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# Multifactorial Effect of Covid-19 in Cancer Patients

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**Abstract**: The new coronavirus pandemic has spread rapidly globally and has been identified as an emergency that implies international concern. The World Health Organization declared the condition a pandemic, which began in December 2019 in Wuhan, China. This zoonotic coronavirus has prompted many scientists to study it in order to accurately define the mechanisms of infectivity and the rate of human-to-human transmission. Covid-19 is a deadly virus, manifesting in atypical pneumonia and resulting in a variety of unusual survival outcomes. Cancer patients may be immune-compromised due to the underlying malignancy and are considered to be twice as likely to be infected with Covid-19. Malignant pathology is complex and results in multisystem symptomatology. Hence the challenge of considering the multifactorial impact of coronavirus in cancer patients, causing consequences for their psychological, social, emotional, and cognitive status, as well as a different allocation of resources and a new approach to monitoring them.

**Keywords:** Covid-19, Pandemic, Virus, Cancer

## Introduction

Coronaviruses are a family of viruses that can manifest from the common cold to the development of severe forms of the virus. In 2019, a new coronavirus COVID 19 was identified, known as severe acute respiratory syndrome (SARS COV 2). The first case was diagnosed in December 2019 in Wuhan, China. The new zoonotic virus has spread rapidly globally, covering territories on all continents, defining a state of emergency with international concern (Qiu et al., 2020).

The World Health Organization (WHO) in March 2020, declared a pandemic, with subsequent monitoring of the condition, recommendations for prevention and treatment. The declaration of the pandemic meant quarantine for the countries according to national programs by restricting the population in the homes, all in order to prevent the spread of the virus, and control of the disease. None of the countries in the world health system was fully prepared and a great burden was created in the providing of health services, with a direct and indirect impact on all diseases and conditions.

Globally, there has been widespread panic among people that has led to serious psychosocial problems with high levels of stress, forms of anxiety and depression, financial loss, fear of infection and the spread of infection, social distance, stigma and more. The virus spreads rapidly between people when they are in close contact with each other by inhaling the aerosols contained in the virus or by direct contact with the eyes, nose and mouth, then in unventilated rooms where people stay longer and when they come in contact with infected areas (Lai et al., 2020).

The mass fear of named "corona phobia" is due to the unpredictable course of the disease, which generates negative psychological implications, emotional distress, social isolation and more. The impact of increasing fear, which correlates with emotional, psychological, physical and social dysfunction, also refers to the expansiveness of media awareness of the number of infected and dead people. (Yao et al., 2020).

Mental stress reaches a clinically significant level with a huge impact on daily functioning, precisely because of the variability and dynamics of coronavirus infection and mortality. The severe respiratory virus SARS CoV- 2 not only affects the mental health of the population during the pandemic, but it seems that it may have consequences in the future (Lai et al., 2020).

In the different elaboration of the coronavirus Covid-19, different variants appear by epidemiologists due to its mutation and each variant has its own specificity in the spread, and in the evolution and the process of adaptation, transmission as well as in the clinical picture. The virus significantly affects human mortality, where analyzes and monitoring of the occurrence were encouraged, and the urgency of those who are most at risk, including the elderly population, people with cancer, children, marginalized groups and others, who required special access treatment and attention. Most countries have created new health analytics platforms to determine the dominant factors in this phenomenon with an emphasis on preventive factors, treatment protocols and implementation of triage procedures, intervention models and prevention of psychosocial crises. In scientific research work, the coronavirus has become the subject of comprehensive analysis, where in addition to prevention measures and treatment algorithms, the focus is on the socio-economic and psychosocial domains.

The motive for investigating the multifactorial impact of coronavirus on the cancer population is precisely because of the complexity in the pathology provided by the two components with the emergence of multisystem symptomatology of all organ systems. Cancers or malignant diseases have medical and social significance, precisely because of their multicausality and mass with health, social and psychological consequences for the patient, family and social environment.

The etiopathogenesis of cancers are not clearly familiar, the experts cite a variety of factors that affect individually or in interaction and have the potentials to cause cancer. According to the World Health Organization (WHO) malignant diseases are the result and consequence of poor quality of life as well as environmental factors, genetic and infectious factors (https://www.who.int/news-room/q-a-detail/coronavirus-disease-covid-19-how-is-it-transmitted).

Cancer occurs as a result of improper and excessive production of cells in the body called abnormal, which have the possibility of infiltration into all tissues. Advances in molecular biology and genetic research have enabled a more detailed understanding of the pathogenetic processes that lead to malignant cell transformation. The symptomatology of different types of cancer can be different but also generalized. It usually depends on the type of cancer, its location and stage, which is determined by numerous and different diagnostic procedures and interventions.

