

# Challenges and Recommendations for Cancer Care during the COVID-19 Pandemic

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*Desafios e Recomendações à Atenção Oncológica durante a Pandemia da Covid-19*

*Desafíos y Recomendaciones para la Atención del Cáncer durante la Pandemia de Covid-19*

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## RESUMO

**Introdução:** A pandemia da doença causada pelo coronavírus 2019 (Covid-19) impactou o cotidiano da humanidade e do sistema de saúde mundial. Os pacientes oncológicos representam uma população de risco por apresentarem desfechos desfavoráveis quando infectados. **Objetivo:** O objetivo deste estudo foi avaliar as recomendações para o manejo da população oncológica durante essa pandemia. **Método:** Utilizaram-se as plataformas PubMed e BVS para a seleção de artigos referentes ao manejo de pacientes com câncer no decorrer da pandemia da Covid-19, resgatando-se 16 publicações que satisfizeram os critérios de inclusão e exclusão. **Resultados:** Todas as publicações reforçaram a necessidade de estratégias específicas para o manejo dos pacientes oncológicos e a importância de medidas de prevenção contra a infecção pela síndrome respiratória aguda grave do coronavírus 2 (Sars-CoV-2). Os estudos discorreram sobre o tratamento ativo, cuidados paliativos e a saúde mental dos pacientes e profissionais de saúde. Apesar da sua importância, temas como o impacto futuro do atraso no diagnóstico e dos procedimentos cirúrgicos foram abordados em menos da metade dos estudos. Inexistem protocolos unânimes para o manejo dos pacientes oncológicos durante a pandemia. **Conclusão:** O manejo ideal é equilibrar medidas preventivas contra contágio pelo vírus e estratégias para oferecer o melhor tratamento contra as neoplasias, considerando as características de cada caso, o bem-estar dos pacientes e dos profissionais de saúde, o impacto dos diagnósticos tardios e o acúmulo de cirurgias para o manejo atual e futuro dos pacientes oncológicos e do sistema de saúde.

**Palavras-chave:** Neoplasias/prevenção & controle; Infecções por Coronavírus; Administração dos Cuidados ao Paciente; Pandemias.

## ABSTRACT

**Introduction:** The coronavirus disease 2019 (COVID-19) pandemic impacted the daily lives of humanity and the global health system. Cancer patients are at risk when infected due to unfavorable outcomes. **Objective:** The objective of this study was to evaluate the recommendations for the management of the oncological population during this pandemic. **Method:** PubMed and VHL platforms were used to select articles related to the management of cancer patients during the COVID-19 pandemic, retrieving 16 publications that met the inclusion and exclusion criteria. **Results:** All publications reinforced the need for specific strategies for the management of cancer patients and the importance of preventive measures against the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection. The studies discussed active treatment, palliative care and the mental health of patients and health professionals. Despite its importance, topics such as the future impact of delayed diagnosis and surgical procedures are addressed in less than half of the studies. There are no unanimous protocols for the management of cancer patients during the pandemic. **Conclusion:** The ideal management is to balance preventive measures against infection by the virus and strategies to offer the best treatment against neoplasms, considering the characteristics of each case, the well-being of patients and health professionals, the impact of late diagnoses and accumulation of surgeries for current and future management of cancer patients and the health system. **Key words:** Neoplasms/prevention & control; Coronavirus Infections; Patient Care Management; Pandemics.

