

Dilemma and Strategies Amidst Nationwide Covid-19 Lockdown for Lung Cancer Management

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The whole world is affected due to pandemic caused by SARS Cov 2. Imposition of nationwide lockdown to curb viral transmission has impacted various healthcare services including cancer care services. Most important concern is the risk of exposure to Severe Acute Respiratory Syndrome Coronavirus 2 (SARS CoV 2) and its effect on patients with cancer. Alteration in lung cancer care services including number of chemotherapy sessions, dosages of chemotherapy, number of radiotherapy fractions and duration, about maintenance therapy and immunotherapy etc., could maintain the continuity of care without affecting quality of cancer care. In this review, we have discussed challenges and counter measures for lung cancer management amidst COVID-19 pandemic.

Introduction

The new pandemic due to Severe Acute Respiratory Syndrome Coronavirus 2 (SARS CoV 2) has impacted our lives in various ways. In addition, the lockdown has halted most of the healthcare services including cancer care. Healthcare service is primarily focussing on managing the crisis of COVID-19 pandemic rather than routine care. Considering the risk to patients and healthcare professionals, many cancer societies have advised to defer surgeries for tracheobronchial malignancies if alternative treatment is available as these surgeries carry higher risk of post operative morbidity and mortality in presence of COVID infection [1]. But still, patient expects answers to many of questions related to cancer care including effects of deferred or missed chemo-radiotherapy amid lockdown, need for follow up PET CT scan, laboratory investigations etc. At present, there is no universal and all time answer to these questions.

The cancer patients are susceptible to viral infections due to immunocompromised state. Infection like Influenza increases the risk of poor outcome in cancer patients [2]. Lymphopenia/Neutropenia can aggravate the risk in those who are on chemotherapy. Study from Wuhan reported 1% of patients with COVID-19 pneumonia had concomitant cancer, which was significant as compared to cancer incidences in the Chinese population [3]. In addition, transfer to the critical care unit required in 39% of cancer patients due to rapid worsening of illness (13 vs 43 days to worsening). Chemotherapy or surgery in last 1 month was also a significant risk factor ($P=0.0026$, OR 5.34) [3].

Most of the lung cancer patients are active smokers, older with concurrent respiratory problems like COPD, Asthma, ILD etc., and majority of them are on chronic inhaled or oral steroid/immunosuppressant therapies. This increases the risk for poor outcomes in case of COVID-19 Pneumonia. During active cancer care, patients need to visit hospital frequently, to stay in hospital before and after surgery, for chemoradiotherapy, laboratory investigations and imaging. Frequent hospital visits are a potential risk factor for exposure to infection [4-5]. Therefore, an alternative policy is required in order to limit hospital visits for follow-up by strengthening the telemedicine facilities to avoid unnecessary exposure.

Challenges in Lung Cancer Care

Current challenge is to balance the risk of admission to the hospital with the possible risk of a corona virus exposure, which could have emotional impact on patients and medical staffs also [6]. Chemotherapy sessions, radiotherapy, palliative care, follow ups etc. have been significantly affected. Even diagnosis is delayed as bronchoscopy and other interventional procedure have been deferred. In addition, nationwide lockdown has restricted access to transport and flight services. Patients in rural parts are suffering significantly. Effect of all this on outcome of disease is creating anxiety and distress among patients. Limited availability of intensive care facilities because of COVID-19 patient's needs has further put strain on care of such patients even if aggressive curative treatment in the form of surgical resection is required.

Psychological Impact

Knowledge of risk of exposure to virus and its effects deeply affects cancer patients. This includes fear of current healthcare functional status which could affect optimal treatment of cancer. Anxiety and distress are higher among cancer patients. Cancer patients can feel isolated and guilty if their family helps them with daily living activities, due to which social distancing norms are difficult to maintain [3-6]. Quarantine during pandemic, can cause depression, irritability and anxiety, if imposed for long periods [3-6]. Staying at home gives feeling of loneliness which could have negative impact on cancer patients [7-8]. The outcome is also affected due to uncertainty related to COVID-19 and cancer is also adding to emotional distress [9-10-11].

Altering Treatments and Guidelines

Several Lung cancer associations have issued guidelines on lung cancer care during the pandemic which include therapeutic intent and treatment benefits, considering the patient's age, comorbidities, and patient preferences [12]. Some alteration in cancer care practice can limit the exposure to infection [13].

For small cell variant of lung cancer, 4 cycles of cisplatin and etoposide chemotherapy can be preferred instead of 6 cycles in stages I-III. Replacement of etoposide from intravenous to oral form helps limit hospital visit. Possible effect on bioavailability with altered pharmacodynamics should be taken in account [14-15]. In stage I, surgical resection of the tumor, followed by chemotherapy can be considered. Radiotherapy with accelerated hyperfractionation (two times a day) can limit the hospital visits. For stage IV patients, in selected cases, palliative chemotherapy with platinum and etoposide can be considered along with other supportive care. For febrile neutropenic patients, dose reduction in chemotherapy can be considered with supplemental GM-CSF therapy.

