

# Onco-hematological patient care in times of COVID-19: a scoping review

*Assistência ao paciente onco-hematológico em tempos de COVID-19: revisão de escopo*

*Atención al paciente oncohematológico en tiempos de COVID-19: revisión de alcance*

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## ABSTRACT

**Objective:** to identify and map health care aimed at onco-hematological patients in times of Coronavirus 2019. **Methods:** this is a scoping review, anchored in the Joanna Briggs Institute theoretical framework, registered in the Open Science Framework, with searches carried out in June 2021, through searches in the databases. **Results:** a final sample consisting of 20 articles was obtained, with emphasis on general care, treatment and stem cell donation. The most reported care was the use of telemedicine, screening for Coronavirus Disease 2019, compliance with prevention practices and, in case of infection, postponing procedures. **Conclusions:** the study gathered the main evidence on care aimed at treating these patients in times of a pandemic. Such measures help in the clinical management with the objective of proceeding with treatment amidst the injuries caused, thus minimizing possible complications. **Descriptors:** Comprehensive Health Care; Patient Care; Coronavirus; Medical Oncology; Hematology.

## RESUMO

**Objetivo:** identificar e mapear os cuidados em saúde direcionados aos pacientes onco-hematológicos em tempos de *Coronavirus Disease 2019*. **Métodos:** trata-se de uma *scoping review*, ancorada no referencial teórico do *Joanna Briggs Institute*, registrada na *Open Science Framework*, com buscas realizadas em junho de 2021, mediante pesquisas nas bases de dados. **Resultados:** obteve-se uma amostra final constituída de 20 artigos, com destaque para os cuidados gerais, de tratamento e na doação de células-tronco. Os cuidados mais relatados foram o uso da telemedicina, o rastreamento de infecção por *Coronavirus Disease 2019*, a adesão às práticas de prevenção e, em caso de infecção, adiar os procedimentos. **Conclusões:** o estudo reuniu as principais evidências sobre os cuidados direcionados ao tratamento destes pacientes em tempos de pandemia. Tais medidas auxiliam no manejo clínico sob o objetivo de prosseguir com tratamento em meio aos agravos causados e, assim, minimizar possíveis complicações.

**Descritores:** Assistência Integral à Saúde; Assistência ao Paciente; Coronavirus; Oncologia; Hematologia.

## RESUMEN

**Objetivo:** identificar y mapear la atención en salud dirigida a pacientes oncohematológicos en tiempos de Coronavirus Disease 2019. **Métodos:** se trata de una revisión de alcance, anclada en el marco teórico del Instituto Joanna Briggs, registrado en el Open Science Framework, con búsquedas realizadas en junio de 2021, a través de búsquedas en las bases de datos. **Resultados:** se obtuvo una muestra final conformada por 20 artículos, con énfasis en cuidados generales, tratamiento y donación de células madre. Los cuidados más relatados fueron el uso de telemedicina, pesquisa de infección por Coronavirus Disease 2019, adherencia a prácticas de prevención y, en caso de infección, postergación de procedimientos. **Conclusiones:** el estudio reunió las principales evidencias sobre la atención dirigida al tratamiento de estos pacientes en tiempos de pandemia. Tales medidas auxilián en el manejo clínico con el objetivo de proceder al tratamiento en medio de las lesiones ocasionadas y, así, minimizar posibles complicaciones.

**Descriptorios:** Atención Integral de Salud; Asistencia al Paciente; Coronavirus; Oncología Médica; Hematología.

## INTRODUCTION

Coronavirus Disease 2019 (COVID-19), caused by the SARS-CoV-2 virus, spread around the world and took on the proportions of a pandemic. Among the infected patients, 80% have mild or moderate symptoms, and 20% have severe or critical symptoms. Complications develop more significantly in groups with risk factors, such as older adults, smokers and people with comorbidities<sup>(1)</sup>. By mid-April 2022, approximately 500 million cases had been reported, and approximately 6.19 million deaths from the disease occurred worldwide<sup>(2)</sup>.

Onco-hematological patients are at high risk for COVID-19 infection due to suppression of the immune system due to the mechanisms of tumor invasion and severe systemic immunosuppression caused by chemotherapy and/or radiotherapy<sup>(3)</sup>. Thus, it imposes challenges to the provision of cancer care that impacts the care of these patients, a fact that can lead to delay in treatment, disease progression and even death<sup>(4-5)</sup>.

