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Original Research Article

COVID 19 pandemic and cancer treatment: experience at a tertiary care centre

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ABSTRACT

Background: In these era COVID Pandemic patients are missing their chemotherapy due to multiple reasons. This study was undertaken to quantify the exact number of patients who had missed their appointment for chemotherapy.
Methods: All patients who had appointments for chemotherapy from 20th Mar to 20th Apr were included in the study. Details of malignancies, chemotherapy, duration of delay in patients coming for chemotherapy to be recorded.
Results: The total number appointments given for chemotherapy for various malignancies were 301 patients for various malignancies for the duration 20th March to 20th April. The total number of appointments given were 301. Out of the total of 301 patients who had appointment for chemotherapy during this period 131 patients could be given chemotherapy and 170 could not be given chemotherapy. The average delay was of 9 days. The data was distributed into four weeks from 20th March to 20th April. Just before the country wide lock down in first week 20th, 70 patients receiving chemotherapy which drastically reduced in later weeks. Both the cases who could come for chemotherapy and those who could not have been kept under follow up , up to 6 months to reassess their response.
Conclusions: This article has been written to highlight the number of patients who could not receive chemotherapy due to ongoing Pandemic with an intention to follow them up for 6 months. Since this pandemic is here to stay it is very important that formulate the working principle for administering chemotherapy.

Keywords: Chemotherapy, COVID 19, Day care, Pandemic

INTRODUCTION

Novel corona virus is a new pathogen for humans, hence our body does not have any immunity against this disease. It spreads rapidly, infecting almost everyone who comes in its contact. Patients who are on either chemotherapy, immunotherapy, radiation therapy, targeted therapy and even those who have earlier been treated for cancer have reduced immunity against this new virus and are much more vulnerable to contracting infection by Corona Virus Disease 2019 (COVID 19) or Severe Acute Respiratory Infection - Coronavirus-2 (SARS-Cov-2).[1]

This is indeed a very Challenging times for both cancer patients and their treating oncologists. There is lot of concern whether cancer patients should leave their homes to visit the cancer clinic and thereby possibly expose themselves to infection. There are oncologist who feel that by giving chemotherapy we are further reducing the immunity predisposing our patients to the more serious harmful effects of COVID-19. Studies published by

Liang et al, clearly showed that patients with prior history of cancer had higher incidence of severe infections defined by patients requiring ICU admission, mechanical ventilation or death among Chinese patients.[2] Another important question is should we be exposing our healthcare workers to this infection as our cancer patients are more prone to be infected and thus transmitting this infection to our health care workers. About 9% of cases detected in Italy were health care workers and there have many doctors and nurses who have died fighting this corona virus pandemic.

These are genuine concerns, no doubt. But consider the plight of cancer patients who are unable to get their prescribed chemotherapy. Patients are unable to get their chemotherapy due to multiple reasons like country wide lock down, patient scared to come for chemotherapy and there are hospitals which have stopped their day care facilities. Most of the hospital have now diverted their entire resources for fighting COVID infection and temporarily stopped other functioning. It is not only the cancer patients but world-wide the same trend is seen among all Non COVID patients, who are unable to get their appropriate treatment. Whether this approach is justified or not, only time can tell. However, most of the clinicians have now started to realise that perhaps the toll of Non COVID patients who were denied their legitimate treatment is going to be much more than COVID Patients. With this background, this article was written to highlight the number of patients who received and those who could not receive their prescribed chemotherapy at a day care of a tertiary care centre. The data has been calculated from 20th March to 20 Apr. We are calculating the details of number of patients who had their appointments between this period and the number of patients who were able to report to the day care and get their prescribed chemotherapy.

METHODS

Inclusion criteria

All patients who had appointments for chemotherapy from 20th March to 20th April were included in the study.

Exclusion criteria

Patients who had appointments for chemotherapy prior to 20th March or after 20th April

Following data to be recorded

- Date of Appointment for chemotherapy
- Types of malignancies
- Stage of Malignancy
- Questionnaire for the reason for delay
- Questionnaire for any association with COVID 19 infection. (Aarogya setu app; Appendix 1).
- Exact number of patients who received chemo during this period were calculated and number of patients who missed their chemotherapy were recorded.
- Details of duration of delay in patients coming for chemotherapy recorded.
- Follow up the patient for next 6 months to assess their response.

