Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Risk factors for in-hospital mortality in patients with cancer and COVID-19

The COVID-19 pandemic is getting worse globally. We read with interest the recent article by Kunyu Yang and colleagues[1] in *The Lancet Oncology*, which was, to our knowledge, the first to focus on the mortality of COVID-19 in patients with cancer. The authors concluded that receiving chemotherapy within 4 weeks before symptom onset and male sex were independent prognostic factors for in-hospital mortality in patients with cancer and COVID-19.

First, the data in the article showed that 40 (20%) of 205 patients with cancer and COVID-19 had died. However, this finding is insufficient to conclude that patients with cancer and COVID-19 had a higher case-fatality rate than did the general patient population with COVID-19. Additionally, in Wuhan, the mortality rate of inpatients with COVID-19 was 28%, regardless of whether or not they had cancer.[2] Second, we reviewed the cancer history of the 205 patients listed in the article.[1] Based on data availability, we found that 98 (77%) of 127 survivors were at early cancer stage (stage I–II), 121 (82%) of 148 survivors underwent surgery, and 73 (47%) of 156 survivors survived for more than 5 years since their cancer diagnosis,[1] indicating that a substantial proportion of these patients might be clinically cured of their cancer. Therefore, there was a large amount of heterogeneity among the patients with cancer and it would be better to study the association between mortality related to COVID-19 and primary or metastatic thoracic malignancies. Third, the main causes of death for the general patient population with COVID-19 include sepsis, respiratory failure, and acute respiratory distress syndrome.[2] Older age, high Sequential Organ Failure Assessment score, and D-dimer concentration greater than 1 μg/mL are potential risk factors for poor prognosis.[2] Although there were only 40 endpoint events in this article,[1] it is not appropriate to establish the multivariable logistic regression model by use of cancer-related variables, rather than these key risk factors. Because of scarce evidence of the correlation between these factors and mortality in patients with cancer and COVID-19, as well as the small sample size, the conclusion that receiving chemotherapy within 4 weeks before symptom onset is an unfavourable prognostic factor for these patients should be interpreted with caution.

Furthermore, biological sex affects immune responses and COVID-19 outcomes in all populations, not just patients with cancer.[3] Because the expression of angiotensin-converting enzyme 2 (ACE2) is also different in various cancers,[4] an analysis of the relation between case-fatality rate and ACE2 expression in patients with cancer and COVID-19 would be of interest.

Overall, the available evidence might not strongly prove that patients with cancer and COVID-19 have a much higher case-fatality rate than do the general patient population with COVID-19. The decision of whether or not to use chemotherapy should be especially cautious for patients with cancer and COVID-19.

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