Accordingly, there was a remodeling of care in centers specialized in cancer treatment, where it was possible to verify a decrease in the number of returns and new face-to-face cancer consultations, which were replaced by the teleconsultation format, added to the reduction of some methods, procedures and therapies, such as intravenous systemic treatment, oncological surgery and hematopoietic stem cell transplants (HSCT). Such a situation may go against the premise that everyone has the right to adequate treatment and at the right time<sup>(5)</sup>.

In Brazil, the COVID-19 pandemic caused more than 30 million cases and 661 thousand deaths<sup>(6)</sup>. Still, for the country, there are estimates of 625,000 new cases of cancer for each year of the 2020-2022 triennium. Of these, the onco-hematological ones stand out, with 10,810 diagnoses of leukemias, 2,640 of Hodgkin's lymphoma and 12,030 of non-Hodgkin's lymphoma<sup>(7)</sup>.

A survey carried out in the state of Espírito Santo, southeastern Brazil, followed patients up with onco-hematological diseases between February 2020 and February 2021, and identified that, of the 406 patients under treatment, 36 were affected by the SARS-CoV-2 virus and, of these, 39% evolved to death<sup>(8)</sup>.

In this scenario, given the incidence of hematological cancer cases and the susceptibility to contagion by COVID-19, through a previous and extensive search in the literature, the opportunity to develop this research was noticed, due to the gap represented by the lack of a study that would concatenate the main care directed to this very specific public. Hence the need to summarize prevention and management measures in care aimed at onco-hematological patients. That said, the results presented in this study aim to mitigate virus installation and the harmful clinical outcomes caused by it to an individual's immunity.

COVID-19 infection in the onco-hematological context deserves attention, as such patients correspond to a vulnerable population group, as they are more likely to evolve with the severe form of the disease and even death, when compared to the others. Moreover, knowing the necessary care aimed at this specific public can minimize infection by the virus, with a view to reducing the risk of disease progression, delay and lower-than-expected results for treatment, among others, a fact that can represent a significant negative impact for the onco-hematologic patient<sup>(9-12)</sup>.

In the meantime, when considering the relevance of the number of individuals that make up this risk group and the lack of investigations regarding specific care for this part of the population<sup>(12)</sup>, this work was guided by the following guiding question "What are the health care directed to onco-hematological patients in times of COVID-19?".

## OBJECTIVE

To identify and map health care directed to onco-hematological patients in times of COVID-19.

## METHOD

### Ethical aspects

As this is a research with materials in the public domain that did not involve human beings, it was not necessary to be assessed by the ethics committee. However, it is important to emphasize that copyrights were respected with correct citation and referencing of studies.

### Study design

This is a scoping review (ScR), prepared based on the Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR)<sup>(13)</sup> guidelines, with the research protocol registered in the Open Science Framework (OSF) ([doi.org/10.17605/OSF.IO/3BPT6](https://doi.org/10.17605/OSF.IO/3BPT6)).

This type of study aims to identify, map, synthesize the evidence and gaps in knowledge around a given field of research. The performance process preserves methodological rigor through the following design: (1) research question identification; (2) identification of relevant studies; (3) selection of studies; (4) data analysis and extraction; and (5) synthesis and presentation of data<sup>(13-14)</sup>.

### Methodological procedures

Step 1 consisted of formulating the research question, and for this, the mnemonic strategy PCC was used: (P (Population) - onco-hematological patients; (C) Concept - health care; and (C) Context - Coronavirus (COVID-19)). Thus, the following question was constituted: what is the health care directed to onco-hematological patients in times of COVID-19?

In step 2, before performing the searches in the databases, the descriptors that represent the object of this study were identified, using the Medical Subject Headings (MeSH) for the terms in English, and the Descriptors in Health Sciences (DeCS), for the terms in Portuguese. The selected descriptors were: Neoplasms, Health Care, Coronavirus. The strategy was elaborated with the help of synonyms/keywords and the Boolean operators AND and OR, as follows, in Portuguese and English, respectively: *Neoplasias* OR (*Câncer* OR *Neoplasia*) AND *Assistência à saúde* OR (*Cuidados de assistência à saúde* OR *Cuidados de saúde*) AND *Coronavírus* OR (*Infecções por coronavírus*); and Neoplasms OR (Cancer OR Neoplasm) AND Health care OR (Health care care OR Health care) AND Coronavirus OR (Coronavirus infection).

