Palliative Care Delivery in Cancer Patients in the Era of Covid-19 Outbreak: Unique Needs, Barriers, and Tools for Solutions

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Abstract

World is facing a pandemic recently due to the outbreak of COVID-19 infection. Cancer has been identified as one of the major comorbidities which cause more severe disease due to COVID-19 infection. Moreover, there are several resource limitations and restrictions to avail the standard oncological health facilities due to robust measures taken for infection control. In this situation, palliative care in cancer patients deserves special attention. Their symptom management, psychological, social, cultural needs tremendously increase during the epidemic. Thus, we need to recognize the unique palliative care needs of cancer patients during pandemic and formulate the plan to maintain continuity of services. Triaging systems are essential tools for proper resource allocation during a pandemic. Therefore, we suggest triaging tools for emergency in hospital palliative care services: community-based palliative care and end of life care for cancer patients. Incorporation of newer technologies and identifying the potential resources are the other key components of the preparedness strategy.

Keywords: Cancer patients, COVID-19 pandemic, palliative care

Introduction

Cancer is one of the major causes of disease burden all over the world. As stated by the World Health Organization (WHO) in 2018, it is the second leading cause of death across the world.[1] Cancer patients are at high risk of severe respiratory infections due to their immunosuppression, age, and comorbidities.[2] There is also a high rate of mortality among them due to pneumonia of viral origin.[3] Thus, care of advanced cancer patients needs special attention amidst the pandemic of a viral respiratory illness.

Novel coronavirus (COVID-19) disease has been declared as global pandemic on March 11, 2020 by the WHO.[4] It is caused by severe acute respiratory syndrome–coronavirus (SARS-COV-2), a beta-coronavirus, belonging to the family of coronaviridae.[5] World is now witnessing the third emergence of SARS, previous two episodes being in the year of 2003 and 2012.[6-8] The first case of novel coronavirus was reported in December 2019 at Wuhan, China. Since then, a total 1,914,916 numbers of confirmed cases and 123,010 numbers of deaths have been reported across >200 countries, territories, or areas by April 15, 2020.[9]

The level of contagiousness of this infection is denoted by the basic reproductive number (R0).[10] It is defined as numbers of secondary cases stemming from a primary case in a susceptible population. The basic reproductive number (R0) of the novel coronavirus has been found to be highly variable in different countries[10,11] and can be as high as up to 5.7.[12] Owing to the high level of contagiousness, an aggressive contact tracing, isolation, and social distancing are the major strategies for containment of the infection.[12]

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Many countries have opted for a lockdown mode to ensure an effective social distancing.

This particular situation has caused tremendous difficulty to support different health-care services including palliative care for cancer patients.[13] Thus, a palliative care team needs to have a contingency and crisis management plan to maintain the continuity of services to a huge number of cancer patients during the pandemic. In this review article, we discuss the specific palliative care needs in cancer patients amidst the COVID-19 pandemic, barriers to meet those needs, and potential solutions of them.

Epidemiology of Cancer Patients and Novel Coronavirus Infection

A few studies from China and Italy have shown the epidemiology of COVID-19 among cancer patients.[14-16] A study by Liang *et al*.[14] has been published in Lancet oncology, which shows a nationwide analysis of patients with novel coronavirus in China with special focus on cancer patients. It showed that 18 patients (1%) out of the total 1590 cases of novel coronavirus had a history of cancer as compared to the general population (0.29%). Lung cancer (28%) was found to be the most common type of cancers among them. They also found a higher incidence of complications among the cancer patients (39% vs. 8%) (Complication defined as intensive care unit (ICU) admission for patients who require intubation and mechanical ventilation or death).[14] Age was found to be a major indicator of severity in the cohorts of cancer patients (mean, 63.1 years vs. 48.7 years). They also had a higher incidence of smoking (22% vs. 7%) and severe baseline computed tomography (CT) scan manifestations (94% vs. 71%). Four (25%) out of 16 patients (2 out of 18 patients had unknown treatment status) received chemotherapy or surgery within the last 1 month and the rest of them were cancer survivors after primary surgery.

Another retrospective analysis[15] from China revealed data of 28 cancer patients infected with COVID-19. These patients had fever (82.1%), dry cough (81%), and dyspnea (50%) as presenting symptoms. Laboratory investigations revealed lymphopenia (82.1%), raised C-reactive protein (82.1%), anemia (75.0%), and hypoproteinemia (n = 25, 89.3%).

