


## Response to Cottu, Bozec, Basse, and Paoletti

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We thank Paul Cottu and colleagues for their helpful comments regarding our systematic review and meta-analysis on clinical characteristics and outcome of coronavirus disease 2019 (COVID-19)-infected cancer patients (1). Spanning many geographical regions globally, including the United States, Europe, and Asia, we demonstrated that COVID-19 patients with cancer have a higher fatality rate compared with that of COVID-19 patients without cancer. The overall case fatality rate of COVID-19 patients with cancer measured 22.4%, which is comparable with that of the authors' report from a single institute (2) and recent meta-analysis involving similar populations from other multinational cohorts (3,4). Based on the available individual patient data, our analysis suggested that patients being older than 65 years and male was associated with a higher risk of worse outcomes, a finding that is consistent with other large cohort studies.

We fully agree that a major limitation of our study was lack of data on several important clinical characteristics from the original individual studies, such as the proportion of patients with advanced disease. Thus, we were not able to examine the associations between some crucial factors and risk of death. We also agree and mentioned in our article that heterogeneity existed in data reporting from included studies, reducing the overall statistical power. We also agree with the authors that clinical presentations are important characteristics, which should be included in prognosis evaluation and thoroughly analyzed in future studies.

We also share the concern about lack of definitive evidence on the association between systemic anticancer treatments and increased risk of poor outcomes. In line with findings from Lee et al. (5), we were not able to identify evidence supporting that cancer patients receiving cytotoxic chemotherapy (or other types of anticancer therapy) are at an increased risk of severe events from COVID-19 disease compared with those not on active treatment, albeit a smaller sample size in our analysis.

While awaiting further evidence from large multinational cohort studies, as discussed in our analysis, it might be beneficial to continue curative surgical resections, chemotherapy, and other cancer treatments based on an individual patient evaluation.

Our analysis highlights the high fatality rate of COVID-19 patients with cancer. COVID-19 vaccines will soon be available to the general population, and high-risk individuals with comorbidities, including cancer, should be considered high priority to receive the initial doses. The challenges facing the health-care and research community have been unprecedented, and several collaborative efforts have been dedicated to understanding the impact of COVID-19 on cancer patients (6,7). The oncology community should continuously share data and collaborate on a global scale to inform individualized clinical practice in real-time.

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## Data Availability

No data are presented in this response.

## References

1. Cottu P, Bozec L, Basse C, et al. Clinical Characteristics and Outcomes of COVID-19 Infected Cancer Patients: A Systematic Review and Meta-Analysis. *J Natl Cancer Inst.* 2020; 113(3):342–343.
2. Basse C, Diakite S, Servois V, et al. Characteristics and outcome of SARS-CoV-2 infection in cancer patients. *JNCI Cancer Spectrum.* 2020; doi: 10.1093/jncics/pkaa090.
3. Saini KS, Tagliamento M, Lambertini M, et al. Mortality in patients with cancer and coronavirus disease 2019: a systematic review and pooled analysis of 52 studies. *Eur J Cancer.* 2020;139:43–50.
4. Salunke AA, Nandy K, Pathak SK, et al. Impact of COVID-19 in cancer patients on severity of disease and fatal outcomes: a systematic review and meta-analysis. *Diabetes Metab Syndr.* 2020;14(5):1431–1437.
5. Lee LYW, Cazier JB, Starkey T, et al. COVID-19 mortality in patients with cancer on chemotherapy or other anticancer treatments: a prospective cohort study. *Lancet.* 2020;395(10241):1919–1926.
6. Rubinstein SM, Steinharter JA, Warner J, et al. The COVID-19 and Cancer Consortium: a collaborative effort to understand the effects of COVID-19 on patients with cancer. *Cancer Cell.* 2020;37(6):738–741.
7. Whisenant JG, Trama A, Torri V, et al. TERA-VOLT: Thoracic Cancers International COVID-19 Collaboration. *Cancer Cell.* 2020;37(6):742–745.