Thus, after selecting the descriptors, an open and extensive prior search was carried out in the literature and on the OSF platform to ensure that reviews or protocols with the object of study in question or similar theme were not published. From the non-identification, followed with the steps for consolidation of this ScR. After that, the selection of materials began in the databases and in the gray literature through the Journal Portal of the Coordination for the Improvement of Higher Education Personnel (CAPES - *Coordenação de Aperfeiçoamento de Pessoal de Nível Superior*), from the identification in the Federated Academic Community (CAFe) as a way of standardizing collection in the listed databases, in June 2021.

The selection of studies consisted of reading titles and abstracts of texts rescued in the databases and repositories of theses and dissertations. To reach step 3, there was a screening of works, according to eligibility criteria, by reading the full text to check if they answered the guiding question and for data extraction. The analyses were performed by peers of reviewers independently on the same day and time. In case of disagreement, there was discussion for consensus. In cases of doubt, the opinion of a third reviewer specialized in the area of the object of study was requested.

Regarding the eligibility criteria, publications that met the study objective were included, in any language and available in full in electronic form. Studies in editorial format, letter to the editor and opinion articles were excluded. Duplicate documents were considered only once. It is worth mentioning that filters were not used.

### Data source

The databases used to search for the studies were: U.S. National Library of Medicine (PubMed), Scopus, Web of Science, PsycINFO, Science Direct, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Latin American and Caribbean Health Sciences Literature (Lilacs), The National Library of Australia's Trove (Trove), Academic Archive Online (DIVA), capes Dissertation and Thesis Database, and Brazilian Society of Bone Marrow Transplantation (SBTMO).

### Data collection and organization

For step 4, separation, summarization and reporting of the essential data found, a structured instrument was used, designed specifically for this purpose. This tool allowed the synthesis, interpretation of data and basic statistical analysis of the extent, nature and distribution of the selected studies that make up the final sample.

The following variables were extracted from the studies selected for the final sample: database; author(s); language; year of publication; country where the study was developed; study objective; methodological design; level of evidence; and health care directed to onco-hematological patients in times of COVID-19. The level of evidence of studies was classified according to the Joanna Briggs Institute<sup>(14)</sup>, categorized from one (I) to five (V).

### Data analysis

Complying with step 5, the collected data were organized in Microsoft Excel 2016<sup>®</sup>, analyzed and presented descriptively by

means of simple statistics and presented in the format of figures and tables in an appropriate way and that facilitate the visualization and interpretation of results.

## RESULTS

Initially, 16,480 studies were identified in the searches in databases and other sources. After the selection process, described in Figure 1, the final sample consisted of 20 articles.

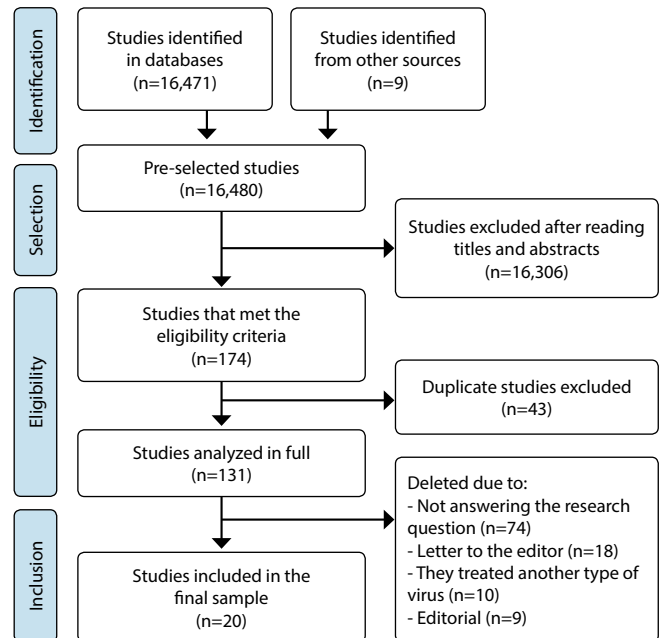


Figure 1 - Selection process flowchart, Brazil, 2021 (n=20)

As for the year, it was found that almost all (19; 95%) of the works were published in 2020, and only one (5%) in 2021. Regarding the language, fourteen (70%) are in English, and six (30%) in Portuguese.

Among the countries in which the documents were prepared, Brazil (8; 40%) and the United States of America (5; 25%) stand out. Among the selected studies, it is observed that one (5%) was developed by researchers from several countries, classified as a multicenter study.

Chart 1 demonstrates a detailed characterization of selected studies in terms of reference, year and country of publication, study design and number of participants (in the case of studies with human beings), summary of care directed to onco-hematologic patients in times of COVID-19 and level of evidence.