Both the studies[14,15] have a very small sample size with much heterogeneity regarding disease duration, course, origin, treatment history, and need to be extrapolated on larger cancer populations with caution.

The initial data from Italy show that around 20% of the patients who died of coronavirus infection had a history of cancer in the last 5 years.[16] However, this study only considers patients who died due to COVID-19 infections. Thus, these findings also cannot be interpreted for the overall population.

Hematological malignancies are another group of cancer, which is at high risk of COVID-19 patients. Before the emergence of SARS-COV-2, it was shown that 30% of patients with history of hematopoietic stem cell transplantation had progression from upper to lower respiratory tract infection due to seasonal less pathogenic coronavirus.[17]

Thus, patients with lung cancer and hematological cancers, receiving chemotherapy or surgery, and old age with multiple comorbidities are expected to have a greater chance of having COVID-19 infection. However, further good quality data with specific analysis of subgroup patients are warranted to establish the epidemiological links and to assess the impact of the pandemic on cancer patients precisely.

Unique Diagnostic Challenge of Novel Coronavirus Infection in Cancer Patients

Patients with novel coronavirus infection commonly present with symptoms such as fever, cough, and shortness of breath. In severe cases, they may present with acute respiratory distress syndrome (ARDS) and septic shock too.[18] As per the WHO,[19] cases are being defined as suspected, probable, or confirmed. People who have developed signs of acute respiratory tract infections with a travel history within 14 days or belong to a location with community transmission are considered as suspected cases. A laboratory evidence of COVID-19 infection irrespective of presence of symptoms is to be declared as confirmed cases.[19]

The patients with cancers, specially primary or metastatic lung cancers, also do often present with similar symptoms, e.g., cough, fatigue, dyspnea, and chest pain.[20] In addition, the similar symptoms can also be caused by the lung injury following radiation[21] or during febrile neutropenia following chemotherapy.[22] Thus, in this era of pandemic, it is extremely challenging for physicians to differentiate and diagnose COVID-19 infection in these patients. Therefore, cancer patients need more careful and strategic screening for COVID-19 infection.

According to the WHO definitions,[19] an epidemiological link within a 14-day period is required along with clinical symptoms and laboratory evidence. This is a major reference point in differentiating the diagnosis in lung cancer patients. History regarding previous treatments can also serve as a clue. Additional imaging modalities, e.g., CT scan, can also help to differentiate between the diagnoses. Liang *et al*.[14] reported that cancer patients with COVID-19 infection presented with more severe CT image changes (94% vs. 71%). Thus, for acute onset dyspnea in cancer patients, the epidemiological and contact history should be checked first, followed by combining a treatment history and laboratory findings. In patients who have received a recent chemotherapy, neutropenic sepsis should also be ruled out simultaneously, as it is a medical emergency.[23]

Specific Palliative Care Needs of Cancer Patients and Barriers to Meet them During Pandemic

Palliative care encompasses a holistic care which addresses several needs of a patient, including their psychological and social one. During the pandemic, the process of isolation, quarantine, and social distancing affects these needs to a great extent. Depression (15% major, 20% minor) and anxiety (10%) are common findings in cancer patients.[24] In the era of pandemic of an infectious disease, fear of deprivation from standard treatment, fear of getting the infection, fear of social isolation and stigmatization, and news of deaths, may augment these psychological issues.[25-28] Moreover, rapid surge of cases and high fatality rate causes greater consumption of medical resources for infected patients including drugs, equipment, and specialist palliative care physicians.[29-32] Thus, with limited resources, we need to identify the specific needs of cancer patients and barriers to meet them in the pandemic era, as early as possible to maintain the continuity of care. The different palliative care needs of cancer patients, caregivers, and health-care workers during COVID-19 are summarized in Table 1.