Statistical considerations

Study is expecting to enroll 300 patients for this observational, study.

Statistical analyses

The statistical analysis plan will be developed and finalized before database lock and will describe the participant populations to be included in the analyses, and procedures for accounting for missing, unused, and spurious data. This section is a summary of the planned statistical analyses of the primary and secondary endpoints.

RESULTS

The total number of patients who were given appointments for chemotherapy for various malignancies were 301 patients for various malignancies. There was no appointment given for 22nd March, 29th March, 5th April, 10th April, 12th April and 19th April which were either Sunday or holiday. So the data is of 20th March to 20th April excluding the 6 days were chemotherapy was anyways not planned. So the data is for 24 days.

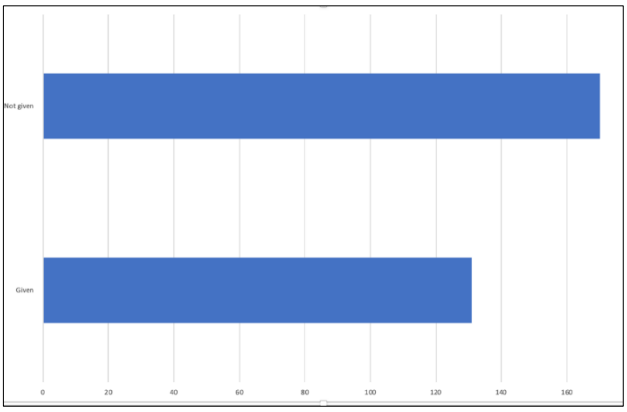

Figure 1: Patients in whom chemotherapy were given and the ones in whom chemotherapy were not given.

Out of the total of 301 patients who had appointment for chemotherapy during this period 131 patients could be given chemotherapy and 170 could not be given chemotherapy (Figure 1). Out of this the maximum number of cases were of Breast cancer. The list of various cancers who were given appointments during this period and the number which actually received chemotherapy has been depicted in (Figure 2).