Chart 2 is presented below with the detailed characterization of selected studies regarding reference, year and country of publication, study design and number of participants (when in studies with humans), synthesis of treatments directed to onco-hematological patients in times of COVID-19 and level of evidence.

Chart 3 presents a detailed characterization of selected studies with regard to reference, year and country of publication, study design and number of participants (in the case of studies with human beings), synthesis of the guidelines directed to bone marrow donors in times of COVID-19 and level of evidence.

**Chart 1-** Characterization of studies regarding year and country of development, study design, synthesis of general care directed to onco-hematological patients in times of COVID-19 and level of evidence, Brazil, 2021 (n=17)

Reference	Year/country	Study design/ number of patients *	General care for onco-hematological patients in times of COVID-19 †	Level of evidence
Motlagh et al. <sup>(15)</sup>	2020/ Iran	Expert opinion	Telemedicine consultations; compliance with prevention practices, such as the use of face masks, hand hygiene and social distancing; minimization of clinical/outpatient visits or patient stay in health units	V <sup>‡</sup>
Al-shamsi et al. <sup>(16)</sup>	2020/ Multicenter	Literature review	Telemedicine consultations; minimization clinical/outpatient visits or patient stay in health units; educational measures on COVID-19 management †	V <sup>‡</sup>
Mahmoudjafari et al. <sup>(17)</sup>	2020/ United States of America	Expert opinion	Compliance with prevention practices, such as the use of face masks, hand hygiene and social distancing	V <sup>‡</sup>
Teodoro, Tirapelli <sup>(18)</sup>	2020/ Brazil	Expert opinion	Telemedicine consultations; minimization of clinical/outpatient visits or patient stay in health units; educational measures on COVID-19 management †	V <sup>‡</sup>
Lupo-Stanghellini et al. <sup>(19)</sup>	2020/ Italy	Case report/ 14 patients*	Telemedicine consultations	IV <sup>§</sup>
Gosain et al. <sup>(20)</sup>	2020/ United States of America	Literature review	Compliance with prevention practices, such as the use of face masks, hand hygiene and social distancing; home insulation for 14 days before conditioning	V <sup>‡</sup>
Saleh et al. <sup>(21)</sup>	2020/ United States of America	Literature review	Telemedicine consultations; compliance with prevention practices, such as the use of face masks, hand hygiene and social distancing; minimization of clinical/outpatient visits or patient stay in health units	V <sup>‡</sup>
Hungria et al. <sup>(22)</sup>	2020/ Brazil	Expert opinion	Compliance with prevention practices, such as the use of face masks, hand hygiene and social distancing	V <sup>‡</sup>
Hamerschlak <sup>(23)</sup>	2020/ Brazil	Expert opinion	Visit restriction	V <sup>‡</sup>
Machado <sup>(24)</sup>	2020/ Brazil	Expert opinion	Telemedicine consultations; compliance with prevention practices, such as the use of face masks, hand hygiene and social distancing; minimization of clinical/outpatient visits or patient stay in health units; trip avoidance, if necessary, giving preference to private vehicles; home isolation for 14 days prior to conditioning	V <sup>‡</sup>
Ministry of Health <sup>(25)</sup>	2020/ Brazil	Expert opinion	Telemedicine consultations; compliance with prevention practices, such as the use of face masks, hand hygiene and social distancing; minimization of clinical/outpatient visits or patient stay in health units; educational measures on COVID-19 management†; home isolation for 14 days prior to conditioning	V <sup>‡</sup>
Perini et al. <sup>(26)</sup>	2020/ Brazil	Expert opinion	Telemedicine consultation; minimization of clinical/outpatient visits or patient stay in health units; educational measures on COVID-19 management	V <sup>‡</sup>
Raza et al. <sup>(27)</sup>	2020/ United States of America	Experience report	Telemedicine consultation	IV <sup>§</sup>
Waghmare et al. <sup>(28)</sup>	2020/ United States of America	Expert opinion	Compliance with prevention practices, such as the use of face masks, hand hygiene and social distancing; trip avoidance, if necessary, giving preference to private vehicles; respiratory symptom screening for patients and health professionals before entering transplant units	V <sup>‡</sup>
Ljungman et al. <sup>(29)</sup>	2020/ Czech Republic	Expert opinion	Telemedicine consultations; compliance with prevention practices, such as the use of face masks, hand hygiene and social distancing; trip avoidance, if necessary, giving preference to private vehicles; respiratory symptom screening for patients and healthcare professionals before entering transplant units; visit restriction; staff should preferably be dedicated to a transplant unit, not alternate care for COVID-19 patients †; home isolation for 14 days prior to conditioning	V <sup>‡</sup>

