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Impact of COVID-19 Pandemic on the Medical Oncology Department of a Tertiary Care Hospital

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ABSTRACT

Objective: To assess the degree of impact the pandemic had on the Oncology Department regarding patient visits and elective procedures.

Study Design: Comparative pre-post analysis study.

Place and Duration of Study: Medical Oncology Department of Combined Military Hospital, Lahore Pakistan, from Oct to Dec 2019 before the pandemic, and then 2020 during the pandemic.

Methodology: Data was collected from the Department regarding the number of outpatient visits, indoor admissions, new cases diagnosed, chemotherapies administered, blood transfusions, and various procedures like lumbar puncture, ascitic fluid paracentesis, pleural fluid drainage, etc.

Results: Our study showed an overall decrease in all the study parameters. The average monthly Outpatient visits fell by 395 patients (55.6%). The new cases decreased by 25 patients (36.2%). The indoor admissions also came down by 17 patients (42.5%). Furthermore, the procedures performed in the Oncology department were also observed to have decreased.

Conclusion: Oncology has suffered dramatically in the face of the COVID-19 pandemic, with fewer patients visiting the hospital for their consultations, follow-ups, as well as treatments. This has resulted in a delay in diagnosis and treatment and has had a severe adverse psychological impact on the patients.

Keywords: COVID-19, Elective procedures, Pandemic, Oncology.

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INTRODUCTION

COVID-19 was officially declared a pandemic on the 11th of March 2020 by the World Health Organization. As the pandemic continues to prevail, efforts were and are continued to be made to control the spread of the disease.[1] These efforts include non-medical interventions like social distancing of six feet, personal protective equipment like masks, and emphasis on personal hygiene like hand sanitisation and washing.[2] In many countries around the world, this meant the implementation of nationwide lockdowns, with the closure of workplaces, educational institutes, recreational activities, restaurants, and even elective medical procedures in hospitals. Pakistan was one such country where these measures were implemented intermittently depending upon a regular analysis of the spread and prevalence of the disease.[3,4]

Due to a combined effect of the disease, the fear that encompasses it, and the restrictive measures taken to control it, the pandemic continues to take a toll on not only the physical health of the individuals but also their psychological, financial, social and other unrelated medical conditions.[5,6] Throughout the pandemic, multiple kinds of research have assessed these impacts. The psychological impact was seen to surface in the form of a significant rise in psychiatric morbidities among young adults, as well as an increased prevalence of feelings of fear and helplessness.[7] Furthermore, people suffering from other unrelated medical illnesses suffered a delay in elective medical and surgical procedures, leading to 3000 additional avoidable deaths in England and a decrease in access to care for those with diabetes, chronic obstructive pulmonary disease, and hypertension.[8] In the paediatrics unit as well, some parents have delayed their children's vaccination owing to fear regarding the safety of accessing healthcare services.[9]

Our study aims to assess a similar impact of the pandemic on the field of oncology in a tertiary care hospital in Pakistan and analyse whether the pandemic has affected the number of cancer patients visiting their oncologist and undergoing medical procedures for their condition in the country.

METHODOLOGY

The comparative pre-post analysis study was conducted at the Medical Oncology Department of Combined Military Hospital (CMH) Lahore after

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ethical approval from the CMH Institutional Review Board (Number 183/2020). The sample size was calculated using a WHO sample size calculator, taking reported prevalence of cancer of 0.15%.[10]

Inclusion Criteria: Patients of either gender, age ≥18 years, with biopsy-proven malignancy, both solid organ and haematological malignancies were included in the study.

Exclusion Criteria: Patients awaiting tissue diagnosis were excluded from the study.

The data included quantitative parameters that included the overall monthly data on the number of outpatient visits, indoor admissions, new cases diagnosed, chemotherapies administered, blood transfusions, and various procedures like lumbar puncture, paracentesis and pleural fluid drainage. Data was collected from the database where all the data was saved. Data were collected for three consecutive months before the Pandemic was declared in March 2020 and during the COVID-19 pandemic.

Statistical Package for Social Sciences (SPSS) version 25.0 was used for the data analysis. Quantitative variables were expressed as mean±SD and qualitative variables were expressed as frequency and percentages. Chi-square test was applied to explore the inferential statistics. The *p*-value of ≤0.05 was set as the cut-off value for significance.

RESULTS

A total of 3264 patients of both genders and ages 18 and above were enrolled in the study. The mean age of participants was 46.65±11.32 years. There were 1976 males (60.5%) and 1288(39.5%) female participants. There was a statistically significant difference in Gender among participants before the pandemic and during the pandemic (Table-I).

Table-I: Demographics of Population Before and during the COVID-19 pandemic (n=3264)

Demographics		Before Pandemic		During Pandemic		*p*-value
		Yes	No	Yes	No	
Age (years)	18-46	60 (3.9%)	1525 (96.1%)	468 (29.5%)	1119 (70.5%)	0.268
	47-70	58 (3.5%)	1619 (96.5%)	477 (28.4%)	1200 (71.6%)	
Gender	Male	70 (3.5%)	1906 (96.5%)	619 (31.3%)	1357 (68.7%)	0.001
	Female	50 (3.9%)	1238 (96.1%)	326 (25.3%)	962 (74.7%)	

Our study reported that the frequency of outpatient visits was reduced by 55.7% during the COVID-19 pandemic. In contrast, the total number of admissions was also substantially reduced from 120 (63.5%) in the pre-pandemic period to 69(36.5%) admissions with a *p*-value of <0.001, shown in Table-II.

