

SARS-CoV-2 and Cancer: Beyond Immunosuppression

SARS-CoV-2 e Cancro: Para Além da Imunossupressão

Keywords: COVID-19; Immunosuppression; Neoplasms; SARS-CoV-2

Palavras-chave: COVID-19; Imunossupressão; Neoplasias; SARS-CoV-2

Dear Editor,

Over the last year the COVID-19 pandemic has led to more than 83 million cases and 1.8 million deaths worldwide.¹ Several conditions, such as cancer, have been identified as potential risk factors for poor outcomes of COVID-19, including the need for intensive care, invasive ventilation and death.² These results have mainly been attributed to immunosuppression. Nevertheless, it is now known that the overproduction of pro-inflammatory cytokines (including IL-1 β , IL-6, IFN- γ , and TNF- α), along with an increase in IL-10 and lymphopenia, leads to an IL-6-mediated systemic inflammation, resulting in end-organ damage, especially in the lung, with severe acute respiratory distress syndrome, and the need for critical care to ensure optimal treatment.³ Moreover, the results of the RECOVERY trial support the use of the anti-inflammatory and immunosuppressive drug dexamethasone in the inflammatory phase of the disease, since it reduced mortality in patients with severe COVID-19 and the need for respiratory support.⁴

As such, cancer patients may be at a higher risk of death for reasons other than the immunosuppressive characteristics of chemotherapy treatment alone. Data from a multicentre Italian study concerning haematological malignancies suggested that survival is independently predicted

by age, type of malignancy, disease status and severity of COVID-19, rather than immunosuppressive status. In fact, withholding specific effective treatment for the underlying haematological disease does not seem justified.⁵ As for solid cancers, similar findings have been proposed, and cytotoxic chemotherapy delivered soon before COVID-19 diagnosis did not seem to have any effect on overall survival.⁶

However, it has also been proposed that coinfections may be a possible explanation for a higher mortality rate among these patients,⁷ and indeed, it should be kept in mind that neutropenic patients remain at high risk for bacterial and invasive fungal infections in the COVID-19 era. Even so, antimicrobial stewardship principles are paramount, and should be followed,⁸ since otherwise the world may end up with a worse antimicrobial resistance 'pandemic' in the post-COVID-19 era than what Jim O'Neill predicted, in 2016.⁹

In summary, in the SARS-CoV-2 infection in cancer patients there are probably several interrelated factors at play. The immunosuppressive status and risk of co-infections certainly play their part in the mortality rate of these patients. However, there seems to be a lack of a full explanation for the mechanisms by which cancer patients are at increased risk of worse outcomes from COVID-19.

COMPETING INTERESTS

The authors have declared that no competing interests exist.

FUNDING SOURCES

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

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Diogo MENDES PEDRO^{1,2}, Marta Maria MENDES PEDRO^{3,4}, Emília VALADAS^{1,5}, Thomas HANSCHIED⁶

1. Serviço de Doenças Infecciosas. Centro Hospitalar Universitário de Lisboa Norte. Lisboa. Portugal.

2. Instituto de Farmacologia e Neurociências. Faculdade de Medicina. Universidade de Lisboa. Lisboa. Portugal.

3. Unidade de Saúde Familiar Loures/Saúdável. Agrupamento de Centros de Saúde Loures-Odivelas. Loures. Portugal.

4. Instituto de Semiótica Clínica. Faculdade de Medicina. Universidade de Lisboa. Lisboa. Portugal.

5. Clínica Universitária de Doenças Infecciosas. Faculdade de Medicina. Universidade de Lisboa. Lisboa. Portugal.

6. Instituto de Microbiologia. Faculdade de Medicina. Universidade de Lisboa. Lisboa. Portugal.

Autor correspondente: Diogo Mendes Pedro. diogo.pedro@chn.min-saude.pt

Recebido: 02 de janeiro de 2021 - Aceite: 05 de janeiro de 2021 - First published: 22 de janeiro de 2021 - Online issue published: 01 de março de 2021

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<https://doi.org/10.20344/amp.15640>