## RESUMEN

**Introducción:** La pandemia de la enfermedad del coronavirus 2019 (Covid-19) impactó la vida cotidiana de la humanidad y el sistema de salud global. Los pacientes con cáncer representan una población en riesgo de presentar resultados desfavorables cuando están infectados. **Objetivo:** El objetivo de este estudio fue evaluar las recomendaciones para el manejo de la población oncológica durante esta pandemia. **Método:** Se utilizaron las plataformas PubMed y VHL para seleccionar artículos relacionados con el manejo de pacientes con cáncer durante la pandemia de Covid-19, rescatando 16 publicaciones que cumplían con los criterios de inclusión y exclusión. **Resultados:** Todas las publicaciones reforzaron la necesidad de estrategias específicas para el tratamiento de pacientes con cáncer y la importancia de medidas preventivas contra la infección por el síndrome respiratorio agudo grave del coronavirus 2 (Sars-CoV-2). Los estudios analizaron el tratamiento activo, los cuidados paliativos y la salud mental de pacientes y profesionales de la salud. A pesar de su importancia, en menos de la mitad de los estudios se abordan temas como el impacto futuro del diagnóstico tardío y los procedimientos quirúrgicos. No existen protocolos unánimes para el manejo de pacientes con cáncer durante la pandemia. **Conclusión:** El manejo ideal es equilibrar las medidas preventivas contra la infección por el virus y las estrategias para ofrecer el mejor tratamiento contra la neoplasia, considerando las características de cada caso, el bienestar de pacientes y profesionales y el impacto de los diagnósticos tardíos y la acumulación de cirugías para el manejo actual y el futuro de los pacientes con cáncer y el sistema de salud.

**Palabras clave:** Neoplasias/prevenición & control; Infecciones por Coronavirus; Manejo de Atención al Paciente; Pandemias.

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## INTRODUCTION

The year of 2020 is being marked by coping with the coronavirus disease 2019 – COVID-19 pandemic. The status report disclosed on August 21, 2020 by the World Health Organization (WHO) shows a total of 22,492,312 laboratory confirmed COVID-19 cases spread in more than 210 territories and 788,503 deaths<sup>1</sup>. COVID-19 is a disease caused by the severe acute respiratory syndrome coronavirus 2 – Sars-CoV-2, described for the first time in China<sup>2,4</sup>. Sars-CoV-2 is a positive-sense, single stranded RNA enveloped virus that is 50-200 nm in diameter of the *Coronaviridae* family<sup>5</sup>.

COVID-19 is a high-rate communicable disease mainly through aerosol and contaminated surfaces although there are reports of oral-fecal transmission<sup>6</sup>. So far, there is no specific treatment for COVID-19 and the best way to combat this disease is with measures as hygiene and social distance to prevent the virus spreading and transmission<sup>7</sup>.

COVID-19 symptoms include mainly fever, cough, respiratory disorders and temporary loss of taste and smell<sup>3</sup>. Although asymptomatic mostly, it is anticipated that 20% of the cases evolve to severer forms of the disease, especially in individuals with risk factors as comorbidities (systemic arterial hypertension, *diabetes mellitus*, neoplasms etc.), age equal or older than 60 years, transplanted and smokers<sup>8,9</sup>.

Because of this scenario, it is essential to recall that cancer is one of the main health public problems, defined as a group of more than 100 diseases characterized by uncontrolled growth of cells because of changes of the genetic code<sup>10</sup>. Estimates of the National Cancer Institute José Alencar Gomes da Silva (INCA)<sup>11</sup> indicate that approximately 625 thousand new cases of cancer in Brazil will occur for each year of the triennium 2020-2022.

Due to the systemic immunosuppression condition caused by some cancers and their treatments as chemotherapy, radiotherapy and cells transplantation, it is known that oncologic patients are more susceptible to respiratory tract infections than individuals without neoplasms<sup>12,13</sup>. Initial studies about the impact of the Sars-CoV2 infection in patients with cancer<sup>14-16</sup> indicate that this population has not only higher risk of infection but more odds of unfavorable outcomes when compared to the general population, being a population of risk needing special care during the current pandemic<sup>9,17,18</sup>.

Based in the characteristics of the oncologic treatment and changes caused by the COVID-19 pandemic it is necessary to elaborate strategies to minimize the impact of this moment in the well-being, diagnosis, prognosis and treatment of patients with cancer. These

strategies will function as support not only to cope with COVID-19 but in future outbreaks of infectious diseases. Therefore, the objective of this study was to evaluate the recommendations for management and care of the oncologic population during this pandemic.