Table 1: Palliative care needs for cancer patients during COVID-19 pandemic

Patients needs
Physical care
Symptomatic management of symptoms of COVID-19 infection, e.g., Dyspnoea, cough, fever, pain
Management of palliative care emergencies
Psychological impact
Isolation and social distancing results in loss of self-esteem, autonomy, feeling of connectedness with family and the health-care system
Fear of the unknown due to uncertainty and disease progression
Fear of contracting the infection
Fear of not getting appropriate medical help
Social impact
Restriction on social gathering, travel results in lack of access to social support groups
Infected families are socially stigmatized
Loss of jobs/incomes
Limited availability of daily commodities
Spiritual impact
Cancellation of religious meets
Traditional death rituals are truncated
Ethical and legal aspects
Triaging for in hospital palliative care and ventilators
Protection of patients, family members, health care workers and society from infection
EOLC issues
Inadequate discussion regarding EOLC
Lack of an advanced directive
Distance from family members causes difficulty in decision-making
Difficulty in ensuring dignity of death due to strict infection prevention protocol
Structure and process of care: The barriers are
Limited resources and its appropriate allocation
Preparedness of the palliative care team for the outbreak
Lack of national policy integrating palliative care with the health care system and outbreak management
Caregivers needs
Inadequate knowledge about the disease leads to fear of uncertainty
Uncertainty of access to medical help
Lack of social and spiritual support
Belief in several Myths regarding pandemics
Fear of contracting the infection
Health care worker's needs
Stress, exhaustion and insomnia due to long working hours
Fear of getting infection
Fear of death
Separation from family causes depression
Lack of resources including personal protective equipment
Inadequate manpower trained in palliative care

EOLC: End of life care

Barriers for Providing Palliative Care in Cancer Patients

The barriers of providing a holistic care to the cancer patients during a pandemic encompasses three levels: patient, caregiver, and health system itself [Table 2].

Patient

Weighing the balance between infection prevention and decreasing the need of social isolation is a real challenge for cancer patients. Social distancing should be practiced in place of social isolation in these patients.[33] As lack of social support is anticipated during the period of lockdown, there should be timely discussion regarding planning for help among the peer group. Increasing social support can also improve the chance of access to systemic therapies and in hospital services.[34] The patient and family members should be thoroughly educated about infection control strategies to decrease the risk of infection. Telemedicine is a viable option for managing their symptoms and psychological issues without increasing further risk of infection.[35]

Caregiver

During the pandemic, family-centered care is becoming the popular model for patient care.[36] Family members of patients also face three types of barriers while caring their patients during pandemic.[37] These are social distancing and related health hazards,[38] a lack of social support system, and economic pressure due to loss of jobs. To minimize the effects of social distancing, some relaxation for physical presence of family members at bedside with adequate precautions can be allowed to a pediatric patient or end of life care (EOLC) patients.[36] Caregivers should be involved in early discussion of care of goals with the patients and advanced care planning.[36,39] Difficulty in communications with caregivers can be overcome by compassionate conversations and reassuring them.[39,40] Telemedicine capacity should be strengthened with active participation of the family members along with patients and

Table 2: Barriers to provide palliative care services to cancer patients during pandemic

Factors	Barriers
Patient	Inadequate social support
	Lack of advanced care planning
	Inadequate information
	Fear of unknown disease
	Social distancing leads to difficulty in accessing family support for psychological, social and physical symptoms management
	Poor peer support
	Limited visitor entry at home and hospices makes it difficult to maintain the integrity of family centered care
	Difficulty in EOLC communication and shared decision-making regarding advanced care planning due to physical distancing
	Difficult communication due to less face to face contact
Caregiver	Social distancing augments the feeling of loneliness, anxiety, and stress
	Limited access to telehealth due to lack of expertise in technology
	Economic stress due to loss of job
	Limited access to bereavement services
Health care system (45)	Inadequate palliative care resources due to diversion for care of the large number of infected persons
	Quarantine of health care workers following an exposure also lead to shortage of workforce
	Ethical dilemmas in triaging resources
	Difficulty of access to opioids due to strict laws
	Psychological stresses, anxiety, fear of infection, insomnia, posttraumatic stress disorder among health care
	Lack of personal support system for health care workers
	Difficulty in coordinating among multiple disciplines involved in cancer care
	Lack of adequate standardized protocol for different oncological treatment
	Lack of adequate hospices, especially in developing countries
	Lack of community based health care workers during pandemic
	Unavailability of good network at remote areas for accessing teleconsultation

EOLC: End of life care

physicians for shared decision-making and care.[41,42] One needs to consider the fact that all caregivers may not be well equipped for videoconferencing and thus a simple teleconsultation via phone may be the only option for them.[36] During pandemic, the caregivers often face the grief of losing loved ones. The limited access and resources hampers appropriate bereavement services to them. Proper communication, early recognition of stressors during EOLC, and developing personalized care plans for them can be essentially helpful for them.[43]

