

# Study identifies seven factors that increase mortality risk for patients with COVID-19

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The risk of death for patients with SARS-CoV-2 infection and thoracic cancer is based on seven major determinants, according to research published in the *Journal of Thoracic Oncology*, the official journal of the International Association for the Study of Lung Cancer.

The researchers analyzed data from The Thoracic Cancers International

COVID-19 Collaboration (TERAVOLT), which is an active global registry that was established in March 2020 to understand the impact of COVID-19 infection on patients with thoracic malignancies in academic and community practices globally.

In total, 114 centers across 19 countries have activated the study, and 92 have contributed data. Eligibility criteria were patients with thoracic cancer (non-[small cell lung cancer](#) [NSCLC], small cell lung cancer, mesothelioma, thymic epithelial tumors, and other [neuroendocrine tumors](#) with pulmonary origin) with a COVID-19 diagnosis defined as any of the following: laboratory confirmed (using RT12 PCR/serology) infection; or suspected SARS-CoV-2 infection based on radiological findings consistent with COVID-19 pneumonia and clinical symptoms (i.e., fever  $>37.5^{\circ}\text{C}$ , cough, decrease of oxygen saturation of at least 5%, cough, diarrhea, otitis, dysgeusia, myalgia, arthralgia, conjunctivitis, and rhinorrhea).

In addition to reporting on outcomes associated with morbidity and mortality, TERAVOLT aims to determine the [risk factors](#) associated with poor outcomes, as well as provide practitioners with real-time data on therapies that may impact survival to COVID-19 and evaluate long-term impacts on care and the delay in care to patients with both curable and incurable thoracic malignancies.

As of April 15, 2021, the researchers had evaluated 1491 patients from 18 countries. With a mean observation period of 42 days, Cortellini and co-researchers reported 361 events with an all-cause case fatality rate of 24.2%.

The fast-backward step-down selection then identified seven major determinants of death from more than 70 variables analyzed:

- ECOG-PS (OR 2.47 1.87-3.26)

- Neutrophil count (OR 2.46 1.76-3.44)
- Serum procalcitonin (OR 2.37 1.64-3.43)
- Tumor stage at COVID-19 diagnosis (OR 1.97 1.46-2.66)
- Development of pneumonia (OR 1.95 1.48-2.58)
- C-reactive protein (CRP) (OR 1.90 1.43-2.51)
- Age (OR 1.71 1.29-2.26).

Given the disease characteristics and the common target organ, patients with thoracic malignancies have been shown to experience higher morbidity and mortality from SARS-CoV-2 infection, with case fatality rates ranging from 22% to 41% according to literature. Poor ECOG-PS demonstrated the strongest association with poor outcome from COVID-19.

"Despite the ongoing efforts including immunization campaigns and increased capacity, SARS-CoV-2 will still impact the continuity of care of patients with [cancer](#), at least to a certain extent. Against the evolving scenario, we provided a comprehensive and powered prognostication system that can be a useful tool for clinicians." said Alessio Cortellini, MD, from the Imperial College London, London, United Kingdom.

"Currently, this analysis did not look at the impact of COVID-19 vaccination. The TERA-VOLT database was recently updated to capture information about vaccination status, as well as information about the specific variants. A separate analysis will be performed with the new data." said Jennifer G Whisenant, Ph.D., from the Vanderbilt University, Nashville, Tenn.

**More information:** Jennifer G. Whisenant et al, A definitive prognostication system for patients with thoracic malignancies diagnosed with COVID-19: an update from the TERA-VOLT registry, *Journal of Thoracic Oncology* (2022). [DOI: 10.1016/j.jtho.2021.12.015](https://doi.org/10.1016/j.jtho.2021.12.015)

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