

Tele-oncology in Cancer Care during COVID-19 Pandemic-Expanding Role in the Developing World

Abstract

COVID-19 pandemic has challenged the entire health care system to a great extent and led to the development and utilization of alternative approaches. Tele-oncology holds great potential to deliver cancer care. With the use of tele-oncology, physical distancing can be maintained. This will help the cancer patients as well as the oncologist and other supporting staff from getting exposed to the virus. However, there are many challenges for starting tele-oncology especially in resource limited settings. We hereby discuss tele-oncology its applications, methods available, tools, set up and infrastructure, benefits of tele-oncology and various patient, physician and resource-related factors in detail, especially in the setting of low- and middle-income countries.

Keywords: COVID-19, pandemic, telemedicine, tele-oncology

Introduction

Severe acute respiratory syndrome coronavirus-2 or the COVID-19 pandemic has emerged as a global health challenge leading to healthcare and economic disruption. The rising cases throughout the globe are going to lead to unprecedented and lasting impact on the health-care system and global economy, more so in the low socioeconomic countries. As the lockdown is being lifted in most of the countries, surge in COVID-19 cases can be seen which is putting strain on the health-care system. This pandemic has led to ineludible adoption of digital technologies to maintain social distancing.^[1] This in turn will ensure safety and reduce the spread of this contagious disease.

Cancer patients are immunocompromised and are at higher risk of contracting the COVID-19 infection.^[2] The immunosuppression can be due to cancer itself or the result of treatment with chemotherapy, immunotherapy, or surgery.^[3,4] The need for hospitalization, intensive care management, and the mortality has been reported to be higher in cancer patients.^[5]

As physical distancing is one of the important steps for limiting disease

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transmission, tele-oncology has immense potential. It has been underutilized till now. Tele-oncology has emerged as a glimpse of hope and has become an integral component of health-care system amidst COVID-19 crisis. It is bridging the gap between patients and health-care providers and they can communicate with the aid of virtual meeting platforms.^[6] In a report by McCall, the utilization of telemedicine has considerably increased from around 10% of general medicine consultations before COVID-19 to approximately 75% during the peak of the pandemic, in the UK.^[7] In the initial years of its development, telemedicine was used mainly to provide health care to people in rural areas who had limited access to these services.^[8,9]

Patients have the fear of contracting infection while attending hospitals, and at the same time, health-care providers being at frontline are at increased risk of getting infected due to their continuous exposure to patients and their relatives. The use of digital technology can help in preventing the cancer patients from being exposed to the infection, as it will minimize their unnecessary visit to the health care facilities. At the same time, it maintains access to the essential health services.

The purpose of this brief review is to discuss the need and challenges of

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telemedicine consultation services in the clinical oncology in the setting of developing countries like India.

Applications

According to the WHO classification of digital health interventions v 1.0,^[10] telemedicine can be used for consultations between remote clients and health-care providers, remote monitoring of health or diagnostic data, transmission of medical data to health-care provider, and consultations for case management between health-care providers.

Tele-oncology helps to triage the patients and prioritize the treatment according to severity, stage, and prognosis of disease. It has become a convenient way for patients to obtain health consultation without risk of exposure to infection and curtails unnecessary hospital visits and accumulation of patients in the hospital. It provides timely access to appropriate health-care services and at the same time reduces financial burden of repeated visits to hospital in cancer patients. Prolonged waiting times to maintain social distancing can be managed by virtual platforms and would help in timely and appropriate management of patients without risk of disease progression and spread of infection to patients, caregivers and health-care workers.

Methods Available

Telemedicine services are described as either synchronous or asynchronous.^[11] In synchronous type of telemedicine, the patient can consult the oncologist in real time using audio-visual communication methods. In the asynchronous telemedicine, the patient can send the investigations such as biopsy report and radiological images, which will be interpreted later by the oncologist.

In cancer patients, telemedicine can be used in various settings such as diagnosis of a patient through Store and Forward telemedicine. The patient can send his investigations and images and can be remotely advised regarding the further plan of management. Remote patient monitoring or tele-monitoring can be used to monitor the patients on oral chemotherapy or hormonal therapy.

Similarly, real-time telemedicine using audio-visual communication or communication through audio alone can be safely used to address the concern of cancer patients who have completed their treatment and are currently asymptomatic. These types of telemedicine are overlapping and can be used interchangeably.

Tools for Telemedicine

According to the Indian Ministry of Health Telemedicine Guidelines 2020,^[12] any technology that can facilitate telemedicine can be used. These may include devices connected over LAN, WAN, Internet, mobile or landline phones, Chat Platforms like WhatsApp, Facebook Messenger etc., or Mobile App or internet-based digital

platforms for telemedicine or data transmission systems like skype/email/fax etc., Broadly, three main types of technologies used – audio, video, and text.

Video conferencing can be via chat platforms as WhatsApp, Skype, and face time. Most commonly used web conferencing softwares include zoom, Microsoft teams, and Google meet . These require secure and high-speed internet connection. Video conferencing allows patients and caregivers to see their physician and share their concerns. Text can be exchanged through simple text message, Facebook messenger, E-mail, or fax.

Each of these technologies has strengths and limitations. The main limitation of telemedicine is inability to perform physical examination and lack of patient touch and feel which is must in cancer patients.

