

Chemotherapy During Impact of Covid-19 Pandemic

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Abstract

Introduction: A novel corona virus 2019-nCoV or COVID – 19 OR SARS Cov 2.” A viral infection was reported in late December 2019 from Wuhan city of China. World Health Organisation (WHO) announced COVID – 19 outbreaks as pandemic on March 11, 2020¹. Millions of lives are affected due to serious disease like cancer around the globe². Patients with cancer are required to visit oncology centres more than patients with other diseases due to the disease nature and treatment modalities. The cancer patients require a full involvement of multifaceted health care teams throughout the disease course from diagnosis to treatment or end-of-life care³. People living with NCDs have higher risk of severe Covid-19 related illness and death. The survey report of countries declared that patients had partially or completely disrupted health care services among which 42% are of cancer treatment and reason behind that is declaration of Covid-19 Pandemic¹. Cancer patients with delayed Chemotherapy and surgery have adverse impact on survival^{4, 5}. Hence, extending the treatment time of definitive cancer treatment can have detrimental effects on the expected treatment response and quality of life (QOL) of the oncology patients⁶.

Objectives: 1. to understand COVID-19 in brief. 2. To know the consequences of Covid-19 on cancer patients. 3. To discuss the impact of Covid-19 on cancer patient with chemotherapy.

Conclusion: The cancer patients on active chemotherapy or radical RT for lung cancer and blood or bone marrow cancer are at highest risk⁷. Delays in diagnosis of blood cancer such as leukaemia which require immediate treatment, put patients’ lives at more risk and lower life expectancy⁸. Delay in diagnosis of cancer can lead to patients requiring more treatment and with a worse prognosis and in certain cases, losing chance of survival. Depending on the extended disruption of the routine services, it is possible to have delaying in accurate diagnosis or best practice treatment which could have a detrimental effect on outcomes & survival for cancer patients⁹. Delaying diagnoses and treatment of new cancer cases will lead to their presentation at a more advanced stage which then leads to the reduced benefit of treatment and poor survival¹⁰. Cancer patients are considered to be at higher risk of developing life-threatening complications from COVID-19 and at the same time treatment delays can lead to poorer oncological outcomes. Appropriate planning is therefore important to continue with cancer treatment services and simultaneously avoiding the risk of infection to the patients and healthcare staff and not allowing community transmission of viral infection¹¹. What if you skip chemotherapy during this lockdown? Ideally cancer patient should never skip any chemotherapy procedure but if it is missed for more than 3 months due to lockdown or between two consecutive cycles than the therapeutic effects of CT treatment is loss in cancer patients¹².

Keywords: NCDs, CT, QOL, Poor prognosis of cancer patients in pandemic.

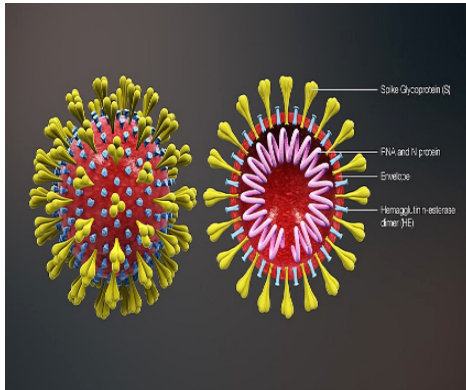
INTRODUCTION

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which 42% are of cancer treatment and reason behind that is declaration of Covid-19 Pandemic¹. Cancer patients with delayed Chemotherapy and surgery have adverse impact on survival^{4,5}. Hence, extending the treatment time of definitive cancer treatment can have detrimental effects on the expected treatment response and quality of life (QOL) of the oncology patients⁶.

OBJECTIVES

1. To have quick look on COVID-19.
2. To know the consequences of Covid-19 on cancer patients.
3. To discuss the impact of Covid-19 on cancer patient with chemotherapy.

Based on the cells that are likely infected, covid-19 can be divided into three phases that correspond to different clinical stages of the disease.

