**Cryptococcus neoformans** population diversity is not associated with clinical outcomes of HIV-associated cryptococcal meningitis patients in Zimbabwe

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**Introduction**

HIV and cryptococcal meningitis coinfection are a major public health problem in most developing countries. Cryptococcus neoformans sensu stricto is responsible for the majority of HIV-associated cryptococcosis cases in sub-Saharan Africa.

The HIV epidemic has raised the profile of Cryptococcus neoformans sensu stricto from a rare yeast to one of the most important fungal causes of morbidity and mortality worldwide. Cryptococcus neoformans sensu stricto is a major cause of HIV-associated cryptococcal meningitis (CM) globally.

Despite the available information, little is known about cryptococcal population diversity and its association with clinical outcomes in patients with HIV-associated cryptococcal meningitis in sub-Saharan Africa.

**Objectives**

1. To determine the prevalence of Cryptococcus neoformans sensu stricto molecular types AFLP1/VNI, AFLP1A/VNB/VNI and AFLP1B/VNII in the cohort (n = 55) of Zimbabwean patients.

2. To determine the genetic diversity of Cryptococcus neoformans isolates and clinical outcomes of Zimbabwean patients with HIV associated cryptococcal meningitis.

3. To determine genetic diversity of C. neoformans from the current cohort when compared by microsatellite typing with those of isolates collected from other countries within sub-Saharan Africa.

**Methodology**

This was a cohort study which investigated Cryptococcus neoformans isolated during the laboratory diagnostic process from adult HIV-CM co-infected patients. The study was conducted at a central hospital in Harare, Zimbabwe between September 2013 and September 2014.

Patients were followed up for the duration of their hospital stay to determine their clinical outcomes. Molecular typing was done using amplified fragment length polymorphism (AFLP) genotyping and microsatellite typing.

**Results**

**Demographics of the cohort**

The majority of patients with HIV-associated C. neoformans sensu stricto meningitis in this cohort were males (n=33/55; 60.0%). The age of the patients ranged from 18–58 years with a median age of 36 years.

All but one of the patients (n=54/55; 98.2%) was admitted with headache and were treated empirically with 2 g ceftriaxone (n=51/54; 94.4%) before final diagnosis of cryptococcal meningitis was made.

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**Conclusion**

• In summary, this study presents the first molecular epidemiological survey in Africa to compare the genotypic diversity of C. neoformans sensu stricto from clinical, environment and veterinary samples.

• Zimbabwean C. neoformans sensu stricto genotypes demonstrated a high level of genetic diversity by microsatellite typing and 51 genotypes within the main molecular types AFLP1/VNI, AFLP1A/VNB/VNI and AFLP1B/VNII were identified.

• This study demonstrate that C. neoformans sensu stricto in Zimbabwe has a high level of genetic diversity when compared to other regional isolates.

**References**


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