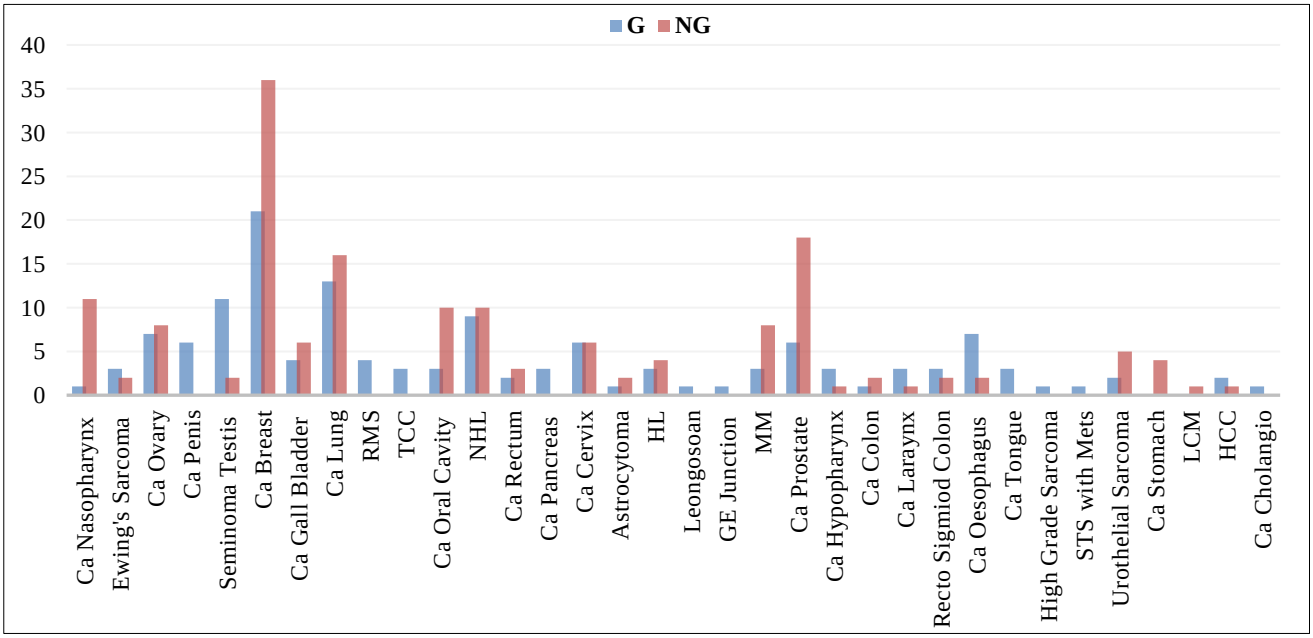

Figure 2: Details of malignancy receiving chemotherapy. G stands for chemotherapy given and NG stands for chemotherapy not given in spite of their appointment.

The average delay among patients who actually received chemotherapy was 9 days. Out of the 131 patients who could actually receive chemotherapy only 83 received chemotherapy on the appointed date. The delay in chemotherapy was recorded in 48 patients. The main reason sighted was non availability of transport due to COVID restrictions. This was cited by 40 of the 48 patients. The other reason cited were inability to con Out of this only 10/48 patients sighted poor PS/ Infection as the cause for delay in chemotherapy (Table 1).

Table 1: Reasons given for delay in chemotherapy.

Reasons	No. of patients
Nationwide lock down	40/48
In ability to contact the hospital	16/48
Fear of COVID Infection	20/48
As advised by the oncophysicians	05/48
Due to infection /poor PS	10/48

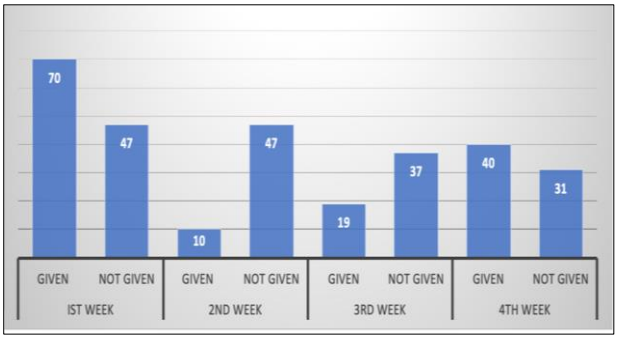

Figure 3: Weekly distribution of patients.

Authors have distributed the data into four weeks from 20th March to 20th April. The effect of country wide lock down / scare among the patients is evident on the decreasing number of patients receiving chemotherapy. Just before the country wide lock down in first week 20th Mar to 27th April authors had 70 (60%) patients receiving chemotherapy which drastically reduced to 10 (17%) patients in 2nd week from 27 March to 3rd April. It started to improve in 3rd week and in 4th week it improved to 40 (56%) patients (Figure 3).

All patients were screened for possible COVID infection on the basis of a questionnaire. These questionnaires were based on the screening questions in Arogya Setu app (Appendix 1).

All patients who received chemotherapy were considered safe as per the questionnaire. COVID infection in the patient who were given chemotherapies.

Both the cases who could come for chemotherapy and those who could not have been kept under follow up , up to 6 months to reassess their response.

DISCUSSION

It is truly a very challenging time for both the patient as well as their onco physicians. The anxiety of progression of disease after withholding chemotherapy in cancer patients versus the fear of getting COVID 19 infection in these vulnerable group of patients has led to a lot of confusion. There are institutions across the world which have stopped administering chemotherapy all together

and there are others which are continuing with chemotherapy. Definitely published data reveals that cancer patients have 3.5 fold times more chances of having a severe infection compared to other general population. On the other side there is enough data to support that if we delay chemotherapy in certain settings there is a definitive inferior outcome. It is already known that there is an increased risk of death of about 16% in case we delay radiotherapy for head and neck cancer patients.[3]

So, both due to non-commitment from Oncologists as well as difficulties in reaching to the day care facility to fear among the cancer patients to leave their homes for chemotherapy have led to a drastic reduction in the number of cases reporting for chemotherapy. This reduction has been worldwide and very soon we will have data from across the globe of the patients who have missed their treatment and the results of the delay.