Health-care system

The health-care system has also undergone a lot of modifications in their practices due to the strict impositions of lockdown. The limitations on movement, sealing of borders caused lack of availability of essential drugs, especially opioids.[44] Telemedicine services with video calls for the prescription of opioids can be a solution to this.[45] The demand of acute palliative services for nonmalignant patients during pandemic rises sharply, diverting the resources for them.[46] In addition to this, health-care workers often need to self-isolate them following an exposure, which decreases the manpower to work.[47] To manage the huge number of referrals, hospitals, hospices, and community-based care organizations should be well trained and well equipped.[31,48] The ethical dilemma for allocating resources is another valid concern.[49-51] Effective triaging systems should be established for careful rationing of palliative care resources for patients. It is important to take care of the service providers too. Long working hours and risk of accidental exposure may cause more stress and burnout symptoms among cancer service providers.[52] Thus, their well-being should be considered and integrated during making a policy for hospital preparedness.[53]

Solutions for the Needs

To maintain the quality palliative care services for cancer patients, we need to be prepared to meet the increased needs. Resource limitation and personnel mobility restrictions are major barriers for that purpose. Hence, we need to formulate a "pandemic plan" to overcome these barriers. Developing a triaging system to allocate the resources effectively, protocol-based symptoms management, and incorporation of telemedicine is the key components of such plan. The objectives and principles of such a "pandemic plan" are minimizing the risk of infection with providing quality of life as much as possible.

Preparedness of palliative care: Preparing a "Pandemic Plan"

In view of oversaturation of the health-care system and limited resources, formulation of a pandemic plan to maintain continuity of palliative care services and meet the increased needs of cancer patients is of utmost importance. The "4S" model for pandemic preparedness was proposed by Downar *et al*.[54] during the influenza epidemic in 2010. There is an expected surge of requirement of acute palliative care services and resources for noncancer patients during a pandemic.[46] To maintain the equity of services to the cancer patients, we need to categorically prepare our palliative care unit.

The preparedness should focus on the following domains of palliative care resources:

Stuff

Build up the reserve for essential medications and equipment for managing common symptoms and palliative emergencies for cancer patients, e.g., opioids, haloperidol, midazolam, paracetamol, steroids, oxygen, infusion pumps, subcutaneous cannula, etc., Adequate supply of personal protective equipment (PPE) should be arranged for the health-care workers.

Staff

Due to deployment of staff in the frontline, we need to anticipate a decrease in manpower and reorganize the unit accordingly. Specialist palliative care services may not always be available for the cancer patients during a pandemic. Hence, all potential health-care workers who can be trained for palliative care services, including oncologists, nursing staffs, community health workers should be identified at earliest and trained for symptoms assessment, triaging and advanced care planning. Allied health-care workers, e.g., spiritual or social workers should also be identified to provide psychosocial support for the cancer patients.

Space

We need to accommodate a large number of dying patients. This mandates creation of more spaces and wards with facilities for EOLC. The hospices and community health-care facilities should be used with its maximum capacity and potential. Isolation wards with access to palliative care services should be established in all cancer care hospitals to accommodate infected cancer patients. In addition to these, we need to reorganize our office spaces to maintain social distancing norms.

System

Triaging is the best tool for allocation of resources effectively during a pandemic. There should be a triaging system for in hospital palliative care services, home visits and community-based palliative care, and initiation of EOLC. An easy protocol for symptoms management should be developed for cancer patients. This will ease the job of training of physicians and other health care workers for providing community-based services. Patients should be educated with flyers mentioning DO's and Don'ts for infection control. Building up a system of telemedicine is the need of the hour. It can be used for symptoms management, psychological support, educating family patients, and health-care workers. Last but not the least, a flexible appropriate system for death rituals and bereavement support should be established.

Skills of communication

Communication with a dying patient is a skill indeed. During a pandemic, difficult access to the patients, isolation, and disconnectedness from family make it more challenging. Educating the staff for skills of communication at the end of life should be a priority. Acknowledging, listening with compassion, and repeated reassurance to patients and relatives are the key of such communication skills. New technological supports, e.g., use of smartphones for video calling, are of great adjuncts to develop the communication system.

Self

Health-care workers undergo tremendous physical and mental stress during a pandemic. The disrupted work schedule, separation from family, seeing patients dying daily, and fear of infection make them really vulnerable. Peer support groups should be established to take care of each other. They should be connected with family over phones. Team leaders should learn how to help the members in taking morally challenging decisions and keep them motivated.