Table-II: Comparison of workload in Outpatient and Inpatient Department before and during the Pandemic (n=3264)

Patients Treated	Pre COVID-19 Pandemic n (%)	During COVID-19 Pandemic n(%)	*p*-value
Outdoor Patient	2130(94.6%)	945(93.2%)	<0.001
Indoor Admissions	120(5.3%)	69(6.8%)	

We administered 1172(89.3%) chemotherapies, 87 (6.6%) blood transfusions, and 54(4.1%) miscellaneous procedures before the pandemic whereas, afterwards, the load significantly reduced to only 615(91.1%) chemotherapies, 39(5.8%) transfusions, and 21(3.1% various procedures (*p*<0.001) before pandemic There was a statistically significant decrease for all the procedures being performed, namely chemotherapy administration (*p*-value <0.001) Shown in Table-III.

Table-III: Comparison of Frequency of Procedures Before and during the Pandemic (n=9793)

Procedures		Pre COVID-19 Pandemic	Post COVID-19 Pandemic	*p*-value
Chemotherapy	Yes	1172(65.6%)	615(34.4%)	<0.001
	No	1078(73%)	400(27%)	
Blood Transfusion	Yes	87(69%)	39(31%)	<0.001
	No	2163(69%)	975(31%)	
Miscellaneous	Yes	54(72%)	21(28%)	<0.001
	No	2196(68.9%)	993(31.1%)	

DISCUSSION

COVID-19 created much fear in the general population. However, this fear was especially prevalent in those individuals already suffering from comorbidities.[11] Many kinds of research showed the importance of paying additional attention to preventing infection in those with comorbidities, particularly oncology patients, being immunocompromised, and due to the increased risk of complications and adverse effects in these individuals.[12,13] This fear was also seen among the patients, as our research shows a drop in patients presenting to the Oncology Department for their follow-up appointments and procedures.

Keeping in mind the results of our study as well as those conducted worldwide.[14] it has become increasingly important to reshape our perspective regarding oncological care. The pandemic incurred a blow to the oncological department at hospitals, as the focus

was directed solely towards emergency procedures, and all non-urgent treatment procedures were avoided during the COVID-19 waves when hospitals were over-burdened with patients suffering from COVID-19 alone. As our study suggests, this resulted in a drastic fall in all sections of the oncological department, be it outpatient visits, treatment procedures, or any various palliative procedures. Oncology, being a very critical field of medicine, where delay in the provision of treatment services can cause the disease to progress far enough that it can no longer be managed, thus suffered greatly due to the pandemic and the implications of the decreased number of patients visiting the department go far beyond merely a delay in receiving treatment.[15]

An important implication of decreased patients visiting the Oncology Department was discussed in a previous research as that of delayed diagnosis of oncological diseases in individuals. They observed a 43% and 29% decrease in pathohistological and clinical cancer notifications. Our study also identifies a 36.2% decrease in new cancer diagnoses between 2019 and 2020.[16] This aspect is particularly alarming as the implication of it is the late presentation of oncology patients to the hospital. Due to this late presentation, it may become increasingly difficult to manage the advanced symptoms of the patients, which may have been avoided had they presented earlier along the course of the disease.[17]

Considering this bleak image that we have seen for the field of oncology during the COVID-19 pandemic, it has become increasingly crucial that newer techniques are employed to increase the preparedness for the management of oncology patients in times of another pandemic in the future. The COVID-19 pandemic was an unanticipated occurrence that the world was unaware. Many specialities suffered a blow due to it. However, after about two years, medicine has learnt quite a lot.[18] Our focus should now be on readjusting our systems so that we may avoid facing as many repercussions as recently. Tapper has offered some suggestions regarding this, and if inculcated into the field of medicine, particularly oncology, they may go a long way in improving patient care. Some measures that can be taken include shifting towards telehealth so that patients can receive quality care and consult with their specialist doctors from the convenience of their homes. Furthermore, there should be an increased emphasis on providing proactive care rather than reactive care, which aims to prevent complications rather than treat them after they have developed. Moreover, a more efficient system should be put into place in order to promote quicker and more organised screening techniques such that any oncology patient visiting the hospital can be screened and segregated for COVID-19 without delay in receiving their treatment.

CONCLUSION

Medicine, particularly the field of oncology, has suffered dramatically in the face of the COVID-19 pandemic, with fewer patients visiting the hospital for consultations, follow-ups, and treatments. This has resulted in a delay in diagnosis and treatment and has had a severe adverse psychological impact on the patients. In order to prevent such a state from progressing further, certain amendments can be made to the system, like introducing a better telehealth system or a streamlined screening process so that the patients can receive their required treatment in a safe environment without the fear of being infected by COVID-19.

Conflict of Interest: None.

Authors' Contribution

Following authors have made substantial contributions to the manuscript as under:

FM & SA: Data acquisition, data analysis, concept, drafting the manuscript, approval of the final version to be published.

AA & ALK: Study design, drafting the manuscript, data interpretation, critical review, approval of the final version to be published.

SFM & MMM: Critical review, data acquisition, drafting the manuscript, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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