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Original Article

Risk of COVID-19 in oncohematological patients

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Abstract: As of April 23, 2020, the COVID-19 (SARS-CoV-2) pandemic has affected 2,544,792 people, causing 175,694 deaths worldwide. The global scientific community has turned its attention to the impact of the new virus, which has become a major challenge for healthcare systems in many countries. Oncology patients have been considered of high risk within the ongoing COVID-19 pandemic. Oncology patients are especially vulnerable to infection due to the underlying disease and the type of therapy received. In general, the epidemiologic behavior of community-acquired respiratory viruses among oncology patients resembles that of the general population. Although, at present, there is limited data regarding COVID-19 and solid tumors, oncology patients seem to carry a higher risk of developing severe events. Yet, among patients harboring hematological diseases we have not observed an increase in COVID 19 infections.

Keywords: Hematology, oncology, Covid-19, epidemiology, pandemic

Introduction

As of April 23, 2020, the COVID-19 (SARS-CoV-2) pandemic has affected 2,544,792 people, causing 175,694 deaths worldwide [https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200423-sitrep-94-covid-19.pdf?sfvrsn=b8304bf0_4]. The abrupt increase in the demand of medical attention has become a major challenge for healthcare systems in many countries. Emergency and intensive care units have been overwhelmed and a great amount of medical resources have been diverted to cope with the situation. At present, the scientific community is preferentially focused on understanding the characteristics of the new virus, which is undermining other research areas, especially in the field of cancer.

Oncology patients have been classified as a high-risk group regarding the COVID-19 pandemic [1]. This group includes oncohematological patients like: hematopoietic stem cell transplant (HSCT) recipients, patients on CAR-T cell therapy, and other patients receiving chemo-immunotherapy and/or immunosuppressive treatments. Oncology patients are especially vulnerable to infection due to the underlying disease and the type of therapy received. In fact, oncohematological patients are commonly diagnosed with or can develop severe therapy-induced neutropenia. Commonly prescribed drugs like fludarabine, anti-thymocyte immunoglobulin (ATG), alemtuzumab, and cyclophosphamide may also contribute to severe lymphopenia. This vulnerability justifies the inclusion of these patients in the COVID-19 high-risk group.

The epidemiologic behavior of community-acquired respiratory viruses among oncology patients usually resembles that of the general population, with occasional variability regarding incidence and severity. The incidence of coronavirus infection among oncohematological patients ranges between 3-23%, yet less than 5% affecting the lower respiratory tract [2]. Respiratory infections behave differently in immunosuppressed patients, which are characterized by more severe medical complications, more prolonged viral excretion, higher rates of progression from upper to lower respiratory tract, and higher mortality rate [3, 4]. Although the majority of patients present with fever and cough, fever can be absent in approximately one third of the cases [5]. Unlike other respiratory syndromes caused by viruses of the betacoronavirus family, SARS-CoV-2 can cause multiple organ dysfunctions by attaching to the angiotensin-2 converting enzyme receptor,

which is the natural entry for the virus [6]. Additionally, some comorbidities, like thrombocytopenia, are considered prognostic predictors of worse outcome among COVID-19 patients [7].

Although there is limited data regarding COVID-19 infection and solid neoplasms, an increased risk of developing severe events compared to non cancer patients (39% vs 8%) has been observed [8]. Yet, according to the literature, the incidence rate of COVID-19 infection among hematological patients is not significantly increased. The implementation of the HOPE-COVID 19 project [https://hopeprojectmd.com/en/] at the international level will provide valuable epidemiological information for all patient subgroups. In Spain, the *Grupo Español de Trasplante Hematopoyético y Terapia Celular (GETH)* has initiated the project GETH-COV-2020-01 specifically aimed to elucidate the impact of the virus in HSCT recipients, and the *Sociedad Española de Hematología y Hemoterapia (SEHH)* has issued guidelines on the management of these patients during the pandemic. At the state level, the *Instituto de Salud Carlos III* has launched an extraordinary call for researchers to contribute with projects directed to fight the SARS-CoV-2. Therefore, it is essential that hematologists and scientists specialized in this field participate in these projects.

Some of the actions taken by governments to prevent the spread of the virus include social confinement and the application of strict hygiene measures (use of masks, gloves, frequent hand washing). Such measures were already included as part of the educational actions provided to patients with hematological conditions. In general, oncology patients are more aware of the risk of contracting an infectious disease. Therefore, these hygienic habits are likely to be implemented easier and faster among oncohematological patients compared to the rest of the population, which may partly explain why such patients do not seem to contract the virus more frequently than the rest of the population.

It is desirable to improve our understanding on the course of the disease, specifically among oncohematological patients, in order to improve their management and minimize treatment discontinuations.

Disclosure of conflict of interest

None.

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