Stage 1: Asymptomatic state (initial 1-2 days of infection)

Stage 2: Upper airway and conducting airway response (next few days)

Stage 3: Hypoxia, ground glass infiltrates, and progression to ARDS

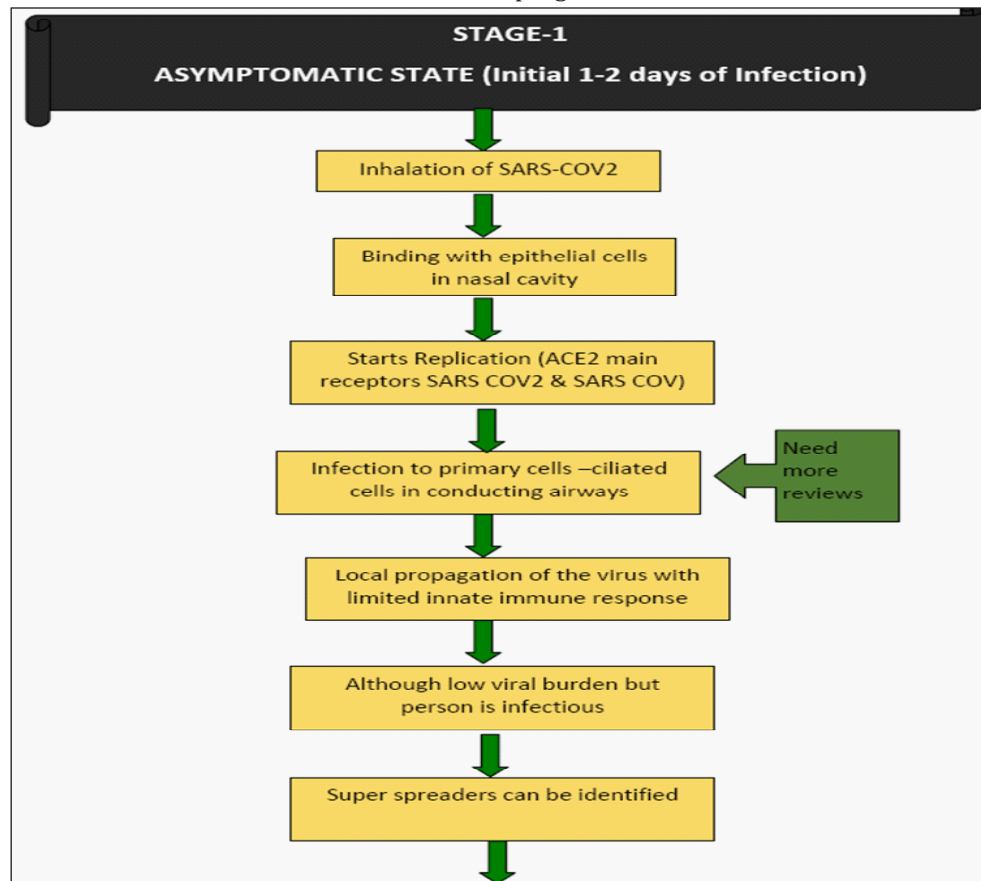


Figure 1. Stage-1 of Pathophysiology of SARS Cov-2

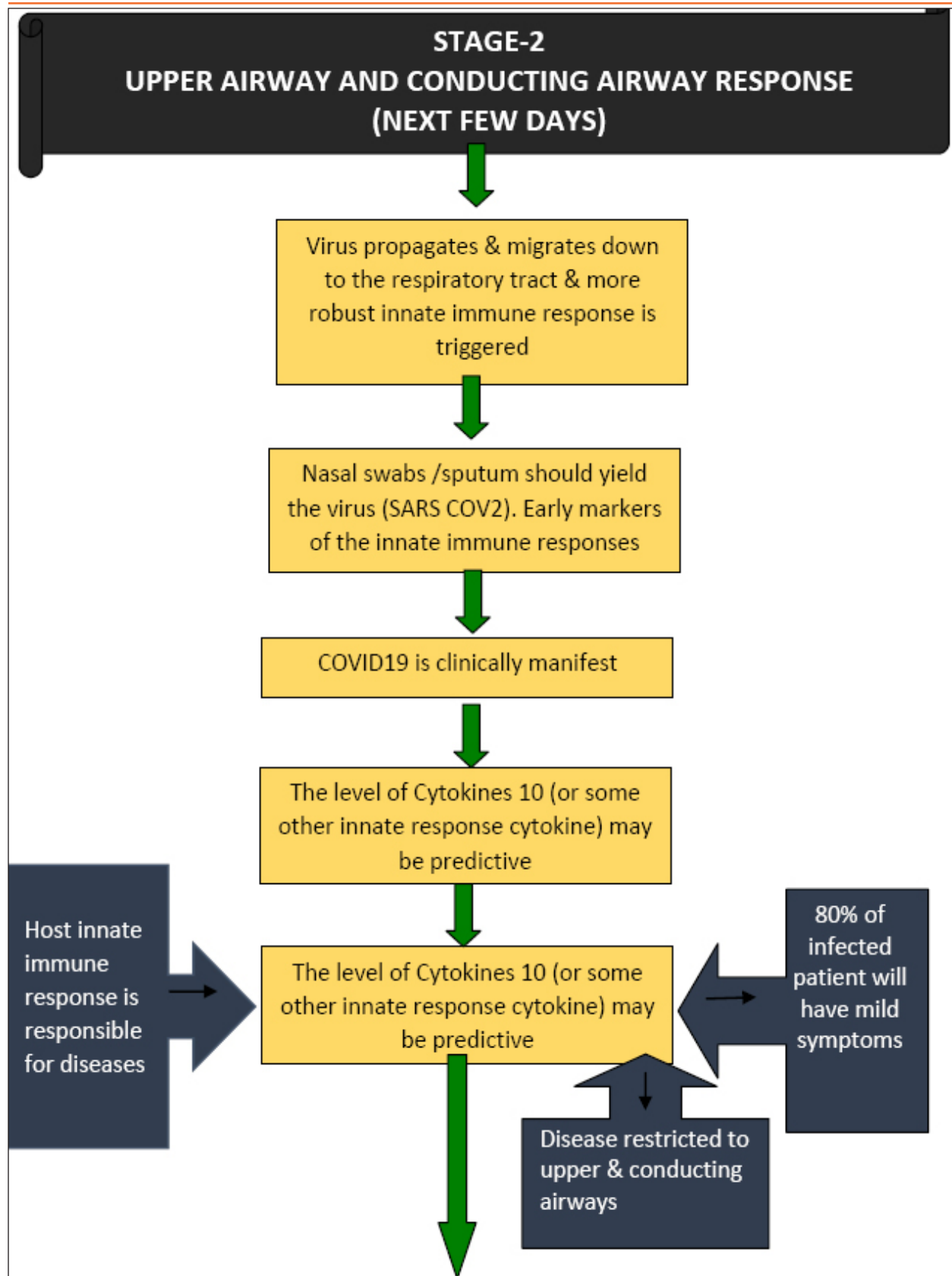


Figure 2. Stage-2 of Pathophysiology of SARS Cov-2

