

Catering the Needs of Cancer Contemporary to this Contagious Corona Catastrophe: Institution Based Changes in Cancer Management and Protection Procedures

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ABSTRACT

The COVID-19 global pandemic has drastically affected the health care facility worldwide, posing unprecedented challenges in front of the caregivers. All hospitals need adopt measures to protect patients and health professionals and to safely triage patients (according to country/regional directives) for identifying those infected with coronavirus. As very few guidelines are available for care of cancer patients during COVID times, institutes have had to make their own strategies, based on their own expertise keeping in mind local directives and their effect on available resources and routine processes to offer best possible care. In this article, we have discussed in-house protocols for modification and prioritization of radical and palliative multimodality treatment of cancer patients along with our infection control measures in accordance with national and local guidelines during COVID emergency to stay safe and health.

Also, the current study aims to modify cancer treatment and care during the COVID-19 pandemic adhering and fulfilling all protective measures.

Citation: Sachan A, Gupta S, Ghosh A, Singh N. Catering the Needs of Cancer Contemporary to this Contagious Corona Catastrophe: Institution Based Changes in Cancer Management and Protection Procedures. *J Biomed Phys Eng.* 2021;11(3):403-406. doi: 10.31661/jbpe.v0i0.2011-1228.

Keywords

Radiotherapy; Covid-19; Cancer; Treatment Modification; Delivery of Health Care

Introduction

Radiotherapy is delivered in multiple fractions with the overall treatment time ranging from 2 weeks to 7 weeks, along with chemotherapy as per indication. It has been well established that delay in radiotherapy treatment time may result in inferior survival and poor disease outcome, despite of adequate dosing and efficient dose delivery [1]. Thus, patients are compelled to stay near hospital premises for long periods of time. Protection of immunosuppressed patients from deadly novel corona virus infection without treatment interruption is a big challenge to the physician. Moreover, there is great risk of infection spreading to the staff members who are in direct contact with the patients before these patients are recognized positive.

Radiotherapy work load has also increased during this crises period due to delay of an elective surgeries. Furthermore, as various hospital staffs are continuously assigned for care of COVID patients, and the other health workers have either come in contact with COVID patients or themselves fallen ill/quarantined, there had been a shortage of personnel working within the radiotherapy department. Thus, to take care of these concerns, there has to be modification and prioritization in radiotherapy practice aimed in benefitting the patients in terms of saving life and providing symptomatic

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Received: 3 December 2020
Accepted: 18 January 2021

relief [Table1].

Material and Methods

In house modification and prioritization of cancer treatment

During this pandemic, in cancer centres in COVID affected regions around the world, non-surgical treatment approaches like chemo radiation constitute a better treatment option to be explored, keeping the option of salvage surgery for later, if required, in cancers of the head and neck region, cervix, oesophagus, lung, prostate and rectum as well as retroperitoneal and Ewing's sarcomas [2].

Radiotherapy is being deferred in elderly patients with low-risk breast cancer and in early-stage Hodgkin's lymphoma [3].

Various studies have suggested to consider definitive chemo radiotherapy, rather than neo-adjuvant chemo radiation followed by surgery, as the most appropriate curative option for both esophageal adenocarcinoma and squamous cell carcinoma [4].

In a scenario of limited postoperative ICU capacities, for example for patients with retroperitoneal sarcoma, preoperative radiotherapy or chemotherapy was considered. It was also

recommended not to delay adjuvant radiation therapy for soft tissue sarcoma [5].

Short course radiotherapy and avoidance of temozolamide can be considered in IDH-wild type O6-methylguanine-DNA methyltransferase [MGMT] unmethylated glioma tumours [6]. This has increased the work load in radiotherapy departments.

Hypo fractionated radiotherapy may be helpful in meeting such crises mainly in breast and larynx cancers without the use of concomitant chemotherapy. However, altered radiotherapy dosing schedule has to be evaluated for benefit over toxicity.

Regarding early breast cancer patients, Curi-gliano and colleagues recommended moderately or extremely hypo fractionated radiotherapy regimens. Postoperative radiotherapy in this group may be delayed and omitted (for elderly patients) to balance the morbidity from exposure to COVID-19 [7].

