



# *Aspergillus* tracheobronchitis in COVID-19 patients with acute respiratory distress syndrome: a cohort study

Philipp Koehler <sup>1,2</sup>, Saskia von Stillfried <sup>3</sup>, Jorge Garcia Borrega <sup>1</sup>, Frieder Fuchs <sup>4</sup>, Jon Salmanton-García <sup>1,2</sup>, Fabian Pult <sup>1,2</sup>, Boris Böll <sup>1</sup>, Dennis A. Eichenauer <sup>1</sup>, Alexander Shimabukuro-Vornhagen <sup>1</sup>, Oliver Kurzai <sup>5,6</sup>, Peter Boor <sup>3,7</sup>, Matthias Kochanek <sup>1,10</sup> and Oliver A. Cornely <sup>1,2,8,9,10</sup>

<sup>1</sup>Dept I of Internal Medicine, Medical Faculty, University Hospital of Cologne, Cologne, Germany. <sup>2</sup>Cologne Excellence Cluster on Cellular Stress Responses in Aging-Associated Diseases (CECAD), University of Cologne, Cologne, Germany. <sup>3</sup>Institute of Pathology, RWTH Aachen University Hospital, Aachen, Germany. <sup>4</sup>University of Cologne, Medical Faculty and University Hospital Cologne, Institute for Medical Microbiology, Immunology and Hygiene, University of Cologne, Cologne, Germany. <sup>5</sup>Institute for Hygiene and Microbiology, University of Wuerzburg, Wuerzburg, Germany. <sup>6</sup>National Reference Center for Invasive Fungal Infections NRZMyk, Leibniz Institute for Natural Product Research and Infection Biology – Hans-Knoell-Institute, Jena, Germany. <sup>7</sup>Dept of Nephrology and Immunology, RWTH Aachen University Hospital, Aachen, Germany. <sup>8</sup>Clinical Trials Centre Cologne, ZKS Köln, Cologne, Germany. <sup>9</sup>University of Cologne, Medical Faculty and University Hospital Cologne, German Center for Infection Research (DZIF), Partner Site Bonn-Cologne, Cologne, Germany. <sup>10</sup>M. Kochanek and O.A. Cornely share last authorship.

Corresponding author: Philipp Koehler ([philipp.koehler@uk-koeln.de](mailto:philipp.koehler@uk-koeln.de))



Shareable abstract (@ERSpublications)

**Comprehensive work-up is needed for COVID-19 ARDS patients, especially when suspecting invasive fungal infections. *Aspergillus* tracheobronchitis has a substantial prevalence in patients with CAPA accounting for an overall mortality of 75% in this study.** <https://bit.ly/3uF3FZU>

**Cite this article as:** Koehler P, von Stillfried S, Garcia Borrega J, et al. *Aspergillus* tracheobronchitis in COVID-19 patients with acute respiratory distress syndrome: a cohort study. *Eur Respir J* 2022; 59: 2103142 [DOI: 10.1183/13993003.03142-2021].

This single-page version can be shared freely online.

Copyright ©The authors 2022.

This version is distributed under the terms of the Creative Commons Attribution Non-Commercial Licence 4.0. For commercial reproduction rights and permissions contact [permissions@ersnet.org](mailto:permissions@ersnet.org)

Received: 12 Dec 2021  
Accepted: 2 Feb 2022

*To the Editor:*

Since the beginning of the coronavirus disease 2019 (COVID-19) pandemic, patients with acute respiratory distress syndrome (ARDS) due to SARS-CoV-2 showed a profoundly altered immune system and received immune-modulating therapeutic interventions. This enhanced the susceptibility for fungal superinfections [1, 2]. With the first reports of COVID-19-associated pulmonary aspergillosis (CAPA) the 2020 European Confederation of Medical Mycology (ECMM)/International Society for Human and Animal Mycology (ISHAM) consensus criteria were proposed [3, 4] and *Aspergillus* tracheobronchitis (ATB) was distinguished as a sub-entity in CAPA [4–6]. During bronchoscopy, ATB presents as ulcerations, pseudomembranes, plaques and eschars, possibly combined with tracheal stenosis [5]. Facing the risk of transmission and SARS-CoV-2 infection of examiners during bronchoscopy, blind suctioning of upper airway samples has been implemented with tracheal aspirates (TA) and non-bronchoscopic lavages. These techniques preclude inspection of the airways, so that ATB cannot be diagnosed beyond the level of suspicion. To study ATB in CAPA patients, we performed a retrospective, single-centre cohort study.