Set Up and Infrastructure

After the outbreak of this epidemic, restriction on transport and movement of general public was enforced by the government to limit the disease transmission. This hampered the treatment of all the patients, especially oncology patients on treatment and follow-up. There was an instant demand for some help for these categories of patients to ensure continuity of oncology services. This led to the establishment of online appointment and teleconsultation system for the patients in various hospitals. In limited resource setting, like India tele-oncology can be started with the provision of smart phones having internet connection. The phone numbers can be advertised through news portals and print media. New patients who have not yet started the treatment can be asked to send relevant investigations by clicking photographs and sending them on WhatsApp. The patients can be triaged according to stage of the disease and prognosis and provided consultation accordingly. Those in need of urgent treatment can be called to the hospital. Prior to reporting to the hospital, patients should take online appointment. Similarly, patients on follow-up can consult through audio or video calls and through whatsapp services. At the same time, appointments can be given for the next consultation. This way we can limit the number of patients visiting the hospital thus helping in better patient management in challenging times as well as maintaining adequate social distancing norms.

Benefits to the Patients

Fewer in-person-visits, apart from reducing the risk of exposure in already immune-compromised cancer patients, will also decrease the financial burden. This will help the economically weaker sections of the society. Patients, especially the elderly will be relieved of waiting for long hours outside the outpatient departments. The patients' caregivers will be saved of their time, loss of work and disruption of the daily activities, which occur due to the time spent at the health-care facility. Also in countries like

India where people may be reluctant to visit health-care facility due to other commitments, tele-oncology may be a good option for regular follow-up visits as is required by the cancer patients. Cancer patients can have social, psychological, and physical issues while on treatment or post treatment. It is important to address these issues with an empathic physician–patient interaction through telemedicine.

Clearly not all patients can be treated through telemedicine and this discernment ultimately rests with the doctor. Physical presence, of both the physician as well as the patient cannot always be done away with. If the patient needs physical examination or hospital admission, this has to be clearly explained, and the e-consult needs to be terminated and the patient should be given appointment.

Challenges to the Implementation of Teleconsultation Services

Change in the prevalent system is not an easy aspect to implement. In the initial days of pandemic, difficulties were encountered in running of the health-care system. Similar to other technologies, tele-oncology too is not without limitations. Patient and caregiver satisfaction is the key to run tele-oncology smoothly. The greatest challenge in oncology practice through telemedicine is breaking bad news, which requires both sympathy and empathy. It is a complex task which requires patience and understanding of patient's and family's emotional state. In such cases, it is better to use video technology to acknowledge their emotions, concerns, and fears. There should be a follow-up or repeat teleconsultation few days after breaking the bad news to address their missed or new concerns.

Patient Factors

The tools required for implementation of tele-oncology may not be accessible in remote and socially backward areas.^[13] This limitation in accessibility can be of two types. The economically backward may not have access to the devices and internet connection needed for telemedicine, or if available they may not know how to operate. Second, there may be poor connectivity in remotely located areas. This is true for especially countries like India. Poor literacy rates in countries like India can also be an obstacle in successful implementation of telemedicine. Thus, the patient or his caregiver may not be able to send the relevant investigations or disclose important findings. They may not be aware of the medical terminology. Language barriers may also exist which may hamper effective delivery of telemedicine. This has been described as digital divide related to access and use by Sirintrapun *et al.* in their review.^[11]

Resource Related Factors

In developing countries, especially at the time of pandemic with economic crisis, setting up a separate tele-oncology

department may not be feasible, as it would require cost and additional workforce, time, and set up. Providing separate devices (smart phones, software) in adequate numbers for every clinical department for all the hospitals across India is very difficult. It is not feasible that these facilities can be made easily available across all hospitals in India. However, Digital India health mission announced recently on Independence Day may resolve various issues in health-care system from getting an appointment, registration in hospitals to payment. Every Indian will have a health-care account, which will have details of the existing diseases and medical history. The objectives of the mission are to set up a digital health database and all the medical information of patients to be maintained in electronic records.

Physician Related Factors

In government set up, the physician responsible for tele-oncology has other commitments also. The oncologist finds it difficult to segregate the investigations as many patients forward all which has been done till date. This requires extra effort and time on the part of the oncologist. A dedicated oncologist may be required in the future as the number of COVID-19 cases continues to rise. Also to maintain the quality of care and patients' satisfaction, adequate time has to be given to answer all their queries. Apart from giving advice on the digital platform, all the patient information has to be noted in their files also for the future reference.

Data Privacy

Another concern with this form of digital health intervention is the safety and quality of care. Confidentiality and privacy of the patient should be maintained strictly to take care of medicolegal issues, which may arise. Patients need to be assured that their data would not be used or shared without their consent. As per the telemedicine 2020 guidelines issued by the Ministry of Health,^[12] physicians need to follow existing regulations and principles of medical ethics. These guidelines also state that both the patients as well as the physician need to disclose their identity to each other.

To overcome the obstacles, appropriate training of the health-care staff and dissemination of the knowledge to the public is required for smooth functioning of tele-oncology services. Improvement in infrastructure is also needed for the widespread acceptance. There is a need to triage the cancer patients according to severity, stage, symptoms, and prognosis of disease. ESMO guidelines have been published which may guide the oncologist as to which patients can be registered for tele-oncology and which need to be called to the clinic for further management.^[14] However, the ultimate decision should be based on the physician's discretion.

Powell *et al.*^[15] have reported in their study that patients as well as physicians were well satisfied with telemedicine

consultations. Similar findings have been reported in the systematic review by Kruse *et al.*^[16]

Conclusion

Cancer care is complex requiring multiple patient visits for investigations, surgical procedures, radiotherapy, chemotherapy sessions, and palliative care. Tele-oncology has the potential to make cancer care accessible, affordable and efficient in this pandemic. As cancer patients have concerns before, during and after treatment, proper communication through tele-oncology can decrease the burden to a larger extent by answering the patients and caregivers queries, thus allaying their fears of contracting infection with physical appointment and concerning disease progression or recurrence. Patients can be triaged and called to the clinic if required. This will promote social distancing, the basic tenet for containing the COVID-19 pandemic.

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Conflicts of interest

There are no conflicts of interest.

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