Patients with advanced diseases or multiple comorbidities with very low-life expectancy may need a combine tumour board discussion with respect to risk-benefit scenario of starting cancer directed treatment during a pandemic, known to increase morbidity of immunocompromised patients. Such patients may benefit

Table 1: Common and specific measures taken during the Covid 19 pandemic

Hospital level	Outpatient Care Level	Day Care Treatment level	Radiotherapy Department level
<ul style="list-style-type: none"> •Formulation of University Covid task force and implementation of interdepartmental strategies and protocol. •Training HCWs and distribution of PPE •Screening areas where patients are triaged. •Transfer of Covid19 positive patients to isolation ward in well equipped ambulance following Covid protocol. •Establishment of dedicated Covid care centre. •Conduction of multidisciplinary meetings to decide upon effective treatment protocol so as to minimize patient's hospital visits. •Availability of video and tele consultation facilities. •Regular sanitization 	<ul style="list-style-type: none"> •Clinical assessment of follow-up patients, defer radiological evaluation if possible. •Oral and subcutaneous route of drug administration was preferred to reduce hospitalization and number of visits. •Home services delivered for supportive care through tele consultation, telemedicine or liaisoning with local physician. •Social distancing, mandating mask use in waiting rooms and OPD 	<ul style="list-style-type: none"> •Minimize intravenous supportive treatment. •Intravenous single day monotherapy drug administration was preferred over 3 day or 5 day regimen. 	<ul style="list-style-type: none"> •Increase capacity for chemo radiation as a replacement for surgery. •Consider hypo fractionated radiotherapy treatment regimes where possible. •Avoid concurrent chemotherapy in patients > 60 years of age. •Use less toxic, single agent and oral chemotherapy regimens. •Defer adjuvant radiation in elderly early breast cancer patients. •Oral hormonal treatment preferred for hormone receptor positive early breast cancer patients. •Moderate or extremely hypo fractionated treatment schedules preferred for prostate cancer. •Avoid brachytherapy in selected prostate cancer patients

HCWs: Health care workers, PPE: Personal protective equipment, OPD: Out patient department

from home based supportive / palliative care services [8]. Furthermore all cancer patients need a personalized plan of management, identifying those who benefit maximally from aggressive treatment opposed to those whose treatment can be delayed or palliated.

Palliative care prioritization of oncological emergencies is important. Encouraging tele consultation, and telemedicine or liaisoning with local physician to provide non-emergent care would be beneficial for both patients and hospitals.

Radiotherapy- even more important during this pandemic

We hereby present the safety measures and protection procedures adopted by our Department of Radiotherapy, King George's Medical University, and Luck now, India in this Covid-19 era, helping us to efficiently carry out radiotherapy treatment delivery procedures while ensuring safety the manpower involved like the radiation oncologist, the medical physicist, technologist, dosimetrist, and other health care workers.

Results

Radiotherapy Planning

Patients are simulated after a recent negative COVID 19 RT PCR report and screening based on temperature and history. All patients and staff followed hand-hygiene practices and wore face masks during simulation procedures.

Slot assortment, treatment execution and daily waiting time

Patients are advised to come 10 min before the allocated treatment time for minimizing crowding in the waiting area, and to find accommodation near hospital for avoiding travelling and crowds. During lockdown, travel pass were made available to the patients; thus, they could come to the hospital for the treatment. Wall posters and stickers showing safety measures followed to reduce transmission has been displayed in all areas frequented by patients like waiting rooms, wards, billing counters. Temperature of the patient's body patient is checked before entering

the treatment room. Adequate hand hygiene is followed by all patients and technicians, who are also provided with face masks, face shields and gloves. Duty roster of staff was modified to reduce the number of personnel working at a time. Every day, the number of new patients for the treatment is limited not to overburden the system, who with open mucosal surface or tracheostomy or Ryles tube are finally treated, while covering the tracheostomy tube with cotton gauge during treatment.

Weekly follow-up

Weekly follow-up of patients on radiotherapy is done by the treating doctor simultaneously screening for COVID symptoms. All patients are required to undergo repeat RT PCR testing for COVID 19 every 2 weeks, done at our hospital free of cost. During the treatment, any person with COVID-positive is isolated and contacts quarantined as per hospital policy.

Concurrent chemotherapy

Patients requiring concurrent chemotherapy / admission need to provide recent negative test report of the patient and one attendant. Concurrent intravenous chemotherapy was avoided in patients over 60 years and oral substitutes were prescribed where possible. Entry into wards is restricted.

Area disinfection

After completion of the treatment of each patient, every area that is possibly touched by the patient such as couch, stepping stools, immobilization and position devices are wiped off with 70% ethanol solution and swabs are disposed properly. This work is ensured by the technologist before taking up next patients for treatment, and the person performing this work wears the proper protective gear. The entire treatment room, the console, the waiting area, the corridors, the floor are disinfected with chlorine solution daily and also at the end of the day before closure of the unit.