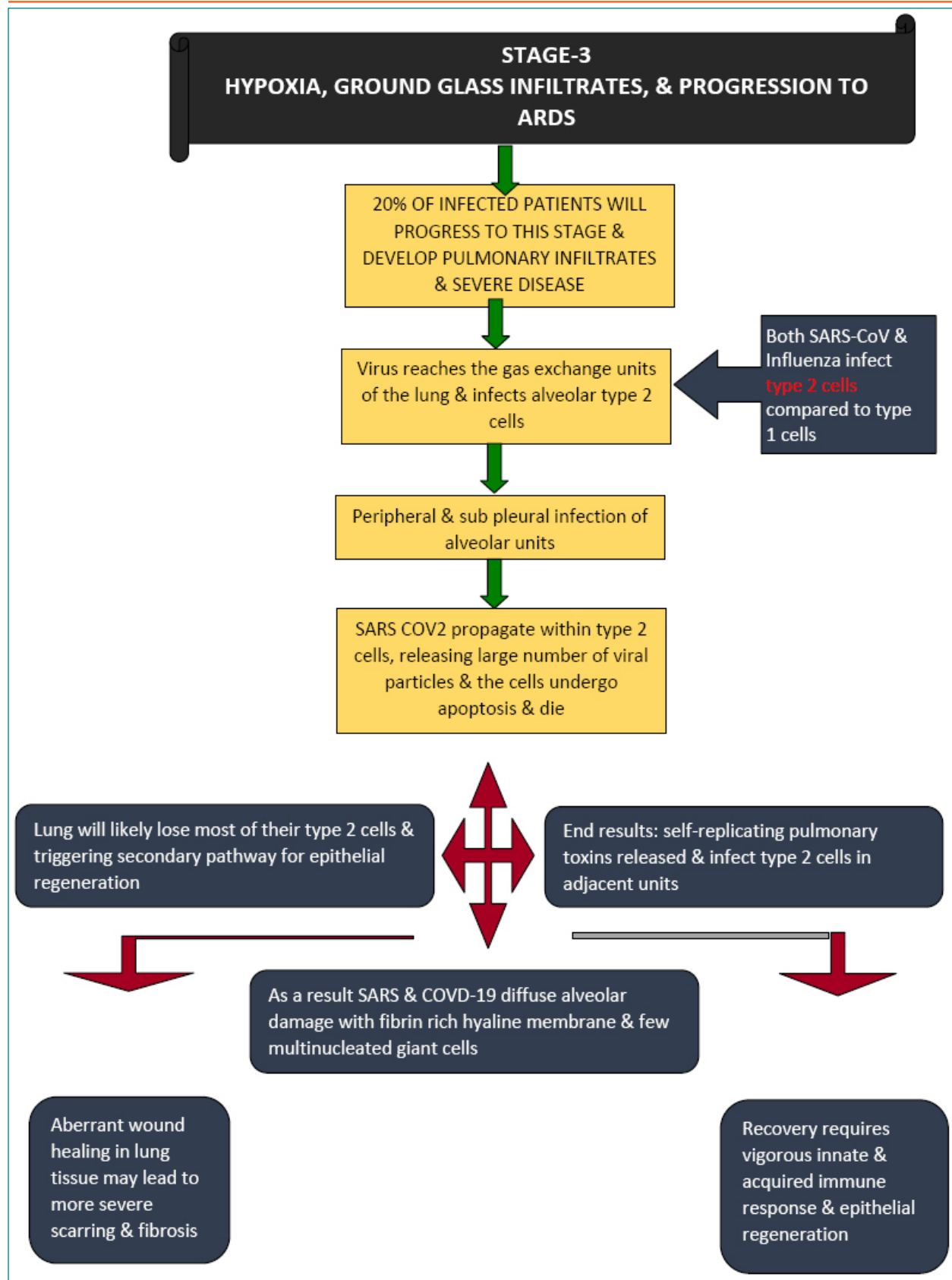


Figure 3. Stage-3of Pathophysiology of SARS Cov-2^{7,8,9,10}

Why Do Some People Get So Sick Due to Covid-19, but Others are Fine?

One of the most complicated features of SARS-CoV-2 infection is the wide range of disease, ranging from no symptoms to mild flu-like symptoms, fever, Anosmia, dyspnea, nonproductive cough, and fatigue to ARDS, the life threatening cause. Whereas multiple organs, including the Kidneys, heart, liver, and gastrointestinal tract, are damaged. It is unresolved that up to what extent tissues are damaged by infection, hypoxia, or the immune response. Central nervous system may also get involved, either by direct infection or secondary damage as a complication^{11,12}.