Considerations while developing standardized protocols for palliative care and symptoms management

Due to limited resources, several restrictions on movement and social distancing, managing all cancer patients' needs by specialist palliative care teams may be out of our capacity. Every specialist palliative care centers need to coordinate and involve other primary and secondary level health-care systems of their regions for providing a quality palliative care for all cancer patients when they are in need. To enable this, it is important to develop an easy standardized protocol for common symptoms management of cancer patients.[55] It should also include management of common symptoms due to COVID-19 infection, e.g., fever, breathlessness, cough, respiratory secretions, and delirium [Table 3].

There are some special considerations and controversies for cancer patients during symptoms management amidst COVID-19 pandemic. Nonsteroidal anti-inflammatory drugs (NSAIDs) are one of the most common drugs for management of cancer pain, as proposed by the WHO.[56] However, there are some controversies regarding its use in COVID-19 infection. Use of indomethacin increases the express of angiotensin converting enzymes-2 and thus can facilitate COVID-19 infection.[57] In contrast to this, in a study evaluating indomethacin in gout and rheumatoid arthritis patients, it was found to have antiviral activity both *in vivo* and *in vitro* against human novel coronavirus.[58]

Similar controversy exists for the use of steroids in these infected patients. In most of the trials, it showed a positive impact due to their immunomodulatory effect.[59,60] But, the matter of concern is the effect of steroids on viral replication and associated side effects. Prolonged administration of steroids in the second or 3rd week has shown increase in viral load and consequently severity of the disease including ARDS.[61,62]

All the data available for use of steroids or NSAIDs are inadequate to draw any conclusion.[63] Thus; it is suggested to continue the medications in cancer patients for symptoms management, as maintaining quality of life is of primary importance in them.

For patients of analgesics, a dose of at least 1–3 months should be provided with proper documentation and record

Table 3: Protocol for common symptoms management

Symptoms	Nonpharmacological measures	Pharmacological measures
Breatlessnes	Positioning: Head up, sit upright, legs crossed, lean forward Cooling of room Portable fans over face Airy room	Humidified oxygen Mild to moderate: Oral opioids Start with morphine tablet 2.5 mg BD/TDS; slowly up titrate by 2.5-5 mg/day Add anxiolytics: Oral lorazepam 0.5 mg, increase 0.5 mg/day maximum till 4 mg/day Severe: Start parenteral opioids Injection Morphine 2.5-5 mg SC Q4H Injection Midazolam 2.5 mg SC Q4H
Cough	Maintain cough hygiene: Cover mouth and nose, dispose tissue properly, wash hands with soap water or alcohol based hand rub Humidify room air Plenty of oral liquid intakes Honey and lemon in warm water Head elevation Quit smoking	Syrup Linctus (Codeine Phosphate) 5-10 mg 6th hourly; can be increased up to 30-60 mg 6th hourly Tab morphine 2.5 mg SOS Severe/End of life: Injection Morphine 2.5-5 mg SC Q4H
Respiratory secretions	Position: Lateral recumbent, with slightly head up	Injection Glycopyrrolate 0.2 mg Q8H, can be increased up to 1.4 mg/24 h. A continuous IV or SC infusion can also be considered in severe cases
Pain	Plan activities to decrease movement related pain Stay connected with family in isolation with Telecommunication Avoid all news than can cause panic	For Mild cases: Oral paracetamol, maximum 4 g/day in four divided doses Moderate: Start Tab Morphine 5 mg Q4H and 5 mg for breakthrough pain. Dose can be titrated as a 50% increment daily Severe: Injection Morphine 2.5-5 mg SC Q4H/start with 0.5 mg/h IV infusion; slowly up titrate in 0.5 mg/h increments Adjuvants: Avoid NSAIDs for mild or moderate pain. Can be used in severe pain or EOLC Add Gabapentin for neuropathic/mixed pain. Start with 300 mg HS, increase 300 mg/day, maximum up to 2700-3600 mg/day
Fever	Cooling with cold sponges Maintain hydration	Tab Paracetamol 500-1 g 6-8 hourly, maximum 4 g/day. IV doses can be used in high grade fever
Delirium	Treat reversible causes Consider involving family, friends and caregivers Keep the room quiet Avoid unnecessary movement of people in the room Shift the bed by the side of window Reorientation techniques and communication	Mild: Tab Haloperidol 0.5 mg HS, titrate to maximum dose of 10-15 mg/day Moderate: Injection Haloperidol 0.5 mg SC/5-10 mg in a day IV infusion Severe: Add Injection Midazolam 10-15 mg in a day continuous SC/IV infusion

