

Epidemiology of Cryptococcal Infections in Non-HIV Patients: A 20-year Single Center Experience

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Background

- *Cryptococcus* is an opportunistic fungal pathogen classically associated with advanced stages of HIV
- It is a major cause of morbidity and mortality in other immunosuppressed/immunocompromised patients
- Acquired via inhalation, it can result in focal lung disease
- Frequently disseminates to the central nervous system, musculoskeletal system, and other systems

Objectives

- To determine the epidemiology of non-HIV-associated cryptococcosis in an academic medical center
- To describe the clinical features of non-HIV-associated cryptococcosis
- To examine outcomes of patients with non-HIV-associated cryptococcosis

Methods

- **Design:** Retrospective cohort study of non-HIV associated cryptococcosis at Northwestern Memorial Hospital, Chicago IL from January 1, 2000 to January 1, 2020
- **Data collection:** Charts reviewed for patient demographics, co-morbid medical conditions, presence of immunosuppressive conditions, clinical and laboratory features of cryptococcal infection, treatment, and outcomes related to cryptococcosis
- **Statistical analysis:** Continuous variables were compared using Student's t-test. Categorical variables were compared using Fisher's exact test. Analysis was performed with SPSS version 26 (IBM, Armonk, NY). $p < 0.05$ considered significant

Table 1: Demographics

Characteristic, n (%)	In-Hospital Survival N=61	In-Hospital Mortality N=20	p
Mean Age, Years +/- SD	58.1 +/-14.1	61.8 +/-6.1	0.114
Male Gender	43 (70)	12 (60)	0.416
Predisposing Condition			
Any Immunosuppressive Therapy	39 (64)	11 (55)	0.432
Corticosteroid Therapy	27 (44)	8 (40)	0.799
Liver Failure	11 (18)	12 (60)	0.001
Malignancy	17 (30)	10 (50)	0.179
Solid Organ Transplantation	23 (38)	4 (20)	0.179
Rheumatologic disease	13 (21)	3 (15)	0.749
Asplenia	2 (3)	2 (10)	0.254
Stem Cell Transplantation	2 (3)	0 (0)	1
Sarcoidosis	2 (3)	0 (0)	1

Tables 2 & 3: Please Scan QR Code



Results

- Eighty-one HIV-negative patients developed cryptococcal infections during the study period
- Patients were majority Caucasian (57%) and male (68%)
- Chronic kidney disease was the most frequent comorbidity (25 in-hospital survival, 3 in-hospital mortality, $p=0.56$)
- Baseline characteristics were similar across those with in-hospital survival and those with in-hospital mortality
- Liver failure was a more frequent comorbidity in those who had in-hospital mortality compared to those who survived hospitalization
- Patients with fungemia, hypotension, or who required mechanical ventilation had higher rates of inpatient mortality ($p=0.001$, $p<0.001$, $p<0.001$, respectively)
- Maximum temperature during hospitalization and opening pressure on lumbar puncture was not associated with in-hospital mortality
- Amphotericin use during induction was not associated with in-hospital mortality ($p=1$)
- Fluconazole use for maintenance was associated with in-hospital survival ($p<0.001$), but this likely reflects being well enough to transition to maintenance
- Mortality at 12 months post diagnosis was 51.9% ($n=42$)

Conclusions

- Cryptococcal infection at our institution had high mortality
- Baseline liver failure portends in-hospital mortality