Consequences of Covid-19 in Cancer Patients

Fear and insecurity of being infected by COVID-19, Risk of morbidity and mortality, Collateral Damage, Risk of developing complications, Interruption in drug supply, Chances of cancellation or postponement of cancer treatment and surgeries

Collateral Damage: The Impact on Outcomes From Cancer Surgery

For patients with cancer, delay in surgery has the chances to increase the likelihood of metastatic disease, with some patients' tumour's progression from being curable (with near-normal life expectancy) to non-curable (with limited life expectancy)¹³.

WHO report says- 41 million people die from non-communicable diseases each year, equivalent to 71% of all deaths globally. 15 million people die from NCD between the ages of 30 and 69 years; more than 85% of these "premature" deaths occur in low- and middle-income countries. This has significant concern because people living with NCDs are at life threatening risk of severe COVID-19-related illness and death. The main finding is that in many countries health services have been partially or completely disrupted during the Covid-19 pandemic in that 42% of are cancer services. Reason behind that was declaration of Covid-19 pandemic. And the most common reasons for discontinuing or reducing services were cancellations of planned treatments, a decrease in public transport available and a lack of staff because health workers had been reassigned to support COVID19 services¹⁴.

COVID-19 pandemic has created a worldwide risk of morbidity and mortality, and it has become a "double-edge sword" for cancer patients as well as

clinicians. Cancer patients are more vulnerable to severe illness and death.

Patients with malignancy affected by COVID-19 have a fivefold risk of severe events as compared to patients without malignancy. It was noted poorer outcomes from COVID-19 in malignancy patients because they have immunosuppression which plays a possible role of increased susceptibility to COVID-19 infection which cannot be negated. On the other side, delaying cancer treatment could lead to poorer oncological outcomes. Delaying cancer surgeries can lead to upstaging or advancement in cancer stage and some tumours could lead to obstruction, perforation, risk of bleeding, organ failure or metastasize. Likewise, delaying neo-adjuvant and adjuvant chemotherapy could lead to upstaging or relapse of the tumour. Delaying palliative chemotherapy could lead to worsening of quality of life. In country like India dedicated centres providing cancer treatment are in very limited numbers. Many patients travel from one state to another for the same. Evaluation and planning of treatment for a cancer patient is a lengthy process and requires multi-modality inputs and multiple visits. Treatment itself is delivered in multiple steps and cycles. Regular follow up is an essential component of cancer care. It has to be kept in mind that curative intent treatment should not get compromised¹⁵.

At a time in New Delhi when hospitals were dealing with the COVID-19 cases, cancer patients were facing massive hardships due to postponement of treatments and surgeries. Cancer Patients who visited the hospital for the treatment during pandemic were feeling helpless as they were stranded due to the continuing lockdown. Chemotherapy cannot be stopped but oral medicine can be administered for some time¹⁶.

What If You Skip Chemotherapy During This Lockdown?

Ideally, Cancer patients should never skip any chemotherapy dose but if patients have missed it due to this covid -19 pandemic lockdown one can't really do anything. So, normally up to 3 months, Patients can have altered treatment.

If the gap increases more than 3 months, between 2 consecutive cycles than the therapeutic benefits may be lost in cancer patient. So it is advisable that cancer patients should be in touch with Onco- consultant and try arranging at a nearby hospital as per his guidance¹⁷.

The Impact of Covid-19 Pandemic on Chemotherapy Patients

The cancer patients on active chemotherapy or radical RT for lung cancer and blood or bone marrow cancer are at highest risk⁷ Delays in diagnosis of blood cancer such as leukaemia which require immediate treatment, put patients' lives at more risk and lower life expectancy⁸. Delay in diagnosis of cancer can lead to patients requiring more treatment and with a worse prognosis and in certain cases, losing chance of survival. Depending on the extended disruption of the routine services, it is possible to have delaying in accurate diagnosis or best practice treatment which could have a detrimental effect on outcomes & survival for cancer patients⁹. Delaying diagnoses and treatment of new cancer cases will lead to their presentation at a more advanced stage which then leads to the reduced benefit of treatment and poor survival¹⁰.

