-fib, HFpEF,PVD ,RA	Hydroxychlor oquine	185/158	yes	Fungemia	>2560	Steroids	Amphotericin+ flucytocine followed by fluconazole	Recovere d	Recovered
2	64M	Prediabetes ,PTSD,BPH	None	158/191	no	Fungemia	NA	Remdesiv ir+ Dexameth asone+ Baricitinib	Amphotericin+ flucytosine	Expired	Expired
3	80M	ESRD, Afib,CAD,H LD,hypothy roidism	None	165/197	no	Fungemia	NA	Dexameth asone	Amphotericin+ flucytosine	Expired	Expired
4	70M	HTN,DM2	None	300/290	no	Pneumonia	Negative	Remdesiv ir+ Dexameth asone+ convalesc ent plasma	Fluconazole	Expired	Expired
5	74M	CAD,HTN,D M2,CVA	None	207/92	no	Disseminate d disease with pneumonia	20	Remdesiv ir+ Dexameth asone+ Tocilizum ab	Amphotericin switched to high dose fluconazole	Expired	Expired
6	75 M	CAD,COPD ,HTN,HFrE F,Asthma	Dupilumab, Prednisone	245/614	no	Cryptococca l tracheitis	negative	Remdseiv ir+dexam ethasone	FLuconazole	Recovere d	N/A

Conclusions

Cryptococcus infection has been described among patients with Covid-19 during the pandemic. This may be due to immunosuppression caused by the Covid-19 infection and its Covid-19 related-treatments. The majority of our patients presented with disseminated cryptococcus infection complicating covid-19 in hospitalized patients along with high mortality rates. Low CD4/CD8 counts and corticosteroid use were documented in all cases. . Further studies are needed to better characterized patients at-risk patients for cryptococcal infection that could benefit of cryptococcal prophylaxis.