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Thorax

COVID-19 in patients with thoracic malignancies (TERAVOLT): first results of an international, registry-based, cohort study

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The Lancet Oncology. Vol 21, ISSUE 7, P914-922, July 01, 2020

DOI: [https://doi.org/10.1016/S1470-2045\(20\)30314-4](https://doi.org/10.1016/S1470-2045(20)30314-4)

BACKGROUND

Early reports on patients with cancer and COVID-19 have suggested a high mortality rate compared with the general population. Patients with thoracic malignancies are thought to be particularly susceptible to COVID-19 given their older age, smoking habits, and pre-existing cardiopulmonary comorbidities, in addition to cancer treatments. We aimed to study the effect of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection on patients with thoracic malignancies.

METHODS

The thoracic cancers international COVID-19 collaboration (TERAVOLT) registry is a multi-centre observational study composed of a cross-sectional component and a longitudinal cohort component. Eligibility criteria were the presence of any thoracic cancer (non-small-cell lung cancer [NSCLC], small-cell lung cancer, mesothelioma, thymic epithelial tumours, and other pulmonary neuroendocrine neoplasms) and a COVID-19 diagnosis, either laboratory confirmed with reverse transcriptase-polymerase chain reaction (RT-PCR), suspected with symptoms and contacts, or radiologically suspected cases with lung imaging features consistent with COVID-19 pneumonia and symptoms. Patients of any age, sex, histology, or stage were considered eligible, including those in active treatment and clinical follow-up. Clinical data were extracted from medical records of consecutive patients from 1 Jan 2020, and will be collected until the end of the pandemic declared by the World Health Organization (WHO). Data on demographics, oncological history and comorbidities, COVID-19 diagnosis, and course of illness and clinical outcomes were collected. Associations between demographic or clinical characteristics and outcomes were measured with odds ratios (ORs) with 95% CIs using univariable and multivariable logistic regression, with sex, age, smoking status, hypertension, and chronic obstructive pulmonary disease included in multivariable analysis. This is a preliminary analysis of the first 200 patients. The registry continues to accept new sites and patient data.

FINDINGS

Between 26 March and 12 April, 2020, 200 patients with COVID-19 and thoracic cancers from eight countries were identified and included in the TERAVOLT registry; median age was 68·0 years (61·8–75·0) and the majority had an Eastern Cooperative Oncology Group performance status of 0–1 (142 [72%] of 196 patients), were current or former smokers (159 [81%] of 196), had non-small-cell lung cancer (151 [76%] of 200), and were on therapy at the time of COVID-19 diagnosis (147 [74%] of 199), with 112 (57%) of 197 on first-line treatment. A total of 152 (76%) patients were hospitalised and 66 (33%) died. Only 13 (10%) of 134 patients who met criteria for intensive care unit (ICU) admission were admitted to ICU; the remaining 121 were hospitalised, but were not admitted to ICU. Univariable analyses revealed that being older than 65 years (OR 1·88, 95% CI 1·00–3·62), being a current or former smoker (4·24, 1·70–12·95), receiving treatment with chemotherapy alone (2·54, 1·09–6·11), and the presence of any comorbidities (2·65, 1·09–7·46) were associated with increased risk of death. However, in multivariable analysis, only smoking history (OR 3·18, 95% CI 1·11–9·06) was associated with increased risk of death.

INTERPRETATION

With an ongoing global pandemic of COVID-19, our data suggest high mortality and low admission to intensive care in patients with thoracic cancer. Whether mortality could be reduced with treatment in intensive care remains to be determined. With improved cancer therapeutic options, access to intensive care should be discussed in a multidisciplinary setting based on cancer specific mortality and patients' preference.