## METHOD

Integrative literature review addressing the theme “cancer and COVID-19”, with articles published in the databases Medical Literature Analysis and Retrieval System Online (MEDLINE) through the search engine PubMed and Virtual Health Library (BVS).

The search was conducted on May 5, 2020, concentrated in articles published in English, Portuguese and Spanish in the last two years (2019 and 2020), whose full version was available cost-free. The terms searched at the MEDLINE database were surveyed in the Medical Subject Headings (MeSH), and those utilized in the BVS were surveyed in the Descriptors of Health Sciences (DeCS).

The publications were obtained through search in two stages for each database utilizing the Boolean descriptors and operators presented in Chart 1. For all the descriptors included, its variation in Portuguese and Spanish were used.

After retrieving the articles in these stages, titles and abstracts were read, evaluated and selected through inclusion and exclusion criteria presented in Chart 2. The articles selected in each one of the platforms were evaluated and the duplicates were excluded.

In the platform PubMed, 31 articles were retrieved in the first stage and 25 in the second, of which only 16 and 14 offered full free versions respectively. Upon review of titles and abstracts, with the application of the inclusion and exclusion criteria, eight and four studies of the first and second stages, respectively, were captured resulting in 12 eligible publications in this platform.

In the database BVS, 11 articles were retrieved in the first stage and 29 in the second, capturing five studies in each one of the stages after evaluation of titles and abstracts and application of inclusion and exclusion criteria. The ten eligible publications were duplicate, resulting in five publications. Among the publications retrieved in the two databases (12 in PubMed and five in BVS), one duplication was excluded. In the end, 16 publications were fully read and used in this review.

Of the articles selected, data about the objective, country, type of cancer, types of treatment and oncologic follow up, types of prevention measures for Sars-CoV-2 contamination, orientations about the oncologic treatment, strategies for diagnosis and screening of precursor lesions and cancers in initial stage, strategies

Chart 1. Stages of search in PubMed and BVS and descriptors used

PubMed					
Stages	Primary Descriptor	Boolean operator	Secondary descriptor	Boolean operator	Tertiary Descriptor
First	Cancer	AND	COVID-19	AND	Care
Second	Cancer	AND	COVID-19	AND	Management
BVS					
Stages	Primary Descriptor	Boolean operator	Secondary descriptor	Boolean operator	Tertiary Descriptor
First	Coronavirus infections	AND	Neoplasms	AND	Care
Second	Coronavirus infections	AND	Neoplasms	AND	Management

Chart 2. Inclusion and exclusion criteria of articles for the present study

Inclusion Criteria	Exclusion Criteria
1. Articles published at any time in English, Portuguese and Spanish	1. Articles published in other than English, Portuguese and Spanish language
2. Free full version	2. Studies with animals
3. Studies whose population is oncologic patients and management during the COVID-19 pandemic (Sars-Cov-2 virus)	3. Studies with non-oncologic patients without respective management/ care, histological/ immunological, surgical, diagnostic studies and focused to other than Sars-CoV-2 coronavirus
4. Articles addressing guidelines/guides/ recommendations, in editorials, comments, original articles reports	4. Articles as case reports, correspondence, reviews, communication and letter to the editor

for surgical management of the oncologic patients, in addition to considerations about the mental health of the professionals and oncologic patients were collected.

Exploratory analysis of the data bank was carried out. The variables mentioned previously were analyzed by descriptive statistics, with frequency and percentage. The variables related to the mental health of the health professionals and of the oncologic patients, and among the approaches in face of the late diagnosis and delay of surgeries were compared by Pearson chi-square statistical tests and Fisher exact test in 2 x 2 contingency tables with correction of continuity. The descriptive analysis served as base for the interpretation of the results found in tests applied, utilizing the software IBM SPSS (version 22,

SPSS Inc., Chicago, Illinois, USA). The level of statistical significance was 5%.

## RESULTS

Chart 3 shows data extracted from the studies selected: name of the authors, title, objective and country.