IV: Intravenous, SC: Subcutaneous, EOLC: End of life care, NSAIDs: Nonsteroidal anti-inflammatory drugs, HS: hora somni (at the hour of sleep), BD: bis die sumendum (twice daily), TDS: ter die sumendum (thrice in a day), SOS: si opus sit (if there is a need)

keeping. This will minimize unnecessary travel to the hospital and chances of getting the infection. Patients with advanced malignancy should be managed at home as much as possible. A single fractionated radiotherapy should be considered for cord compression or pain.[64,65] For other oncological emergencies, e.g., superior vena cava syndrome, raised intracranial tension due to brain metastasis, tumor bleeding should be considered for short courses of radiotherapy.[66] Patients who require frequent hospital visits for drainage of pleural or ascitic fluids, indwelling long term catheters, e.g., PleurX should be used.[67,68]

Blood transfusion also requires special attention in the pandemic era.[69] Cancer patients, especially the hematological cancers, often require blood transfusion. Due to social isolation, community spread of COVID-19 infection, less frequent organization of blood donation camps, there may be shortage of supply of blood at the blood banks. Thus, a restrictive blood transfusion strategy should be adopted for these patients. Iron, Folic acid, Vitamin B12 or Erythropoietin should be considered early to decrease transfusion requirements of cancer patients.[69-71]

Education of cancer patients and family for prevention of infection

COVID-19 infection is a highly contagious one. Cancers patients are considered to be at high risk of the infection. Thus, a robust infection control strategy has to be applied for them. Social distancing, restricting personnel mobility and hygiene practices are the cornerstone of this strategy. Health care workers are also at high risk of getting the infection.

They should adopt to infection control measures, maintaining good hand hygiene, wear masks and other PPE as mentioned in the interim guidance by WHO.[72,73] Table 4 summarizes the general and special precautions to be taken by cancer patients for effective infection prevention measures. Effective implementation needs educating patients and their family members regarding these measures. Information booklets with images or videos demonstrating hand hygiene steps are effective tools for that purpose. These precautions are to be followed by all cancer patients, but, more robustly and religiously by patients with age >60 years, lung cancers, with comorbidities, history of smoking, history of chemotherapy, immunotherapy, stem cell transplantation or surgery within last 1 month.[14]

Triaging cancer patients for in hospital palliative care and allocation of palliative care resources

In a limited resource setting in the era of pandemic, we need to redefine our hospital admission criteria for palliative care of cancer patients. The idea of this triage is to admit only those patients, who require urgent in hospital palliative intervention.

Table 4: Infection control strategy for cancer patients

General preventive measures (for both patients and family members)
Repeatedly wash with soap water or alcohol based hand rubs
Use of homemade cloth masks or a medical mask, if having respiratory symptoms
Cover nose and mouth with a bent elbow or paper tissue when coughing or sneezing, dispose of the tissue immediately after use, and perform hand hygiene
Don't touch your face, nose, and eyes
Avoid gatherings of people
Don't shake hands
Keep windows and doors open as much as possible to make rooms well ventilated
Don't share objects contaminated with body secretions, e.g., saliva contaminated food items
Special precautions for cancer patients and caregivers
Do's
Do limit the number of visitors at home, allow maximum 2 visitors at a time
Maintain at least 1 meter distance from visitors
Made visitors wash hands with soap water or alcohol based hand rub before entering the house
Make a joint plan with family, friends and neighbors for help if you become unwell
Have the helpline teleconsultation number of your oncological center for emergency help
Try to contact your oncological center before a scheduled visit, postpone if possible with their guidance
Arrange your daily medications and over the counter items (tissue paper, mask, thermometers) for at least one month
Be active, if possible
Don'ts
Don't indulge in social media or electronic media watching, which can create panic
Don't allow visitors with respiratory complaints at home
Don't come in contact with family members having respiratory symptoms
Don't isolate yourself completely from family

This will minimize the risk of infection. The oncological patients can be categorized [Table 5] as high priority (Red), medium priority (Yellow) and low priority (green) for the need of palliative care.[74,75] The high priority patients should receive in hospital palliative care, medium priority patients may be considered for in hospital palliative care after failure of home-based management, whereas low priority patients should be managed at home.[75]

Triaging cancer patients for end of life care

Every patient has the right to die with dignity. EOLC practices ensure a good death for patients. For cancer patients there are several triggers for initiating EOLC plans, e.g.: advanced disease, increased age, failure of curative therapies, a poor palliative performance scale or palliative prognostication index.[76,77]

During the pandemics, our critical care set up and ventilators are overwhelmed with patients. COVID-19 patients often do develop ARDS and thus require ventilation. In this scenario, ventilator triage is the most difficult one, as aptly described by Truog *et al*.[50] Sequential Organ Failure Assessment score is a key tool to predict the severity of organ damage in cancer patients and thus helpful for triaging cancer patients for ICU admission.[78] During the Influenza pandemic, Guest *et al*. laid out a triage plan for ICU admission and ventilation.[79] They predefined some exclusion criteria for ICU care, such as:

- Severe impairment of cognitive functions
- Massive trauma
- Severe grade of heart failure
- Severe chronic liver disease
- Age > 85 years.