Diagnosis of cancers can also be made through routine screening, including a variety of modern interventions and imaging techniques, especially pathohistology and the clinical picture that are important in diagnosing cancer. The treatments are based on standardized chemotherapy protocols, immunotherapy, radiotherapy, intended for the primary malignant disease, including age, comorbidities such as diabetes, cardiovascular and chronic degenerative diseases, weight gain, etc., and overall assessment of the overall general health.

Numerous studies indicate that this pandemic apparently disrupted the trajectory of early cancer diagnosis and treatment, including those patients who undergo regular cancer screening. Most health care providers around the world point to a decrease in the number of newly diagnosed cancer patients, compared to the number of cases before the onset of the pandemic, due to delays and untimely requests for health care in new pandemic conditions. (Depoux et al., 2020).

Treatment with chemotherapy for malignant diseases also involves a number of complications that may occur, especially these drugs reduce the immune system and defense mechanism of patients and they become immune-compromised in dealing with external factors. Chemotherapy contains cytotoxic drugs that inhibit the hematopoietic and immune systems and predisposes the body to greater susceptibility to COVID 19 infection. Chemotherapy protocols are administered at regular intervals at the certain time, with regular monitoring and response to therapy.

Exactly because of these facts that cancer patients at the time of the current pandemic should be closely monitored, they always want to get more information about the multifactorial effect of the virus on their general health because they are immunocompromised with frequent infectious conditions from the treatment of primary malignancy and fall into the vulnerable category who are at higher risk. Therefore, in times of coronary crisis, many aspects need to be considered in the individual approach of patients including age, past illnesses, comorbidities, and chemotherapy protocols, intervals for administering therapy, indication for interventions,

radiotherapy and more. Decisions made in the treatment of cancer patients, in accordance with the standardized protocols and measures for Covid-19 and the treatment of malignant disease should be rational, thoughtful, transparent that will increase patients' trust in the overall health system.

In the practical work with cancer patients and the impact of Covid-19, we face a number of problems that, in addition to conservative treatment, set the indication for supportive treatment of patients. It is not only organic disease but also many other conditions that have a psychosomatic origin. Interdisciplinary teams are involved in the overall treatment of the patient, analyzing the important domains for assessing the condition of patients with emphasis on the psychosocial aspect, emotional, physical and social condition.

Patients infected with the coronavirus are detected at different stages of their treatment. Patients become infected with Covid-19 infection during diagnostic procedures, where the symptomatology of the underlying disease suggests a variety of imaging interventions and techniques. The symptoms of Covid-19 infection and the symptoms of the disease worsen the health condition, where it is sometimes difficult to make a clear distinction in symptomatology. All of this complicates the timely treatment of cancer, delaying treatment but approaching the treatment of Covid-19 infection depending on the clinical picture. At this stage, in addition to the medical problems, the patients deal with a series of difficulties from several aspects, including psychological, emotional, social, but also financial, where the thesis of the multifactorial impact of Covid-19 infection is confirmed. On the one hand, they faced a deadly virus, and on the other hand, a deadly disease, and almost always cancer information is an association with imminent death.

Patients become infected with Covid-19 infection during cancer treatment. This means discontinuing the chemotherapy protocol which is applied at different time intervals depending on the disease. Several studies point to the fact that in these patients who are in active treatment the risk of death is highest, due to the general immune weakness of the organism and due to the cytopenia that occurs as a result of cytostatics. Stress in these patients is high with a range of emotional disorders (Cinar et al., 2020, April 15).

Patients become infected with Covid-19 at the end of cancer treatment. During this period, patients are adapted to the acceptance of the disease, and the success is precisely in the re-evaluation where specific diagnostic procedures confirm the therapeutic response, regression of the initial changes and remission of the malignant disease is defined. Covid-19 infection in these patients creates an additional problem, where their immunocompromise contributes to the coronavirus distorting the real clinical picture, causing uncertainty with the possibility of numerous complications.

The pandemic in hematology and oncology has raised many questions and dilemmas about the care and needs of patients during treatment, primarily the delay or initiation of chemotherapy, although the recommendations are for adjuvant therapy with curative purpose that should be continued to prevent disease progression. On the other hand, the directions are towards achieving well-being, providing a safe environment, informing and advising on finding creative ways to deal with stress, strategies related to avoiding overload with unnecessary information and more.

The outcome of chemotherapy, either achieving a therapeutic response in patients with malignant disease and who have been infected with coronavirus SARS Cov2, imposes the need to pay close attention to long-term prospective monitoring, due to the numerous complications and consequences that can be from the disease and from the virus. Of particular importance is the monitoring and quality of life in these patients by analyzing, defining and comparing many factors, because they are terms that have multidimensional concepts. Given the fact that quality of life is a complex concept, in the process of its research we face more ambiguities, primarily from the definition, because in scientific discourse there is no clear and precise definition that explains it. The factors that influence this concept, in a methodological framework indicate different indicators, but the most common ones that are mentioned in almost every research, regardless of the field, are objective and subjective.