According to the country, 43.8% were from Asia, 37.5% from Europe, 12.5% from the United States of America and 6.3% from Africa. Italy is the country with the highest number of publications, (5/16 studies). The studies addressed the population of oncologic patients in initial cancer (25%), with advanced disease (50%), in active antineoplastic therapy (100%), in follow up (68.8%) in initial screening (43.8%), planning of surgical intervention (68.8%), radiotherapy (50%) and chemotherapy (75%), older adults (6.3%). And specific types of neoplasm as lung cancer (25%), breast (12.5%), prostate (6.3%), skin (6.3%), hematologic (12.5%), pancreas (6.3%) and rectum (6.3%).

All the studies emphasize that oncologic patients need specific management during the current pandemic. Of these, 31.3% indicate that oncologic patients have higher risk of infection by Sars-CoV-2. 81.3% of the studies address unfavorable outcomes for the patients who develop COVID-19, while 87.5% concluded that the reassignment of health resources can impede the care to these patients. Still, most of the studies (81.3%) reinforce that during the COVID-19 pandemic, the management of patients with cancer should pursue the continuation of the oncologic treatment as much as possible to minimize the risk of Sars-CoV-2 infection.

All the studies reinforce the necessity of prevention measures to avoid that oncologic patients are contaminated by Sars-CoV-2 and the strategies are summarized in Table 1.

More than half of the studies (62.5%) indicated there is a significative difficulty in constructing a universal

Chart 3. Studies utilized in the review and details

Author/year	Title	Objective	Country
Bitar et al. 2020 <sup>19</sup>	<i>The Lebanese Society of Medical Oncology (LSMO) statement on the care of patients with cancer during the COVID-19 pandemic</i>	Pragmatic recommendations for daily practice for the care of cancer patients during COVID-19 pandemic.	Lebanon
Cortiula et al. 2020 <sup>20</sup>	<i>Managing COVID-19 in the oncology clinic and avoiding the distraction effect</i>	Management of oncologic treatment to avoid the distraction effect during the COVID-19 pandemic.	Italy
Curigliano et al. 2020 <sup>21</sup>	<i>How to Guarantee the Best of Care to Patients with Cancer During the COVID-19 Epidemic: The Italian Experience</i>	Guidelines to continue the treatment of oncologic patients during the COVID-19 pandemic.	Italy
Falandry et al. 2020 <sup>22</sup>	<i>Challenges with the management of older patients with cancer during the COVID-19 pandemic</i>	Management of older oncologic patients during the COVID-19 pandemic.	France
Jazieh et al. 2020 <sup>23</sup>	<i>Managing Oncology Services During a Major Coronavirus Outbreak: Lessons from the Saudi Arabia Experience</i>	Approach used to manage oncology services in response to the MERS-CoV outbreak and the implications of extrapolation to the current context – COVID-19.	Saudi Arabia
Kutikov et al. 2020 <sup>24</sup>	<i>A War on Two Fronts: Cancer Care in the Time of COVID-19</i>	Impact of the COVID-19 pandemic in the oncologic treatment and how to minimize it.	United States
Lambertini et al. 2020 <sup>25</sup>	<i>Cancer care during the spread of coronavirus disease 2019 (COVID-19) in Italy: young oncologists' perspective</i>	Practical suggestions to implement cancer treatment during the COVID-19 pandemic	Italy
Motlagh et al. 2020 <sup>26</sup>	<i>COVID19 Prevention &amp; Care; A Cancer Specific Guideline</i>	Recommendations and possible actions to be considered in the cancer diagnosis and treatment during COVID-19 pandemic	Iran
Ngoi et al., 2020 <sup>27</sup>	<i>A segregated-team model to maintain cancer care during the COVID-19 outbreak at an academic center in Singapore</i>	Experience with a segregated-team workflow for oncologic patients in response to COVID-19	Singapore
Porzio et al. 2020 <sup>28</sup>	<i>Home Care for Cancer Patients During COVID-19 Pandemic: The Double Triage Protocol</i>	Procedures and tools utilized at a home care service to patients with cancer during the COVID-19 pandemic	Italy
Romesser et al. 2020 <sup>29</sup>	<i>Management of Locally Advanced Rectal Cancer During The COVID-19 Pandemic: A Necessary Paradigm Change at Memorial Sloan Kettering Cancer Center</i>	New institutional guidelines for rectal cancer treatment during the COVID-19 pandemic	United States
Salako et al. 2020 <sup>30</sup>	<i>Upheaval in cancer care during the COVID-19 outbreak</i>	Suggestions of interventions to reduce the risk of transmission of COVID-19 infections and continue the treatment of cancer patients during the pandemic	Nigeria
Shankar et al. 2020 <sup>31</sup>	<i>Cancer Care Delivery Challenges Amidst Coronavirus Disease - 19 (COVID-19) Outbreak: Specific Precautions for Cancer Patients and Cancer Care Providers to Prevent Spread</i>	Challenges faced by oncologic patients and their caretakers during COVID-19 pandemic and necessary precautions	India