There is no data available yet about the impact of COVID 19 infection on the survival of advanced cancer patients. We suggest a potential triage system [Table 6] for EOLC in cancer patients considering the adverse effects of systemic response of COVID infection in advanced cancers. A well planned study is needed to prove the validity and outcome of such triage system. The difficulty in monitoring the patient during EOLC can be mitigated with acquiring telemetry beds.[80,81] It may decrease the requirement of multiple visits by health workers and consumption of PPE.[80] The decision for initiation of EOLC has to be in consensus with primary oncologists treating the patient and family members. Family members can be contacted via telecommunication for this purpose if the patient is in isolation due to infection.[82] In such patients, who are in isolation and away from family, we have to be extremely compassionate to discuss and execute the EOLC.

Home-based palliative care of cancer patients during pandemic: Utility of a two tier triaging system

Community-based and home-based care of terminally ill cancer patients is an essential element of a quality palliative care. But, home visits of cancer patients by the palliative care team is a two edged sword. On the one hand, it is required to maintain the continuity of quality palliative care especially during a

Table 5: Triaging cancer patients for in hospital palliative care and allocation of palliative care resources

High priority	Medium priority	Low priority
Spinal cord compression	Moderate pain (NRS 4-6)	Mild pain (NRS<4)
Impending fracture	Partial response on analgesics	Mild dyspnea
Severe pain (NRS >7/10) of any cause , not manageable at home	Severe increasing dyspnea with known extensive lung metastases	Occasional vomiting
Severe increasing dyspnea (except with known extensive lung metastases)	Postprandial vomiting	Constipation
Malignant bowel obstruction	Hb 7-8 g/dl not symptomatic	Minor bleeding
Uncontrolled vomiting	Increasing anxiety and/or depression	Hb <7 g/dl but terminally ill
Severe headache, seizures, confusion	Asymptomatic cerebral metastases	Jaundice in patient with known extensive liver metastases
Severe active bleeding		Mild arm or bilateral leg swelling
Anemia <7 g/dl with symptoms		Progressive confusion in patient with known extensive brain metastases, liver metastases or advanced renal failure
Acute cholangitis		Mild/moderate anxiety and or depression
Active DVT		Symptomatic cerebral metastases in patients with poor PS or close to end of life
New onset agitated delirium		
Severe depression with suicidal ideation		
Needs specialized palliative care	Needs specialized palliative care	Should be managed at home
Hospital admission for management	First try to manage at home	Provide assistance for management via teleconsultation
	Assistance for management can be provided with teleconsultation. Community based palliative care team should plan for home visits if feasible	Advanced care planning for terminally ill patients
	If home care fails, hospital admission can be considered	

DVT: Deep vein thrombosis, NRS: Numeric rating scale, PS: Performance status, Hb: Hemoglobin

Table 6: Triaging cancer patients for end of life care

Triage code	Cancer status	Severity of infection	Action
Red	Patient with existing advanced care plan	Severe ARDS	Start EOLC
	Predefined exclusion criteria for ICU care[79]	SPO_2<70%	
	Advanced malignancy (stage 4)	SOFA score >11	
	Recurrent disease	SOFA Score 8-11 (for poor PS and advanced malignancy patients with predicted survival <6 weeks)	
	Lung carcinoma		
	Metastatic disease		
	Poor physical performance (PS-4)		
	Predicted survival <6 weeks		
Yellow	Newly diagnosed cancers.	SOFA score 8-11	Consider for EOLC
	Predicted survival >6 months		Start advanced care planning
Green	Cancer survivors	SOFA score <8	Conventional management

PS: Performance status, EOLC: End of life care, SOFA: Sequential organ failure assessment, ARDS: Acute respiratory distress syndrome, ICU: Intensive care unit

pandemic when there are several restrictions to travel and access to in hospital health services. On the other hand, it increases the chance of infection in both patient and health-care workers. To decrease this problem, a "Double Triage" model has been proposed by members of Tuscany Tumor Association in Italy in view of COVID-19 pandemic.[83] It involves two tiers.

