



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



COVID-19 Rapid Letter

Implications for cancer care in Iran during COVID-19 pandemic^{*}



To the Editor

As the COVID-19 pandemic surges, concerns grow over serious health conditions. Since the healthcare resources are highly stretched taking care of the COVID-19 patients, other parts of the Iranian healthcare system are critically influenced. Cancer care is specifically facing innumerable challenges in our country, putting the clinical decision-makers in a parlous risk of mismanagement, ranging from the risk of the exposure to COVID-19 to the harm caused by the delayed treatment. Regarding the therapies, cancer patients are vulnerable to a broad spectrum of infectious diseases, and that is why careful management has always been taken into account [1]. Age, treatment history and underlying health conditions are the most determinative factors for the prognosis of infection in cancer patients [2]. Also, the weakened immune system tremendously increases the risk of acquired infection, either from the community or hospital. Therefore, COVID-19 infection will ultimately interrupt the patient's treatment.

Studies suggest that cancer patients infected with COVID-19 are more likely to show severe symptoms, which could be explained through the weakened overall health status [3]. This emphasizes the fact that all patients should be properly educated about personal hygiene and reduce close contact with others as much as possible. In patients who are tested positive, manipulating the immune system should be done under caution, considering the key features of the type of cancer. Otherwise, isolation procedures still need to be in progress. For the latter recommendation, Telemedicine proves to be useful as it can make the in-person clinical appointments shorter or even not needed at all, enable remote consultation anytime and anywhere, and make the follow-ups much safer [4]. This is especially important for cancer patients due to their need for constant surveillance, though only a few centers in Iran have considerable telecommunication infrastructures and expanded hotlines, and are capable of implementing this strategy.

There is a general concern about visiting the healthcare settings, as over 40% of the COVID-19 infections are hospital-acquired [5]. As a result, people will try to avoid attending healthcare facilities which would cause trouble for cancer patients who have

already scheduled treatment sessions. In this case, it is strongly recommended to benefit from out-patient facilities and in-home services. Where the out-of-clinic strategies are not applicable, the number of patient companions and visitors should be limited to the least possible. Also, further sessions and appointments should be planned and informed to the patients aforesaid.

Healthcare facilities should present a specific protocol and identify the patients infected with COVID-19 as soon as possible in order to consider special preparations (e.g., allocating separate rooms, special units, precautionous procedures, medications, interventions, etc.) [6]. Clinical management should bind to the fact that in these types of facilities, emphasizing on rapid diagnosis is practically far more important than investing in unverified treatments. At this level, obtaining a precise history of travel and contact should be taken into account.

Speaking of prevention, there are no confirmed prophylactic antiviral agents available yet [7]. The beneficial aspects of mask usage are currently uncertain. They seem to be one of our few available efficient approaches towards prevention, but masking alone will not protect the patients nor the healthcare providers [8]. Proper use of other personal protective equipment, complete hand hygiene, and regular disinfection of the surroundings are inevitable necessities.

Routine and genetic screenings are not recommended during the pandemic [2]. If abnormal screening results were observed before the pandemic, deciding the upcoming procedures and interventions should be based on the harm-benefit analysis of each patient. The effect of COVID-19 infection on the screening and diagnosis process is currently unclear, but they are recommended to be postponed as long as they do not possess health-threatening conditions.

Procedures involving blood-derived products and blood transfusions should be done according to the guidelines. Latest studies have demonstrated remarkable recovery in critical patients [9]. Based on the patient, considering Erythropoietin-stimulating agents may be more preferred.

Undergoing cancer surgeries during the pandemic is largely on debate and mostly depends on the allocated resources and the amount of probable burden imposed on the healthcare system. The general opinion points to reschedule elective surgeries. In case of facing oncological emergencies or complex cases, it is again up to the clinician and the harm-benefit analysis of each patient, considering that the surgery puts both patients and medical teams on a higher risk of exposure. On the other hand, skipping radiation therapy sessions seems to have rather unfavorable results, mainly because of potential insufficient clinical outcomes as a result of the interruption. Also, in some patients, interrupting the radiation therapy cuts the curative effects and results in tumor growth. However, in early-detected cases, a patient-based adjusting or delaying the therapy may lead to protective effects against

^{*} The Editors of the Journal, the Publisher and the European Society for Radiotherapy and Oncology (ESTRO) cannot take responsibility for the statements or opinions expressed by the authors of these articles. Practitioners and researchers must always rely on their own experience and knowledge in evaluating and using any information, methods, compounds or experiments described herein. Because of rapid advances in the medical sciences, in particular, independent verification of diagnoses and drug dosages should be made. For more information see the editorial "Radiotherapy & Oncology during the COVID-19 pandemic", Vol. 146, 2020.