to be continued

Chart 3. continuation

Author/year	Title	Objective	Country
Silvestris et al. 2020 <sup>32</sup>	<i>COVID-19 Pandemic and the Crisis of Health Systems: The Experience of the Apulia Cancer Network and of the Comprehensive Cancer Center Istituto Tumori "Giovanni Paolo II" of Bari</i>	Experience of a regional network capacity to continue the oncologic treatment during the combat of COVID-19	Italy
Yusuf 2020 <sup>33</sup>	<i>Cancer care in the time of COVID-19 - a perspective from Pakistan</i>	Impact of the infection by coronavirus in the diagnosis and treatment of cancer	Pakistan
Zhao et al. 2020 <sup>34</sup>	<i>Recommendations of individualized medical treatment and common adverse events management for lung cancer patients during the outbreak of COVID-19 epidemic</i>	Recommendations and suggestions of treatment and management of common adverse events in patients with lung cancer during the COVID-19 pandemic	China

protocol because of the several characteristics of each type of cancer, of the patients of the oncology services, which leads to the necessity of a case-by-case evaluation to define the best strategy albeit the existence of recommendations and guidelines.

Of the studies surveyed, 87.5% presented guidelines related to the treatments: 81.3% for chemotherapy, 68.8% for radiotherapy, 37.5%, immunotherapy and 18.8%, hormone therapy. Table 2 summarizes the recommendations from the studies selected for follow up of oncologic treatment to prevent COVID-19 infection.

Seven studies (43.8%) described the diagnostic/triage of precursor lesions and cancer in initial stages. The themes portrayed included: the impact of the delay of diagnosis and consequently of the treatment, causing progression of the disease and worse survival (18.8%); balance between diagnosis delay and risk of COVID-19 (25%); keep triage consultation when safe or reschedule as soon as possible (18.8%); construction of a diagnostic therapeutic route to reduce the risk of Sars-CoV-2 infection (6.3%); information to the patient about the risks and benefits of the interventions and shared decision making about better management (6.3%) and the creation of a supervised commission to evaluate case-by-case the necessity of invasive diagnostic (6.3%).

In 68.8% (11/16) of the studies, the surgical management of oncologic patients was addressed: considerations and concerns about the immunosuppressor effect of surgical intervention increasing the susceptibility to Sars-CoV-2 (31.3%); impact of the delay of the procedure (37.5%); postponement of the elective surgery in stable, less aggressive cancers or in palliation (31.3%); prioritization of surgery when possible (12.5%); reduction of post-operation recovery period during hospitalization (6.3%); and maintenance of emergency surgeries (6.3%).