These concepts define the level of physical, social, emotional and material well-being, serving as a reference for measurement in various domains at the level of satisfaction. Quality of life concepts integrate factors that have a complex impact on their analysis, comparison and definition and are incorporated into different domains of life. Many studies that take the term quality of life as a subject, say that it is complex, especially when it is related to various aspects in the social functioning of people. Those aspects of connection can be, health, social relations, work, family, emotional well-being, financial and material well-being, quality environment, affiliation, etc., but in conditions of pandemic all aspects are correlated and detailed analysis is necessary for timely detection of the problem and finding an appropriate approach to solving it (Pfefferbaum & North, 2020).

In the field of health care, this concept opens a lot of controversy among researchers, defining it as a variable mentally dynamic process. In a pandemic, the concept of quality of life directed at cancer patients is crucial, as it can serve as a tool for assessing the health of patients in addition to clinical parameters, examinations, tests, diagnostic process, treatment and regular monitoring to monitor the disease. (Robertson et al., 2004).

Exploring the quality of life in the field of medicine during the coronary crisis is important for providing guidance towards resolving multidimensional deprivations related to mental, social, emotional and other disorders caused by social exclusion caused by the SARS COV-19 virus. HRQoL is a term for quality of life related to health, related to functional and social status, the impact of the disease and treatment, injuries, trauma and more. HRQoL emphasizes the importance of personal perception of the individual's general health, the consequences that may occur during treatment, the limitations caused by Covid-19 infection, emphasizing the need for support and assistance in mental, physical and social functioning.

The connection between quality of life and health is generally based on maintaining, advancement and promoting health, because health is the most important element and attribute of our life and is a prerequisite for performing daily activities for quality, fulfillment and happy life in general. In fact, health is defined as a high degree of general functionality of the organism, i.e. non-impairment of intellectual and biological function.

Instruments for measuring quality of life in medicine provide additional assessment of the relationship between health services and quality of life, but also measures for patients' perception of quality and affordable health care. The instruments for this type of research allow us to assess how malignant diseases and SARS COV-2 virus infection disrupts and at the same time affects the subjective and objective well-being of patients.

In the analysis of the multifactorial impact of Covid-19 virus on the health of cancer patients it is important to analyze the physical health which implies the general physical activity of the organism, mental health refers to the analysis in a theoretically practical framework to improve mental health of patients with cancer within the relevant sectors for support and evaluation of activities designed for that purpose, emotional health which is the basis for establishing healthy relationships with oneself, family, friends, profession and other people, social health associated with the fact that people at the same time are biological, psychological and social creature and much of their life’s takes place in a community of social environment in groups that can be different in size and with different characteristics. (Zhou et al., 2020).

With all this, relevant indicators can be obtained that will suggest fast and effective methods and strategies for easier management of Covid-19 virus and its reflection on cancer patients in the general population.

## Conclusion

In a search of the literature, several scientific studies confirm that patients with malignant diseases, then patients who have recently received chemotherapy and patients with lung cancer correlated with SARS COV-2 infection are at higher risk of mortality and lower survival rates. Cancer patients should be more vigilant during the acute pandemic, as they are a vulnerable category exposed to chemotherapy, immunosuppressive therapy, hormone therapy, radiotherapy, where they are immune-compromised and at greater risk of severe Covid-19 infection.

It is necessary to take into account the overall personality of the patient, with an individual approach. Social distancing and isolation during pandemic conditions lead to several psychosocial disorders, cognitive impairment, low level of consciousness, decreased perception of Covid-19 infection, etc. and therefore it is necessary for online support groups to contribute to overcoming them with special strategies and security plans, and appropriate psychosocial assistance.

Virtual communities and support groups during corona virus disease can help overcome problems and encourage both patients and their families. Telemedicine has emerged as a tool in parsing the Sars COV- 2 infection to provide useful expert advice and guidance in order to avoid hospital visits, but it has not been proven to help prevent the spread of this viral infection.

The creation of various recommendations, measures, i.e. new algorithms in the approach to the virus, refers to the preventive measures how to protect ourselves from the virus and how not to transmit it to other people.
In order to better deal with this pandemic, an integrated approach is needed through models for prevention the crisis, psychosocial intervention, including health organizations, mental health centers, medical facilities, especially those who provide tertiary health care, providers with interdisciplinary teams in the approach. The

goal is early detection and identification of high-risk groups with timely referral and promotion of timely treatment approaches.

## Scientific Ethics Declaration

The author declares that the scientific ethical and legal responsibility of this article published in EPHELS journal belongs to the author.

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