A female patient diagnosed with Ca Breast was on chemotherapy contracted viral throat infection with escalated symptoms, it was a wake-up-call for her as after third chemo cycle her lymphocyte count dropped to 0.6. If she gets Covid 19 infection, She has no immune power to fight against it being on chemotherapy¹⁸. Outcomes of COVID-19 in patients with cancer have resulted in being fearful of giving effective oncology treatments. Studies shows that cancer patients are not only more susceptible to contracting the corona virus compared with the general population, but also at risk of developing more severe consequences. To clarify the relationship between cancer, anticancer treatments, and COVID-19, larger-scale datasets are necessary^{19,20}.

Patient shifted to Oral chemotherapy

Cancer patients on chemotherapy often need to travel to a oncology centres, hospital, clinic or infusion centre for regular treatments. But cancer patients who are concerned about exposure to the coronavirus may have another option, taking chemotherapy medicines at home in pill or liquid form. Taking an oral chemotherapy medication is a good option for a cancer patient who is in isolation or trying to avoid going out instead of traveling to get an or injection or an infusion. "While there may be an oral option for systemic anti-cancer drug delivery in certain clinical situations, it is important that patients understand both differences in potential side effects as well as any specific financial implication for them resulting from a

change from systemic to oral treatment," says Maurie Markman, MD, President of Medicine & Science for Cancer Treatment Centers of America® (CTCA).

Here are some issues to consider with Oral Chemotherapy

The chemotherapy required to treat cancer may not be made in a pill or liquid oral dosage, Chemotherapy drugs may be very toxic, and bodily fluids may be, too, after taking them. Some medications need carefully storage and required to wear gloves while handling. Patients should consider whether they can handle these medications safely. Oral medications may be high in cost. Some medications have strict instructions on when they need to be taken. Chemotherapy drugs differ in the side effects they may cause. Some patients may find it difficult to take pills they know will make them sick, but they don't tell their doctors. In many cases, medicines or supplements are required to deal with side effects. The number of pills can be overwhelming, causing patients to lose track of when or whether they have taken their pills. Patients should not skip treatments. If patient want to consider a switch from infusion to an oral chemotherapy, it's important that patient maintain a treatment schedule until that switch is made. Again need to talk to oncologist about how to transition from one drug to another²¹.

Negative impact on patients

Delay in cancer diagnosis can lead to patients ultimately requiring more treatment and having a worse prognosis and in certain cases, losing their chance of survival. Therefore, the longer that the coronavirus is allowed to reduce access to timely cancer diagnosis and treatment, the greater the negative impact on patient outcomes. It is likely that this situation will be similar for other common cancer types and many other acute healthcare interventions that are currently being rationed or cancelled²².

CONCLUSION

The cancer patients on active chemotherapy or radical RT for lung cancer and blood or bone marrow cancer are at highest risk⁷ Delays in diagnosis of blood cancer such as leukaemia which require immediate treatment, put patients' lives at more risk and lower life expectancy⁸. Delay in diagnosis of cancer can lead to patients requiring more treatment and with a worse prognosis and in certain cases, losing chance of survival. Depending on the extended disruption of

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All palliative chemotherapies should continue where expected survival is more than 6 months. Every attempt should be made to consider oral therapy wherever feasible. Oral therapy may be advised for 2 or 3 cycles in a single visit with interval evaluation done via teleconsultations or electronic means. Every attempt should be made to provide Bed Side Care at a patient's home or a nearby facility. A comprehensive discussion should be done with the patient's caregiver in this regard. Follow up visits in person should be limited and at longer intervals. Telemedicine or electronic communication should be emphasized if patient's general condition is fair and investigations do not suggest a change in advice. Restrict the manpower of healthcare staff directly involved in patient care to bare minimum²³.