When concerns about the impact of surgery postponement and late diagnosis, factors that worsen the prognosis and/or future overburden of the services were

Table 1. Control measures of COVID-19 infection in oncologic patients recommended in the studies selected

Prevention measures	Number of studies	%
Hands Hygiene	7	43.8
Social distancing	10	62.5
PPE* for Patients and healthcare professionals	9	56.3
PPE* for healthcare professionals	7	43.8
COVID-19 screening of patients	12	75
COVID-19 triage of professionals	6	37.5
Limited contact of the patient with healthcare professionals in hospital and outpatient environment	16	100
Use of telemedicine	12	75
Oral therapy treatment	10	62.5
Home treatment	5	31.3
Reduction of procedures	8	50
Reduction of visitors and/or companions	6	37.5
Assign specific care areas for COVID-19 suspicion or patients	10	62.5

Caption: \*Personal Protective Equipment.

analyzed, it was observed that half of the studies (37.6%) addressed this issue. When compared the association between the approach of these two themes, only three (18.8%) addressed this issue, three (18.8%) addressed only the theme of the impact of postponement of surgeries and ten (62.5%) failed to address the themes. Other three addressed only the impact of surgery postponement, showing statistically significant association ( $p=0.036$ ).

Palliative care was addressed in 37.5% of the articles; the necessity of patients in palliative care (31.3%); favor curative over palliative therapies (6.3%); discussion with the patient about additional risks *versus* benefits of the

**Table 2.** Recommendations for the treatment of oncologic patients during the COVID-19 pandemic

Recommendations for oncologic treatment	Number of studies	%
Preference for shorter therapies	7	43.8
Priority to curative therapies	8	50
Switch parenteral to oral therapies in health services	6	37.5
Switch from parenteral therapies in health services to home intravenous therapies	3	18.8
Postponement or delay of therapies that do not compromise the control of the disease	8	50
Suspension of the treatment in case of doubts about the actual benefits	1	6.3
Preference to less immunosuppressive therapies	1	6.3
Suspension of active oncologic treatments in patients confirmed or suspected of COVID-19	1	6.3
Use of hormone therapy for selected patients	1	6.3

lines of the therapy (6.3%); use of telemedicine (6.3%) and home care (6.3%) management and postponement/suspension of the treatment with reduced benefits in maintaining the quality of life or increase of survival, including surgeries (18.8%).

Six studies (37.5%) bring considerations in relation of the psychosocial condition of the oncologic patients during COVID-19 pandemic since they are compelled to not only deal with the burden of cancer diagnosis, but also with the anguish and uncertainties caused by the pandemic (25%), demanding the necessity of strategies to provide psychological support to this population which was addressed in 18.8% of the studies.

In 31.3% of the studies, telemedicine was presented as a way to reduce the impact of social isolation and keep communication between the health team and the patient to clarify doubts and provide support. The impact of the current pandemic in the mental health of the healthcare providers caring for oncologic patients was included in six studies (37.5%). They addressed themes as increase of fear and anguish and pressure among professionals (18.8%), necessity of emotional support to professionals during this period (12.5%), team management to minimize the stress and exhaustion (18.8%), construction of strategies to boost the professionals morale (12.5%), information and

acknowledgment messages sharing (6.3%), in addition to daily counseling sessions (6.3%) and reinforcement of the protocol of prevention of the Burnout Syndrome (6.3%). Six studies (37.5%) did not address the mental health of the health professionals. Each theme was treated individually in four studies (25%) and in only two (12.5%), both were quoted.

## DISCUSSION

COVID-19 pandemic modified the daily life of the world population affecting several economic, educational, social and health aspects. Therefore, the management of the diseased has also changed. Patients with hematologic malignant neoplasms, in treatment impacting the immunity as chemotherapy, in addition to recently operated and with very advanced cancers who have great physical frailness belong to a special population who are vulnerable because of the possibility of viral infections including Sars-CoV-2. Furthermore, considering oncologic patients in treatment, the overburdening of the health system with resources assigned to the pandemic can encumber the full treatment of their disease<sup>19-22,29,31,34</sup>. Consequently, during the pandemic period, the mortality of these patients can increase because of the infection and failure to treat cancer correctly<sup>30,35,36</sup>.