To be continued

Chart 1 (concluded)

Reference	Year/country	Study design/ number of patients*	General care for onco-hematological patients in times of COVID-19 †	Level of evidence
Garnica et al. <sup>(30)</sup>	2020/ Brazil	Case series/ 47 patients* 54 health professionals*	Compliance with prevention practices, such as wearing face masks, hand hygiene and social distancing; respiratory symptom screening for patients and healthcare professionals before entering transplant units; visit restriction; staff should preferably be dedicated to a transplant unit, not alternate care for COVID-19 patients † ; ongoing training on safety, correct use of personal protective equipment, hospital, transplant and intubation flows	IV <sup>§</sup>
Monteiro et al. <sup>(31)</sup>	2021/ Brazil	Experience report	Telemedicine consultations; compliance with prevention practices, such as the use of face masks, hand hygiene and social distancing; respiratory symptoms screening for patients and healthcare professionals before entering transplant units; ongoing training on safety, correct use of personal protective equipment, hospital, transplant and intubation flows	IV <sup>§</sup>

Note: \*The number of patients was included in studies developed with humans; †Coronavirus Disease 2019; ‡Expert opinion evidence or narrative literature review, according to the Joana Briggs Institute Manual<sup>(14)</sup>; §Evidence for case report, case series or experience report, according to the Joana Briggs Institute Manual<sup>(14)</sup>.

**Chart 2** - Characterization of studies for year and country of development, study design, treatments aimed at onco-hematological patients and level of evidence, Brazil, 2021 (n=15)

Reference	Year/country	Study design/ number of patients	Treatment of onco-hematological patients in times of COVID-19 †	Level of evidence
Motlagh et al. <sup>(15)</sup>	2020/ Iran	Expert opinion	Screening for COVID-19 infection† in patients before starting therapy or whenever necessary; postponement of non-urgent HSCT ‡; definitive therapy or provisional treatment, when possible; prioritization of cancer treatment with adaptation of the therapeutic regimen	V <sup>§</sup>
Al-shamsi et al. <sup>(16)</sup>	2020/ Multicenter	Literature review	In case of infection, procedures should be postponed (at least 14 days) until patients become asymptomatic and have at least 2 consecutive negative RT-PCR tests <sup>  </sup> , with an interval of 24 hours between tests; in case of contact with person infected with COVID-19 <sup>†</sup> , consider incubation period of the virus (14 days) to proceed with HSCT ‡; assessment of postponing transplantation or adjuvant chemotherapy in cases with low risk of disease progression	V <sup>§</sup>
Gosain et al. <sup>(20)</sup>	2020/ United States of America	Literature review	In case of infection, procedures should be postponed (minimum 14 days) until patients become asymptomatic and have at least 2 consecutive negative RT-PCR tests <sup>  </sup> , with a 24-hour interval between tests; postponement of non-urgent HSCT <sup>‡</sup> , definitive therapy, or interim treatment when possible; in case of contact with a person infected with COVID-19 <sup>†</sup> , consider the virus incubation period (14 days) to proceed with HSCT <sup>‡</sup> ; assessment of deferral of transplantation or adjuvant chemotherapy in cases with low risk of disease progression	V <sup>§</sup>
Saleh et al. <sup>(21)</sup>	2020/ United States of America	Literature review	Screening for COVID-19 infection† in patients before starting therapy or whenever necessary; in case of infection, procedures should be postponed (at least 14 days) until patients become asymptomatic and has at least 2 consecutive negative RT-PCR tests <sup>  </sup> , with an interval of 24 hours between tests; prioritization of cancer treatment, with adaptation of the therapeutic regimen	V <sup>§</sup>
Hungria et al. <sup>(22)</sup>	2020/ Brazil	Expert opinion	Screening for COVID-19 infection in patients before starting therapy or whenever there is a need; in case of infection, procedures should be postponed (minimum 14 days) until patients become asymptomatic and have at least 2 consecutive negative RT-PCR tests <sup>  </sup> , with a 24-hour interval between tests; prioritization of cancer treatment, with adaptation of the therapeutic regimen; in case of contact with a person infected with COVID-19, consider virus incubation period (14 days) to proceed with HSCT	V <sup>§</sup>
Hamerschlak <sup>(23)</sup>	2020/ Brazil	Expert opinion	Screening for COVID-19 infection† in patients before starting therapy or whenever necessary; postponement of non-urgent HSCT ‡; definitive therapy or provisional treatment, when possible; in case of contact with person infected with COVID-19 <sup>†</sup> , consider virus incubation period (14 days) to proceed with HSCT ‡; reassess the use of intensive care with high-risk complications and critical care needs	V <sup>§</sup>
Machado <sup>(24)</sup>	2020/ Brazil	Expert opinion	Screening for COVID-19 infection† in patients before starting therapy or whenever there is a need; in case of infection, procedures should be postponed (minimum 14 days) until patients become asymptomatic and have at least 2 consecutive negative RT-PCR tests <sup>  </sup> , with a 24-hour interval between tests; in case of contact with a person infected with COVID-19 <sup>†</sup> , consider virus incubation period (14 days) to proceed with HSCT <sup>‡</sup>	V <sup>§</sup>

