



COVID-19-Associated Pulmonary Mucormycosis: An Underdiagnosed Entity with High Mortality

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Sir,

We read the article by Watanabe et al. with interest wherein the authors performed a systematic review of literature on COVID-19-associated mucormycosis (CAM) and estimated the pooled mortality at 29% [1]. Unfortunately, the authors have missed several peer-reviewed articles published before January 20, 2022 [2–5]. These studies had a larger proportion of pulmonary mucormycosis [2, 4], reported higher mortality (73–88%) [2, 5], and including them might have yielded a different result. Danion et al. reported 17 CAM cases from France with a mortality of 88% at twelve weeks. Nine of these 17 cases were COVID-19-associated pulmonary mucormycosis (CAPM), and only one survived [2]. More importantly, one-third (3/9) of the CAPM cases (3/9) died before treatment. In another case series of CAPM (with mycotic aneurysm) published in December 2021, four of the five patients died despite appropriate therapy [4]. A previous systematic review showed that pulmonary involvement was one of the independent factors associated

with a higher risk of death in CAM [6]. Additionally, the pooled mortality of CAPM is higher (71%) [3] than that reported before the COVID-19 pandemic (57%) [7].

The chronic course, delayed presentation, lack of awareness, and diagnostic difficulties are important factors leading to underdiagnosis of pulmonary mucormycosis in both diabetes mellitus and COVID-19 [8, 9]. To overcome the lack of awareness and address the knowledge deficit in CAPM, a Delphi consensus statement was recently framed under the aegis of the Academy of Pulmonary Sciences and Fungal Infection Study Forum, India. The Delphi panel proposed definitions for CAPM, recommended early bronchoscopy for diagnosis, and combined medical-surgical therapy to improve outcomes in this often missed but potentially life-threatening entity [10].

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Declarations

Conflict of interest The author declares that they have no conflict of interest.

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