COVID-19 is a new disease and needs studies that evaluate its impact in specific populations. Liang et al.<sup>17</sup> wrote one of the first studies whose objective was to assess the impact of this disease in the population of oncologic patients, serving as reference for several other studies, a few of them were included in the present review<sup>19-31,33</sup>. The authors showed that patients with cancer can be more susceptible to Sars-CoV-2 infection and worse results of COVID-19 as the necessity of admission in Intensive Care Unit (ICU) and mechanic ventilation, serving to demonstrate that these patients need thorough follow up since their condition can deteriorate rapidly.

The objective of the oncologic diagnosis and treatment during the current pandemic should be to limit the risks caused by Sars-CoV-2 virus infection without damaging the chance of cure of each patient, adjusting to the best available resources<sup>23,24,29</sup>. Albeit this prerogative, it is known that because of the specificity of each cancer, of each patient's characteristics and services of oncology, it is impossible to establish recommendations applicable to all and each case must be evaluated individually to find the best strategy<sup>19,21,24-26,32,34</sup>.

The attempt to keep proper management of cancer and minimize COVID-19 risk bumps in the facts that many treatments are associated with immunodepression and the paucity of studies and information about the outcomes

of choosing between delaying or keeping the regular treatment. Therefore, there are authors recommending to maintain surgeries<sup>21,26</sup>, while others advocate the postponement<sup>20,25,31</sup>. There is no consensus in relation to chemotherapy and radiotherapy, although most of the studies included in this review report that for some types of cancers, the postponement of the treatment should be considered.

The negative impact of the pandemic in oncologic patients was demonstrated in an analysis carried out with data from the United Kingdom, Northern Ireland and the United States, which estimates that during the next year, the number of deaths by cancer should increase in these countries and not only in patients who contracted COVID-19, but also for those whose neoplasm diagnosis and treatment were delayed<sup>35</sup>. Further to reassignment of resources to fight the epidemics, the fear of virus exposure will lead the patients to avoid medical consultations, which can compromise timely diagnosis and treatments<sup>36,37</sup>.

Despite the impact late diagnosis can cause in the future, as the advance of neoplasm and worse prognosis, such theme was addressed in at least one fifth of the publications included in this review, showing neglect of a subject of such great repercussions. However, the possibility of reducing the risk of Sars-CoV-2 infection in oncologic patients through the recommendation of protective measures was indicated in all the studies. Some studies report that forms to reduce the number of patients who attend health services include switching from intravenous to oral therapies and home therapy whenever possible, choose shorter and spaced cycles of chemotherapy/radiotherapy, postpone treatments that do not modify the control of the disease and adopt telemedicine for consultations and follow up<sup>19,21-34</sup>. Therefore, strategies already used in caring for some patients could be expanded and prioritized by more individuals as is the case of home chemotherapy. However, as emphasized by Falandry et al.<sup>22</sup>, said practice could have limitations of requiring home nursing and supply of medication.

Telemedicine through online platforms or phone calls can be a great support for patients management in several aspects as follow up of patients without active disease, contact with the oncologist for doubts and clarification, complying with social distancing rules and monitoring of treatment side effects<sup>21-27,30,33,34</sup>, but it is necessary to consider that it is not a miraculous solution and that there are legal limitations, required training for its use and physical exam<sup>38</sup>.

In the current scenario, where no consolidated guideline exist and the decision about the course of the treatment is complex, it is paramount the participation of the patient in decision making and the patient must be informed about the risks and benefits of the

available regimens<sup>19,26</sup>. Some studies do not mention the participation of the patient in this process leaving it to the discretion of the oncologist and/or multidisciplinary team, which can potentially escalate the psychic symptoms and lower adherence to the treatment<sup>23,25,29</sup>.