REFERENCES

- [1] Covid-19-Significantly impacts health services for non-communicable diseases; World Health Organization: 1 June 2020. News release.
- [2] Bray F, Ferlay J, Soerjomataram I, et al: Global Cancer statistics and mortality worldwide for 36 countries. *Ca Cancer J Clin* 68:394-424, 2018 [Erratum: *Ca Cancer J Clin* 70:313, 2020]
- [3] Shilberman M, Pitisillides B, Al-Aifi N, et al: Multidisciplinary care team for cancer patients and its implementation in several Middle Eastern countries. *Ann Oncol* 24: vol 47, 2013.
- [4] Xu F, Rimm AA, Fu P, Krishnamurthi SS, Cooper GS. The impact of delayed chemotherapy on its completion and survival outcomes in stage II colon cancer patients. *PLoS One*. 2014; 9(9):e107993.
- [5] Bilimoria KY, Bentrem DJ, Ko CY, Stewart AK, Winchester DP, Talamonti MS. Ann Surg. National failure to operate on early stage pancreatic cancer. 2007 Aug; 246(2):173-80.
- [6] Herschbach P, Dinkel A, Fear of progression. *Herschbach P, Dinkel A Recent Results Cancer Res*. 2014; 197():11-29.
- [7] De Wit E, van Doremalen N, Falzarano D, Munster VJ. SARS and MERS: recent insights into emerging Coronaviruses *Nat Rev Microbiol* 2016; 14(8):523-534. doi:10.1038/nrmicro.2016.81. CrossRefPubMedGoogle Scholar.
- [8] Fehr AR, Perlman S. Coronaviruses: an overview of their replication and pathogenesis. *Methods Mol Biol* 2015; 1282:1-23. doi:10.1007/978-1-4939-2438-7_1 CrossRefPubMedGoogle Scholar.
- [9] Lan J, Ge J, Yu J, et al. Structure of the SARS-CoV-2 spike receptor-binding domain bound to the ACE2 receptor. *Nature* 2020 Mar 30. doi:10.1038/s41586-020-2180-5 CrossRefPubMedGoogle Scholar.
- [10] Totura AL, Bavari S. Broad-spectrum coronavirus antiviral drug discovery. *Expert Opin Drug Discov* 2019; 14(4):397-412. doi:10.1080/17460441.2019.1581171 CrossRefGoogle Scholar.
- [11] Moriguchi T, Harii N, Goto J, et al. A first case of meningitis/encephalitis associated with SARS-Coronavirus-2. *Int J Infect Dis* 2020; 94:55-58. doi:10.1016/j.ijid.2020.03.062 CrossRefPubMedGoogle Scholar.
- [12] Baig AM. Neurological manifestations in COVID-19 caused by SARS-CoV-2. *CNS Neurosci Ther* 2020; 26(5):499-501. doi:10.1111/cns.13372 CrossRefGoogle Scholar.
- [13] Covid-19: Global consequences for oncology. *The Lancet Oncology, PlumXmetrics*, April, 2020, Vol: 21(4), P 467 doi:https://doi.org/10.1016/S1470-2045(20)30175-3.
- [14] Covid -19 Significantly impacts health services for Non Communicable disease. World health organization [news release] June 2020. <https://www.who.int/news/item/01-06-2020-covid-19-significantly-impacts-health-services-or-noncommunicable-diseases>.

