

Commentary: Combating COVID-19-associated mucormycosis with limited resources

Two long and critical years have passed since the onset of coronavirus disease 2019 (COVID-19). Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) caused by COVID-19 has affected over 40 million of the Indian population, with over 500 thousand people losing their lives due to either by SARS-CoV-2 or other co-infections associated with it.^[1] Invasive rhino-orbital-cerebral mucormycosis (ROCM) was identified as one of the fatal co-infections concurrent with or post COVID-19, with India alone contributing more than 81% of cases globally.^[2] Diabetes mellitus, diabetic ketoacidosis, systemic corticosteroids, immunosuppression, malignancy, especially hematological, are all known risk factors of predisposing ROCM. The ROCM form of mucormycosis is more common in COVID-19 infection than other disseminated forms such as cutaneous or pulmonary (ROCM) associated with COVID-19, that is, COVID-19-associated mucormycosis (CAM).

The largest multicentric data of CAM was the Collaborative OPAI-IJO Study on Mucormycosis in COVID-19 (COSMIC), documenting 78% of patients to have diabetes mellitus. Fourteen percent of patients suffered death by CAM while 16% underwent orbital exenteration. twenty-one percent of patients lost their vision with stable disease post treatment.^[3]

The current series in this issue of IJO includes 49 cases of CAM treated over a six-month period in a single center. The authors noted that 67.7% of patients had diabetes mellitus and 28% of patients had hypertension as the commonest associations apart from 47% of the patients being COVID-19 positive. More than 38% received steroids, either intravenously (IV) or orally, to deal effectively with cytokine response driving COVID-19-related pneumonitis and acute respiratory distress syndrome. Supplemental oxygen or ventilatory support was required in 29% of the patients. Over 90% of the affected patients were either unvaccinated, and none were fully vaccinated.

In ROCM care, a multidisciplinary approach as well as multiple medical and surgical options are often recruited for curbing the disease. Medical management demands specialized antifungals such as IV liposomal amphotericin B and other oral antifungal medications of the azole group on discharge from the hospital, such as posaconazole. Although authors have not faced any demand and supply mismatch in this particular study, medical practitioners from several parts of India faced severe shortages of amphotericin B (liposomal form) and were compelled to use the lyophilized form of the same. The latter form, being nephrotoxic, also demanded close monitoring of renal parameters, causing additional burden to an already strained health care system. The costs of medical and surgical treatment of ROCM, excluding hospital stay, may approach somewhere around 1000 USD.^[4] CAM affected young males <60 years, who are the financial backbones of Indian families. The fact that this caused social strain during second wave of COVID-19 pandemic can't be denied. This study has reciprocated the same increased incidence in males.

A total of 57% received transcutaneous retrobulbar amphotericin B (TRAMB), though the exact number of patients in whom globe could be salvaged is not clearly attributed here. Effectivity of TRAMB versus exenteration has surely been debated ever since, due to lack of randomized control trial on the same.^[5,6] In CAM, use of TRAMB has been studied widely across the country in multiple studies, but there is still a lack of uniform criteria of indications of TRAMB and its outcomes.

In caring for around 49 patients with CAM, the authors had unique clinical expertise as well as a valuable database of patient outcomes. Like in any case series database, however, there were limitations to this study: lack of randomization of treatment, and detailing about imaging, as well as flaws in the lack of azole treatment in the stable period. Although the authors understandably sought to derive maximal insights from their data, mortality rate and exenteration rates are in co-ordination with other parallel studies. This study definitely adds to the literature in the form of long-term follow up and outcome of CAM patients, which has not been studied in detail until now.

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