Discussion

Every patient undergone the treatment for

cancer requires multiple outpatient department (OPD) visits, the admission for surgical procedures and chemotherapy sessions, radiation planning and treatment appointments, laboratory tests and radiographic imaging studies. In view of increased vulnerability of cancer patients to infections like COVID-19 due to their immunocompromised state and multiple comorbidities adversely affecting outcomes of standard cancer directed treatment, the advantage of intervention must be weighed against the risk for unintended COVID-19 exposure in the health care system. As the coronavirus goes on mutating and causing multiple surges in infection rates in several countries, all departmental protocols need to be updated constantly to keep up with the same [9]. Prioritizing patients based on the severity of symptoms, aggressive biology of tumour, the performance status and estimating gain in quality of life or overall survival parameters by any intervention as per clinician's judgement may help extract the best benefit from limited resources [10]. Decisions about withholding / continuing / modifying cancer directed treatment in cancer patients infected with coronavirus need to be studied [11].

Conclusion

COVID-19 is a highly contagious respiratory illness with high infectivity rate, and low mortality rate as compared to previous respiratory epidemics of SARS-CoV and MERS. However its impact on the mortality rate amongst the chronically ill patients is quite substantial.

Conflict of Interest

None

References

- Machtay M, Hsu C, Komaki R, et al. Effect of overall treatment time on outcomes after concurrent chemoradiation for locally advanced non-small-cell lung carcinoma: Analysis of the Radiation Therapy Oncology Group (RTOG) experience. *Int J Radiat Oncol Biol Phys.* 2005;**63**(3):667-71. doi: 10.1016/j.ijrobp.2005.03.037. PubMed PMID: 15927409.
- Thomson DJ, Palma D, Guckenberger M, et al. Practice recommendations for risk-adapted head and neck cancer radiation therapy during the COVID-19 pandemic: An ASTRO-ESTRO consensus statement. *Int J Radiat Oncol Biol Phys.* 2020;**107**(4):618-27. doi: 10.1016/j.ijrobp.2020.04.016. PubMed PMID: 32302681. PubMed PMCID: PMC7194855.
- Vordermark D. Shift in indications for radiotherapy during the COVID-19 pandemic? A review of organ-specific cancer management recommendations from multidisciplinary and surgical expert groups. *Radiat Oncol.* 2020;**15**:1-4. doi: 10.1186/s13014-020-01579-3. PubMed PMID: 32493443. PubMed PMCID: PMC7267761.
- Jones CM, Hawkins M, Mukherjee S, et al. Considerations for the treatment of oesophageal cancer with radiotherapy during the COVID-19 pandemic. *Clin Oncol (R Coll Radiol).* 2020;**32**(6):354-7. doi: 10.1016/j.clon.2020.04.001. PubMed PMID: 32299723. PubMed PMCID: PMC7144663.
- Penel N, Bonvalot S, Minard V, Orbach D, et al. French Sarcoma Group proposals for management of sarcoma patients during the COVID-19 outbreak. *Ann Oncol.* 2020;**31**(7):965-6. doi: 10.1016/j.annonc.2020.03.308. PubMed PMID: 32278878. PubMed PMCID: PMC7144615.
- Mohile NA, Blakeley JO, Gatson NT, et al. Urgent considerations for the neuro-oncologic treatment of patients with gliomas during the COVID-19 pandemic. *Neuro Oncol.* 2020;**22**(7):912-7. doi: 10.1093/neuonc/noaa090. PubMed PMID: 32277236. PubMed PMCID: PMC7184330.
- Curigliano G, Cardoso MJ, Poortmans P, et al. Recommendations for triage, prioritization and treatment of breast cancer patients during the COVID-19 pandemic. *Breast.* 2020;**52**:8-16. doi: 10.1016/j.breast.2020.04.006. PubMed PMID: 32334323. PubMed PMCID: PMC7162626.
- Kutikov A, Weinberg DS, Edelman MJ, et al. A war on two fronts: cancer care in the time of COVID-19. *Ann Intern Med.* 2020;**172**(11):756-8. doi: 10.7326/M20-1133. PubMed PMID: 32219410. PubMed PMCID: PMC7133056.
- Kamboj M, Hohl T, Vardhana S, et al. MSK COVID-19 VACCINE INTERIM GUIDELINES FOR CANCER PATIENTS. 2021. Available from: <https://www.asco.org/sites/new-www.asco.org/files/content-files/covid-19/2021-MSK-COVID19-VACCINE-GUIDELINES.pdf>.
- European Society for Medical Oncology (ESMO). Cancer Patient Management During the COVID-19 Pandemic. ESMO; 2020. Available from: <https://www.esmo.org/guidelines/cancer-patient-management-during-the-covid-19-pandemic>.
- National Institutes of Health. COVID-19 Treatment Guidelines. NIH; 2020. Available from: <https://www.covid19treatmentguidelines.nih.gov/special-populations/cancer/>.