COVID-19 infection. Chemotherapy may include the most diverse viewpoints. It has an extensive clinical effect but almost always is accompanied by immune suppression. Any change in chemotherapy should be done according to these three considerations:

1. Less efficient and less suppressive treatments are always on the cards. The patient's health conditions should be evaluated to make sure that ceasing or modifying the chemotherapy regimen would not change the outcomes dramatically.
2. Route of treatment is adjustable in order to reduce the risk of infection.
3. All decisions are person-based, and harms and benefits should be assessed case-by-case. The final decision requires a multidisciplinary team.

The combination of two major health issues, cancer and pandemic, could turn out to a disaster for healthcare providers, if not appropriately managed. Mismanagement could threaten millions of lives and waste irrevocable money, time, and energy. The final goal of all recommendations is to reduce the harm as much as possible. Further studies on COVID-19, involving cancer patients and based on the country's condition, should be conducted with a focus on rapid diagnosis, patient management, and how to modify the treatment regimens efficiently. This state of emergency will demonstrate how our cancer community is all set to encounter challenges, and the experiences of dealing with this situation will be our trustworthy source of information for decades.

Conflicts of interest

Authors declare no conflicts of interest.

Funding

None.

References

- [1] Holland-Bill L, Xu H, Sørensen HT, Acquavella J, Sværke C, Gammelager H, et al. Positive predictive value of primary inpatient discharge diagnoses of infection

among cancer patients in the Danish National Registry of Patients. *Ann Epidemiol* 2014;24: 593–7.e18.

- [2] Al-Shamsi HO, Alhazzani W, Alhuraiji A, Coomes EA, Chemaly RF, Almuhanna M, et al. A practical approach to the management of cancer patients during the novel coronavirus disease 2019 (COVID-19) pandemic: an International Collaborative Group. *Oncologist* 2020.
- [3] Wang H, Zhang L. Risk of COVID-19 for patients with cancer. *Lancet Oncol* 2020;21(4):e181.
- [4] Mahmoodpoor A, Akbarzadeh MA, Sanaie S, Hosseini M-S. Role of telehealth in outbreaks—where the classic healthcare systems fail. *Infect Control Hosp Epidemiol* 2020;1–6. 10.1017/ice.2020.120.
- [5] Wang D, Hu B, Hu C, Zhu F, Liu X, Zhang J, et al. Clinical characteristics of 138 hospitalized patients with 2019 novel coronavirus-infected pneumonia in Wuhan, China. *Jama* 2020.
- [6] Ueda M, Martins R, Hendrie PC, McDonnell T, Crews JR, Wong TL, et al. Managing cancer care during the COVID-19 pandemic: agility and collaboration toward a common goal. *J Natl Compr Canc Netw* 2020;1:1–4.
- [7] Saif LJ. Vaccines for COVID-19: perspectives, prospects, and challenges based on candidate SARS, MERS, and animal coronavirus vaccines. *Euro Med J* 2020.
- [8] Klompas M, Morris CA, Sinclair J, Pearson M, Shenoy ES. Universal masking in hospitals in the Covid-19 era. *N Engl J Med* 2020.
- [9] Focosi D, Tang JW, Anderson AO, Tuccori M. Convalescent blood product therapies for COVID-19: a systematic review. 2020.

Mohammad Amin Akbarzadeh^a

Mohammad-Salar Hosseini^{b,*}

^a Student Research Committee, Tabriz University of Medical Sciences, Tabriz, Iran

^b Research Center for Evidence-Based Medicine, Tabriz University of Medical Sciences, Tabriz, Iran

* Corresponding author at: Research Center for Evidence-Based Medicine, Faculty of Medicine, Tabriz University of Medical Sciences, Golgasht Street, 5166/15731 Tabriz, EA, Iran.

E-mail address: hosseini.msalar@gmail.com (M.-S. Hosseini).

Received 16 April 2020

Received in revised form 22 April 2020

Accepted 22 April 2020

Available online 25 April 2020