- [15] Deepak S., Amit S. et al: Impact of Covid-19 Pandemic on oncology practices during Nationwidelockdownperiodandthewayforward; Journal of the association of Physicians'15 June 2020: Vol:68,ISSN 0004-5772.<https://www.japi.org/w2f4d474/impact-of-covid19-pandemic-on-oncology-practices-during-nationwide-lockdown-period-a-single-centre-experience-and-the-way-forward#references>.
- [16] Aiman Khan: Delhi: Cancer patients facing hardships as hospitals are busy dealing covid-19 cases: [Health News] Health world.com from the Economic Times: April 21,2020. <https://health.economictimes.indiatimes.com/news/diagnostics/delhi-cancer-patients-facing-hardships-as-hospitals-are-busy-dealing-covid-19-cases/75266051>.
- [17] (In the News)Impact of Covid-19 on cancer patients: Caring for those with cancer in the times of Covid-19,Meril life Sciences.<https://www.merillife.com/blog/in-the-news/impact-of-covid-19-on-cancer-patients>.
- [18] Mary Lloyd:[In ABC News] Chemotherapy and the coronavirus threat-my immunity levels mean you need to care about covid-19:march-2020.<https://www.abc.net.au/news/2020-03-15/cancer-chemo-and-coronavirus-dont-be-flippant-with-covid19/12056582>.
- [19] Dai MY, Liu D,Liu M et al.Patients with cancer appear more vulnerable to SARS-CoV-2: a multi center study during the COVID-19 outbreak. Cancer Discov. 2020; (published online April 28.) DOI: 10.2139/ssrn.3558017.
- [20] Lennard YW Lee, Vartika Bisht,et al: Covid 19 mortality in patient with cancer on chemotherapy or other anticancer treatments: A prosepective cohort study: PlumX metrics; May 28,2020.Vo: 395,Issue.10241,page 1919-1926. DOI:[https://doi.org/10.1016/S0140-6736\(20\)31173-9](https://doi.org/10.1016/S0140-6736(20)31173-9).
- [21] Maurie Markman,Coronavirus keeping you home? Ask if your chemotherapy comes in a pill,Cancer treatment centres of America: March 18,2020:CTCA, www.cancercenter.com/community/blog/2020/03/chemotherapy.at.home.
- [22] Gordon C.,Cancer treatment delays could increase death rates due to impact of covid-19 Pandemic on UK hospital capacity,[ecancer](https://ecancer.org/en/news/17643-cancer-treatment-delays-could-increase-death-rates-due-to-impact-of-covid-19-pandemic-on-uk-hospital-capacity);14 April 2020;<https://ecancer.org/en/news/17643-cancer-treatment-delays-could-increase-death-rates-due-to-impact-of-covid-19-pandemic-on-uk-hospital-capacity>.
- [23] Deepak S.,Amit S. et al: Impact of Covid-19 Pandemic on oncology practices during Nationwidelockdownperiodandthewayforward; Journal of the association of Physicians'15 June 2020: Vol:68,ISSN 0004-5772.<https://www.japi.org/w2f4d474/impact-of-covid19-pandemic-on-oncology-practices-during-nationwide-lockdown-period-a-single-centre-experience-and-the-way-forward#references>.
- [24] <https://www.japi.org/w2f4d474/impact-of-covid19-pandemic-on-oncology-practices-during-nationwide-lockdown-period-a-single-centre-experience-and-the-way-forward>.
- [25] <https://www.ccm.org/content/early/2020/05/12/ccjm.87a.20047>
- [26] [https://www.thelancet.com/journals/lanonc/article/PIIS1470-2045\(20\)30175-3/fulltext](https://www.thelancet.com/journals/lanonc/article/PIIS1470-2045(20)30175-3/fulltext)
- [27] [https://www.annalsofoncology.org/article/S0923-7534\(20\)39825-2/fulltext](https://www.annalsofoncology.org/article/S0923-7534(20)39825-2/fulltext)
- [28] <https://www.who.int/news-room/detail/01-06-2020-covid-19-significantly-impacts-health-services-for-noncommunicable-diseases>
- [29] <https://health.economictimes.indiatimes.com/news/diagnostics/delhi-cancer-patients-facing-hardships-as-hospitals-are-busy-dealing-covid-19-cases/75266051>
- [30] <https://www.merillife.com/blog/in-the-news/impact-of-covid-19-on-cancer-patients>
- [31] [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)31173-9/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31173-9/fulltext)
- [32] [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)31173-9/fulltext#secestitle10](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31173-9/fulltext#secestitle10)
- [33] [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)31517-8/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31517-8/fulltext)

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- [34] <https://ecancer.org/en/news/17643-cancer-treatment-delays-could-increase-death-rates-due-to-impact-of-covid-19-pandemic-on-uk-hospital-capacity>
- [35] japi.org/w2f4d474/impact-of-covid19-pandemic-on-oncology-practices-during-nationwide-lockdown-period-a-single-centre-experience-and-the-way-forward.

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