First triage

It is a telephone-based survey. Patients are asked if the patient or any family member has any of the following symptoms in the last 48 h: fever, breathlessness or cough; whether the home belongs to an outbreak area; whether patient or family members have any history of direct contact with known or suspected COVID-19 patients. The patients who are found positive for this telescreening are referred to designated health care facilities for COVID-19 screening.

Second triage

The patients who are found negative in the first triage undergo a telephonic assessment for symptoms severity, symptoms burden and expected life expectancy with PERSONS score[84,85] and Palliative Prognostic Score.[36] Symptoms severity was classified as uncontrolled (any item of PERSONS score has a numeric rating scale [NRS] >7); moderate (any item in PERSON score NRS 4–6) and Mild (any item PERSONS score NRS < 4). Based on these scoring systems, they created a triage system [Table 7] and planned the frequency of home visits.

Scope of hospices during pandemic

Hospices are the integral part of the quality palliative care system for cancer patients. Rapidly deteriorating respiratory symptoms in the terminal patients may increase hospice referral rate.[86] Potential of these hospices are tremendous in context of

Table 7: Triaging for frequency of home based palliative care of cancer patients during pandemic

Triage code	Symptoms severity (as defined by person score)	Palliative prognostic score	Frequency of home visits
Red	Severe symptoms	C	Every day
Yellow	Moderate symptoms	A-B	2 days in a week
Green	Mild symptoms	A-B	Once in a week

such an overwhelmed system. They have potential to respond rapidly and flexibly in response to the pandemic.[31,48] They can be used as a setting for symptoms management and EOLC for infected cancer patients, who need isolation. The preparedness of hospices essentially should follow the "4S" model, which has been previously described. Protocol-based symptoms management, providing psychological support, providing bereavement services and providing assistance for telemedicine setup are some of the major potential contributions of the hospices during epidemic.[48] One major problem for the hospices are lack of funds. Most of the fundraising events for the hospices stand cancelled during the epidemic. Thus, the government needs to find out all the available hospice services and integrate their services with the health care system during pandemic preparedness.

Scope of telemedicine

Telemedicine has already been a part of routine palliative care for cancer patients in both urban and rural areas.[87] But, during the pandemic the importance has increased several folds.[88,89] It not only assists to manage patients symptomatically, also helps for patient assessment, triaging and providing psychological and social support for both outpatients and in patients.[90-93] This ensures social distancing, decreases unnecessary hospital visits and thus decreases chance of infection to both patients and health care workers. Additionally it also helps to preserve the valuable health resources.[91] Use of advanced technology and audio visual medium in smart phones or computers has made the process more dynamic. The setup needs consideration for both the patient and physician.[92] Every institute should choose one or two standard electronic platforms for telemedicine consultation, which preserves the confidentiality and safety of data.[94] Patients should be informed and trained for the telemedicine platform use during their hospital visits to avoid chaos during the actual time of emergency. One key contact person should be identified for technological liaison for the family or patient. The hospital set up for telemedicine should be a quiet and well-lit place with good internet connectivity.[92] Physicians from many specialties can join together for an integrated decision-making for both outdoor and in patients.[95,96] Long waiting list for a telemedicine appointment, technological glitches and a variable technological literacy of patients are some of inevitable drawbacks of telemedicine.[92] Patience is the only key solution to these unavoidable problems.

Conclusion

COVID-19 pandemic has caused an impact on every sector of the health care delivery system including palliative care for cancer patients. As cancer patients are at high risk of getting infected, they need strict social distancing and infection control measures. Nationwide lockdown imposes additional difficulty to access routine oncological services, opioids, EOLC and psychological supports by palliative care physicians. Health-care workers including community-based palliative care service providers are also at risk of infection and psychological distress. We need to prepare the palliative care team to overcome these barriers with proper strategy. This includes stockpiling adequate drugs, instruments, resources; developing standard protocols for symptoms management; educating the patient and family; shift the care model to a family centric one; building up communication skills and triaging priority patients for in hospital and community-based palliative care services. Strengthening the hospice care services and building up the multidisciplinary telemedicine service capacity are some of other essential keys to maintain the continuity of holistic service to cancer patients during pandemic.

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Conflicts of interest

There are no conflicts of interest.

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