Immune check point inhibitor (durvalumab/atezolizumab) can be omitted, considering tri-weekly clinic visit during maintenance phase [16].

In non-small cell variant of lung cancer, for small tumors having stable growth, surgery can be delayed with follow up Computed Tomography (CT) of chest. Patients with restricted pulmonary reserve or multiple comorbidities, stereotactic radiotherapy is an alternative. Minimal invasive approaches are preferred to limit hospital stay. Post-Surgery chemotherapy can lead to 5% increment in 5-year survival in stage II, III and in some cases of stage IB. Older patients with multiple comorbidities having poor performance score (≥ 2); risk of complications from adjuvant chemotherapy should be taken in consideration. Adjuvant chemotherapy can be omitted or stopped early preferably after 3 cycles [13]. Cisplatin and docetaxel regimen reduces frequent hospital admission and stay, as compared to vinorelbine or gemcitabine which require 8th day administration but having same efficacy. In non-squamous non-small cell variant, cisplatin and pemetrexed regimen is an efficacious alternative limiting the hospital visits [17-18]. For positive EGFR mutation, oral EGFR-TKI for 1 year on daily basis is preferred alternative. Small tumors having stable growth, curative radiotherapy can be delayed with follow up CT chest [13]. Durvalumab at every 4 weeks with a dose of 20 mg/kg is equally efficacious to every 2 weeks with dose of 10 mg/kg, limiting the hospital visits [14-19]. Asymptomatic patients having indolent disease, chemotherapy or immunotherapy could be delayed [14]. Chemotherapy, TKI or immune checkpoint inhibitors can cause pneumonitis mimicking COVID-19 pneumonia or interstitial lung disease. This should be addressed aggressively with appropriate investigations like chest CT and proper treatment. Three weekly chemotherapy is preferred over weekly regimens for docetaxel to reduce hospital visits [15]. Palliative chemotherapy can be restricted to 4 cycles. Maintenance therapy with pemetrexed can be omitted. Pembrolizumab as a first line monotherapy is preferred in those having PD-L1 more than 50% [13]. Nivolumab at every 4 weeks with dose of 480 mg is preferred which is equally efficacious to 240 mg every 2 weeks [13-20]. Leading edge care practice should be discussed with all patients to avoid hospital admission [14]. Do Not Resuscitate' stance should be discussed for all stage 4 patients who are not amenable for chemoradiotherapy. Self-administration of Enoxaparin or Denosumab should be taught to the patients [14].

For malignant pleural mesothelioma variant, decortication or extended pleura removal followed by chemotherapy can be considered in medically fit early stage disease. In cases with having performance score of 0-1, 4 cycles of platinum and pemetrexed chemotherapy are preferred. Extra care should be taken while considering palliative chemotherapy in older patients with multiple comorbidities and poor performance score (≥ 2). In asymptomatic patients, chemo radio therapy can be delayed. An indwelling pleural catheter is preferred in recurrent malignant pleural effusion [13].

Patient Needs during Crisis

Ensuring safety of the patients with effective care is most important. The stress, anxiety and fear of disease progression due to treatment interruption are constant cause of psychological distress in lung cancer patients. Counseling by treating physician and measures like being physically active, taking healthy and balanced diet and maintaining good sleep can alleviate the distressing symptoms. Other important measures include peaceful mind strategies, social connectivity and avoiding misleading information. Virtual meetings of societies and cancer support groups are other sources of encouragement and mental support during pandemic [21].

Communication Services during Crisis

In current pandemic situation, efficient and meaningful communication between physician and Cancer patients is very important. Telemedicine is an efficient way of communication with positive reviews [22-23]. Avoidance of nonessential admissions to hospital can be achieved by interacting with patients via telemedicine and giving them advices on different aspects of cancer care [24]. Various hospitals and cancer institute's website have provided regular updated information on

COVID-19. A social media platform is another way to reach out to cancer patients. Online cancer support group experienced higher self efficacy about health, functional and emotional well-being with positive impact on psychosocial health outcomes [25]. Tweet chats have reported to decrease anxiety among cancer patients [26]. Virtual tools, like webinars, videoconferencing etc. are also helpful to provide support during pandemic. The need of virtual care during the pandemic through further research will help to understand its effect on cancer care.

In conclusion, in India, Nationwide lockdown to control the transmission of coronavirus infection have significantly impacted cancer care. In the absence of treatment, tumor growth with or without spread and development of resistance to anti-cancer drugs, can add to the complications including death. It is necessary to create a policy for cancer care during COVID-19 crisis with strategies to limit hospital visits including stay in hospital and to promote online care. There is a need to enhance the communication with patients and caregivers through digital platforms, to empower them [27]. Palliative and supportive care for advanced cancer patients during the outbreak should be enhanced by schematically identifying the critical areas of needs, available resources in terms of infrastructure and manpower in resource-constrained settings.

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