Its only time which will help us find out whether not taking chemotherapy in this scenario was of benefit or had detrimental outcome. Out of the 301 patients only 131 received chemotherapy amounting for around 40%. Even in curable malignancies like Non Hodgkin lymphoma and Hodgkin Lymphoma almost 50% of patients did not receive chemotherapy on the designated dates. The maximum number of affected patients were from breast cancer out of which 60% were in adjuvant setting. It is already known that delaying adjuvant chemotherapy for breast cancer has been associated with greater mortality (RR 1.08, 95% CI 1.01-1.15 per 4 weeks) and colon cancer (HR 1.14, 95% CI 1.10-1.17 per 4 weeks).[4] The final outcome of delay in our study will be known once authors complete our study after six months. This article was written with an idea of creating a data of patients who had missed their treatment for further analysis later on for outcome analysis.

This data of greater than 50% people not receiving chemotherapy on their appointed day has raised a very pertinent question on the future of cancer patients all over the world. This data is only of 4 weeks and includes patients from one tertiary care centre. It's just the tip of the iceberg.

So, in this present condition authors will have to formulate some working model so as to weigh our pros and cons for patients receiving or not receiving chemotherapy. There has to be a precautionary approach defined by UNESCO "when human activities may lead to morally unacceptable harm that is scientific- ally plausible but uncertain, actions shall be taken to avoid or diminish that harm".[5] An approach which will help our patients and their treating team formulate some guiding principles on which they can work. The final decision has to be shared decision between the patient and the doctor considering the various factors like indication of treatment, risk of continued treatment, earlier response to therapy and the outcome of delayed therapy.[6]

Though there has been a lot of scare among cancer patients and their treating physicians, but one has go get over this and form ways and means to continue with definitive treatment for cancer patients. There are various aspects which needs to be considered like hospital resources / patient preparedness and the ability to pull this procedure with minimal morbidity.

This present scenario is very fluid and there has to be an ongoing prioritisation based on the data produced all over the world so as to follow the principal precept of bioethics of "Primum non nocere" first do no harm.

Cancer patients should be made aware of the potential dangers of taking chemotherapy in the present scenario by giving them handouts / web-based communications. They. Were advised to follow the following guidelines very strictly

- Washing of hands often with soap and water for at least 20 seconds.
- Use hand sanitizer with 60% or more alcohol.
- Avoid touching your eyes, nose, and mouth without washing your hands first.
- Clean and disinfect surfaces often
- Avoid handshakes, hugging, and standing or sitting close to people who are coughing or sneezing.
- Be as healthy as you can. Get plenty of sleep, eat healthy, exercise, and manage your stress.
- Call your doctor right away if any of these happen to you:
    - Fever higher than 100.3 degrees F.
    - Short of breath.
    - Develop a cough, runny nose, or congestion.

Similarly the hospital have also come up with certain policies like reducing chemotherapies for palliative care, where possible using oral chemotherapies, withholding maintenance chemotherapies, low threshold for using growth factors etc.[7] There has to a practical reallocation of hospital resources.[8] In COVID 19 positive patients to discuss proactive palliative and end of life conversations with cancer patients.[9]

CONCLUSION

It is indeed a very difficult time for cancer patients who are trying to cope up with malignancy and for most of them; the coronavirus is an extra concern and worry. Since for all of us such a pandemic has occurred for the first time in the lifetime with no previous guidelines or experience; it's indeed a night mare. This article has been written to highlight the number of patients who could not receive chemotherapy due to ongoing Pandemic with an intention to follow them up for 6 months. Since this pandemic is here to stay it is very important that authors formulate the working principle for administering chemotherapy. There are various changes which authors need to incorporate in our day to day working in

oncology department to tide over this crisis. However, one needs to understand that it is an evolving field and many of the points presented here might need reconsideration.

The highly recommended tele-medicine and its legal and regularity landscape has to be modified accordingly to evolve better strategies by consensus towards the management of cancer patients in existing scenario through relevant webinars and web conferences. Till the time authors learn how best treat and care to our patients during this pandemic era do what you can do to keep you and your family stay safe and healthy.

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APPENDIX - 1

Questionnaire by Arogya setu app to detect the risk of COVID 19 Infection

Questions	Yes	No
Are you experiencing cough, fever, difficulty in breathing		
Have you ever had Diabetes, hypertension, lung disease, heart disease		
Have you travelled internationally in the last 14 days		
Have recently interacted or lived with someone who had tested positive for COVID / I am a health care worker and I examined a COVID 19 confirmed case without a protective gear		