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Infection of the central nervous system due to *Cryptococcus spp.* complex: An analysis from a tertiary neuro care-centre in South India

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Background & Aim: *Cryptococcus neoformans sensu lato*, and its sister species *C. gattii sensu lato* are often cause of meningitis or meningoencephalitis among immunocompromised patients. We aimed to analyse the clinical and epidemiological features of *cryptococcal* CNS infection.

Methods: The study, conducted from 2013 to 2015, included 160 cases of CNS infection due to *C. neoformans/gattii*. The variables documented were age, gender, immunological status, associated comorbidities, brain-imaging features, CSF parameters and geographical distributions, treatment and outcome. Diagnosis was based on India ink preparation, *cryptococcal* antigen detection and culture. Statistical analysis was performed by Chi Square Exact test in SPSS 22.0 to determine the P values.

Results: Out of 160 cases studied, 128 (80%) were HIV positive. Among the 32 (20%) HIV negative cases 17 (53.1%) had history of immunosuppression. Age group ranged from 2 to 75 years, with mean age of 37.5 years (σ = 9.83) among HIV positive and 36.68 years (σ = 29.16) among HIV negative cases. Other than HIV, tuberculosis was the most common associated comorbidity (28.12%). Headache was predominant complaint (88.8%) followed by vomiting (61.9%), fever (60%), neck stiffness (55.6%). Imaging features were normal in 57 (35.6%) cases followed by presence of hypodense parenchyma (20.6%), meningeal enhancement (18.8%), cortical atrophy (15.6%), and cryptococcal lesion (9.4%). Parameters including neck stiffness (P = 0.021), muscle weakness (P= 0.046) polymorphonucleocyte predominance in CSF (P= 0.012), low sugar (P= 0.038) and high protein (P = 0.003) levels in CSF were significantly different among HIV positive and negative cases. Out of 160 isolates, 142 were *C. neoformans s.l.* (VNI, VNII) and 18 were *C. gattii s.l.* (VGI, VGIV, VGIII). Statistical analysis showed molecular type of *cryptococcal* isolates were dependent on immune status of the patients (P = 0.00001).

Conclusion: This study investigates the clinical aspects of *cryptococcal* infection among Indian patients and contributes to better prognosis and treatment.

Biography

Shayanki Lahiri Mukhopadhyay is doing her research on cryptococcal meningitis for four years. Cryptococcal disease has turned out as the most common and fetal secondary infection in immune-compromised patients in South India. That is why she has designed her research to investigate the clinical and environmental isolates of *Cryptococcus neoformans* species complex to identify the major environmental sources of the infection, the antifungal susceptibility, pathogenesis of the clinical and environmental isolates to analyze the risks of the infection. Her studies will contribute to the global epidemiology and understanding of virulence of *C. neoformans spp.* complex, which in turn will help to ease the treatment of cryptococcocal meningitis patients.

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