To be continued

Chart 2 (concluded)

Reference	Year/country	Study design/ number of patients	Treatment of onco-hematological patients in times of COVID-19 †	Level of evidence
Ministry of Health <sup>(25)</sup>	2020/ Brazil	Expert opinion	Screening for COVID-19 infection <sup>†</sup> in patients before starting therapy or whenever there is a need; in case of infection, procedures should be postponed (minimum 14 days) until patients become asymptomatic and have at least 2 consecutive negative RT-PCR tests <sup>  </sup> , with a 24-hour interval between tests; postponement of <sup>†</sup> non-urgent HSCT, definitive therapy or interim treatment, when possible; in case of contact with a person infected with COVID-19 <sup>†</sup> , consider the virus incubation period (14 days) to proceed with HSCT <sup>‡</sup>	V <sup>§</sup>
Perini et al. <sup>(26)</sup>	2020/ Brazil	Expert opinion	Postponement of non-urgent HSCT <sup>‡</sup> , definitive therapy or provisional treatment, when possible; prioritization of cancer treatment, with adaptation of the therapeutic regimen; reassess the use of intensive care with high-risk complications and intensive care needs	V <sup>§</sup>
Raza et al. <sup>(27)</sup>	2020/ United States of America	Experience report	Screening for COVID-19 infection <sup>†</sup> in patients before starting therapy or whenever necessary; in case of infection, procedures should be postponed (at least 14 days) until patients become asymptomatic and has at least 2 consecutive negative RT-PCR tests <sup>  </sup> , with an interval of 24 hours between tests; prioritization of cancer treatment, with adaptation of the therapeutic regimen	IV <sup>¶</sup>
Waghmare et al. <sup>(28)</sup>	2020/ United States of America	Expert opinion	Screening for COVID-19 infection <sup>†</sup> in patients before starting therapy or whenever there is a need; in case of infection, procedures should be postponed (minimum 14 days) until patients become asymptomatic and have at least 2 consecutive negative RT-PCR tests <sup>  </sup> , with a 24-hour interval between tests; postponement of <sup>†</sup> non-urgent HSCT, definitive therapy or interim treatment, when possible	V <sup>§</sup>
Ljungman et al. <sup>(29)</sup>	2020/ Czech Republic	Expert opinion	Screening for COVID-19 infection <sup>†</sup> in patients before starting therapy or whenever necessary; postponement of non-urgent HSCT <sup>‡</sup> definitive therapy or provisional treatment, when possible	V <sup>§</sup>
Alhalabi et al. <sup>(32)</sup>	2020/ United States of America	Expert opinion	Postponement of non-urgent HSCT <sup>‡</sup> , definitive therapy or provisional treatment, when possible	V <sup>§</sup>
Zhang et al. <sup>(33)</sup>	2020/ China	Experience report	Experimental use of Tocilizumab	IV <sup>¶</sup>
Moujaess et al. <sup>(34)</sup>	2020/ Beirut	Literature review	Screening for COVID-19 infection <sup>†</sup> in patients before starting therapy or whenever there is a need; in case of infection, procedures should be postponed (minimum 14 days) until patients become asymptomatic and have at least 2 consecutive negative RT-PCR tests <sup>  </sup> , with a 24-hour interval between tests; in case of contact with a person infected with COVID-19 <sup>†</sup> , consider virus incubation period (14 days) to proceed with HSCT <sup>‡</sup>	V <sup>§</sup>

Note: <sup>\*</sup>The number of patients was included in studies developed with humans; <sup>†</sup>Coronavirus Disease 2019; <sup>‡</sup>Hematopoietic Stem Cell Transplantation; <sup>||</sup>Reverse Transcriptase Reaction Followed by Polymerase Chain Reaction; <sup>§</sup>Evidence of expert opinion or narrative review of literature, according to the Joana Briggs Institute Manual<sup>¶(10)</sup>; <sup>¶</sup>Evidence for case report, case series or experience report, according to the Joana Briggs Institute Manual<sup>¶(10)</sup>.