As for mental health, in general, the studies already address that the current pandemic, similar to what happened in previous outbreaks by other virus, will increase the problems related to the mental health of the general population<sup>39-42</sup> and, therefore, of the oncologic patients. The WHO issued a mental health guide because of the relevance of the theme and the impact over the population health during the pandemic with hints for the population, health agents, team leaders and supervisors of health units, caretakers of children, older adults, caretakers and individuals with health problems and in isolation<sup>43</sup>. Cancer diagnosis when reported to the oncology team, for still being stigmatized and causing doubts in patients and their families, tends to worsen the patients' anguish within a scenario of so many uncertainties as nowadays<sup>44</sup>. Despite the importance of this theme, few of the studies surveyed addressed the mental health of the oncologic patients and the respective management during this atypical period<sup>22,24,25,30,33,34</sup>. This aspect should not be neglected during the treatment and it is important to not lose sight of the necessity of support programs for patients in order to intervene correctly and as best as possible and telemedicine can be an invaluable tool in this area<sup>45</sup>.

Still about mental health disorders, it must be reminded that healthcare providing care to oncologic patients work under pressure most of the time, which can cause stress and impact the mental health and psychosocial well-being during this period and in the future<sup>28,31,39,40,42,46</sup> and consequently in the quality of the service provided. With this, these professionals deserve special attention adopting measures to avoid exhaustion<sup>27,33</sup>. Even though, only some of the studies included in this review addressed this theme<sup>23,25,27,28,31,33</sup>, which can demonstrate a certain indifference towards something that can have a significant impact in the management of oncologic patients.

Another angle of the management of oncologic patients is palliative care with the assumption of creating a fair control of the symptoms and comfort for the patient<sup>10</sup>. Therefore, regardless of the current scenario, some effort is necessary for its accomplishment for the benefit of the patient well-being, further to being an ethical obligation<sup>19,22,25,26,30</sup>. However, care can be neglected in some settings where recommendations to prioritize those with curative finality are in place<sup>19</sup>.

Clinical trials and other cancer-related studies will suffer with delays to start and deceleration of the development rhythm causing consequences not only

momentarily but in the future<sup>21,24,25</sup>. Ethical issues about changes in patients' management must also be considered<sup>19</sup>. Falandry et al.<sup>22</sup> published a very important study addressing specifically the population of older oncologic patients during the COVID-19 pandemic. The authors emphasize the necessity of secondary prevention for these individuals to avoid complications as venous thromboembolism, infectious events related to catheter, pressure ulcers, falls and *delirium*. In this study, it is recommended the pneumococcal vaccination when available<sup>22</sup>.

Policies and procedures developed and utilized to cope with the current pandemic may be useful for the next infectious outbreak or similar crisis<sup>24</sup>. Consequently, previous experiences as the one reported in the study of Jazieh et al.<sup>23</sup> about the management of oncologic patients in a hospital during an outbreak of respiratory syndrome in the Middle East caused by coronavirus mers (mers-CoV), are invaluable. The authors reported that the construction and application of a crisis management plan formed by five main components – leadership and communication, management of patients, infection control and recovery plan – showed to be effective in reducing the number of new cases of mers-CoV to zero<sup>23</sup>.

The recommendations of the present study are based in the current knowledge and, in this way, can evolve as long as new studies are being carried out. No unique and easy solution exist to manage oncologic care during the crisis, in addition to not foreseeing its duration and actual repercussion. In that manner, there is the necessity of adaptation and evolution during the current scenario to care for the patients as best as possible.

## CONCLUSION

There are no unanimous protocols for oncologic patients management during the COVID-19 pandemic, but the target of the proposed measures is to balance actions to avoid virus contamination, in addition to defining strategies to supply the best treatment with therapeutic objective against neoplasms with the available resources, always considering the singularity of each case and the mental health of patients, professionals or family.

Another important consideration is the necessity of thinking about strategies because of the accumulation of surgeries and late diagnosis of cancer to avoid a future “pandemic” of more aggressive and lethal cancers. In addition, the current recommendations should be improved with new studies that will support the management of the current infectious outbreak and similar future events.

## CONTRIBUTIONS

All the authors contributed equally for the conception, analysis and interpretation of the study, wording and critical review with intellectual contribution and approved the final version to be published.

## DECLARATION OF CONFLICT OF INTERESTS

There is no conflict of interests to declare.

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