**Chart 3** - Characterization of studies for year and country of development, study design, guidelines for bone marrow donors in times of COVID-19 and level of evidence, Brazil, 2021 (n=03)

Reference	Year/country	Study design/ number of patients	Guidelines for bone marrow donors in times of COVID-19 †	Level of evidence
Waghmare et al. <sup>(28)</sup>	2020/ United States of America	Expert opinion	In case of close contact with a person diagnosed with COVID-19 †, donors will be excluded from donation for at least 28 days	V <sup>‡</sup>
Ljungman et al. <sup>(29)</sup>	2020/ Czech Republic	Expert opinion	In case of close contact with a person diagnosed with COVID-19 †, donors will be excluded from donation for at least 28 days; in confirming the diagnosis of COVID-19 †, donors should be excluded from donation, considering releasing after three months; donors must have been asymptomatic for at least 14 (preferably 21) days prior to donation.	V <sup>‡</sup>
Moujaess et al. <sup>(34)</sup>	2020/ Beirut	Literature review	In case of close contact with a person diagnosed with COVID-19, donors will be excluded from donation for at least 28 days; in confirming the diagnosis of COVID-19, donors should be excluded from donation, considering releasing after three months	V <sup>‡</sup>

Note: <sup>\*</sup>The number of patients was included in studies developed with humans; <sup>†</sup>Coronavirus Disease 2019; <sup>‡</sup>Expert opinion evidence or literature narrative review, according to the Joana Briggs Institute Manual<sup>¶(10)</sup>.

## DISCUSSION

When analyzing the identified studies, we noticed the predominance of articles published in 2020. This fact is attributed to the urgent need for scientific productions that contribute to a better understanding of the interaction between people with onco-hematological diseases and infection by the SARS-CoV-2 virus<sup>(35)</sup> and, thus, adapt care to the health demands of this public, according to the restrictions imposed by the pandemic.

It was found that the largest number of studies on this theme was developed in Brazil and the United States of America. This finding may be associated with the high impact of the pandemic in these countries, interconnected with the relevant incidence rates related to onco-hematological neoplasms, in addition to being nations with consistent and diversified locus of intense productivity of scientific research in health sciences<sup>(8,33,36-37)</sup>.

There is a predominance of expert opinion in the identified articles and, consequently, a low level of evidence. In line with it, this methodological design is often used in serious, unexpected scenarios, with rapid geographic spread and which are characterized as a public health emergency, as in the case of the COVID-19 pandemic, whether in the health and general care recommendation, the use of medication or other non-pharmacological therapies<sup>(34)</sup>.

The importance of constant monitoring and other preventive measures common to combating COVID-19, which are key parts for health maintenance at this time, is emphasized. This adds to the fact that there is not yet a defined treatment for infection, only supportive interventions for complications developed<sup>(1)</sup>.

As for general care, although preventive measures for COVID-19 management are widely disseminated through digital media, it is up to professionals to educate patients and reinforce recommendations, as well as guide them to report the appearance of signs and symptoms related to the infection, since there is the spread of information of a dubious nature, which can generate questions, doubts or disbelief by patients<sup>(5)</sup>.

Regarding the health team, although scored in only 5.26% of articles, it is worth mentioning the importance of their dedication to a transplant unit and not taking care of patients with COVID-19 alternately, since, when infected, professionals can be a transmitting agent of the disease for onco-hematologic patients<sup>(16)</sup>.

From this perspective, a study reports factors that represent a risk for infection of health professionals by SARS-CoV-2, such as close contact with potentially contaminated patients and/or co-workers, scarcity of personal protective equipment (PPE), work overload, inadequate use or non-use of PPE, and inadequate hand hygiene<sup>(16)</sup>.

One strategy to continue with assistance in some critical health services is to conduct virtual consultations. This remote digital follow-up was indicated by 57.89% of selected studies, through telemedicine, an initiative that takes place from telehealth, capable of providing screening support, monitoring, diagnosis, surveillance, education and health prevention<sup>(15-16)</sup>. Regarding treatment, the selected studies converge to a therapeutic flexibility, in order to mitigate exposure of cancer patients to COVID-19 and their subsequent illness and/or risk of death, since many of this public are immunosuppressed, due to spinal cord ablation caused by antineoplastic chemotherapy, and also have a higher mortality rate (16.7%), presented in a Brazilian study<sup>(15)</sup>.

However, this adequacy to treatment depends on many clinical determinants, in which new assessments of each case are necessary and, according to the situation of aggravation of the disease of these patients and their particular demands in relation to the assistance provided, such as the human and physical resources employed, care must be accessible, effective and safe, with in order to define a quality therapeutic plan<sup>(16,32)</sup>. Moreover, it is recommended to postpone non-urgent cases of HSCT, as well as to reassess the use of intensive care with high-risk complications and intensive care needs. This reality is consistent with the critical situation of intensive care unit bed occupancy and the lack of human resources and equipment in the pandemic scenario, as transplantation and other therapies deal with procedures requiring intensive care<sup>(18-19)</sup>.

Another situation in which the postponement of transplantation is required is cases in which patients had contact with people infected with COVID-19. With this, the incubation period of the virus is considered and that any transplant procedure should be postponed for at least 14 days, completed through home isolation. As in cases of proven infections, HSCT should be considered only after two consecutive negative RT-PCR tests. Compliance with prevention and management measures for COVID-19 should be adopted by health services, especially HSCT services. Disease care and management measures are essential for the identification and prevention of contamination by SARS-CoV-2, and may be adapted according to institutional and/or sector characteristics, in addition to the availability of human and material resources and the specifics of patients<sup>(18-19,25)</sup>.

Postponing therapies, consultations or transplantation, for example, can lead to a negative outcome, given the delays in treatment, increase in the number of patients on the waiting list, the risk of progression, relapse or recurrence of the disease and a greater chance of death from the health condition itself or from opportunistic diseases. At this pandemic moment, it is essential that health professionals, especially nurses, are oriented and trained to act with responsibility and technical-scientific knowledge based on the best evidence, to work in different scenarios of daily care, such as in the care of onco-hematological patients<sup>(38)</sup>.

The report of any clinical manifestations by patients should be collected, recorded and monitored, especially adverse reactions, which include classic respiratory signs and symptoms of SARS-CoV-2 infection, from the perspective that any symptomatology associated with COVID-19 requires greater attention and immediate intervention from the team, given the criticality of transplant patients<sup>(19)</sup>. Also, a report by the Brazilian Association of Organ Transplantation (ABTO - *Associação Brasileira de Transplante de Órgãos*) pointed out that, in 2020, there was a drop in the number of HSCT, with a drop of 18.64% compared to 2019. Therefore, it is possible to consider that one of the factors for such reductions is associated with the strict exclusion criteria for donor selection and transplantation only in urgent cases, as presented by studies<sup>(23,25,28-29,34)</sup>.

Other factors that could explain this decline are the fear of contagion by donors when moving to health services, the low mobilization of non-governmental organizations (NGOs) and the lack of campaigns, due to the restrictions of social distancing.

## Study limitations

As a limitation of the study, the tep of identification of works is imposed due to the periodic daily updates in the databases, which may have interfered in the final sample and had repercussions on the results presented.

Moreover, the studies selected for the sample have a low level of evidence, which shows the need for studies with more complex methodologies that cover participants/patients of the various levels of health care.

## Contributions to nursing, health, and public policies

It is emphasized as a contribution of the research developed the summarization of analyzed care. Furthermore, the results presented will expand the health team's knowledge regarding the clinical management of onco-hematologic patients in times of COVID-19, with the aim of continuing with cancer treatment amidst the complications caused by the pandemic and, thus, minimizing possible complications, evolution or worsening of the underlying disease, death, delay or ineffective outcome related to cancer treatment.

Thus, it is possible to encourage the production of new studies with a qualitative, quantitative or mixed approach, such as

reviews, epidemiological and/or clinical studies, that explore the health care of people with onco-hematological diseases, to increase care to minimize contagion by COVID-19, since praxis, especially nursing, occurs under constant updates, with a view to meeting the health needs of patients.

## CONCLUSION

The present study brought together the main scientific evidence on care aimed at the treatment of onco-hematologic patients in times of a pandemic. Health professionals, especially nurses and nursing staff, need to know and understand such information, since care is a living act that materializes in patients. With the advent of the pandemic, the care provided to onco-hematological patients, who were already considered critical, became even more specific, due to their health-disease status.

Thus, it is concluded that, in addition to screening for COVID-19 before starting therapy, postponing procedures in case of positive PCR and postponement of non-urgent HSCT, it is important to perform general care, such as telemedicine consultations, minimizing clinical/outpatient visits or patient stays in health facilities, compliance with prevention practices, such as the use of face masks, hand hygiene and social distancing.

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