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Original Article

Impact of COVID-19 pandemic on patients seeking cancer therapy at a cancer hospital in Sri Lanka

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Abstract

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Background: Every sixth death in the world is caused by cancer and it is estimated that nearly 10 million deaths in 2020 are attributed to cancer. Uninterrupted management is instrumental for the quality of life and prognosis of these patients. Delivering care for patients with cancer during COVID 19 crisis is challenging. Empirical evidence of the impact of COVID 19 in the management of cancer patients is vital for implementing appropriate measures to continue cancer care while battling COVID 19 pandemic.

Aim: To assess the impact of the COVID-19 pandemic on the management of cancer patients at Apeksha Hospital, Sri Lanka.

Methods: A descriptive cross sectional study was carried out at Apeksha Hospital from April 2020 to September 2020. Ethical approval was obtained from the Ethics Review Committee of KIU (KIU/ERC/20/60). A sample of 225 patients with cancer, aged 18 years or older were enrolled in the study. Critically ill patients or patients experiencing an acute psychiatric episode were excluded from the study. Pre-tested interviewer-administered questionnaire was used for data collection. Data were analyzed using descriptive statistics such as frequencies, percentages, means, and standard deviations. IBM SPSS version 25 was used as the data analysis tool.

Results: The mean age of the participants was 42±14 years. Majority of the participants were unmarried (n=151, 67.1%), females (n=158, 70.2%). The commonly reported cancers were, blood cancer (n= 50, 22.2%), breast cancer (n=43, 19.1%), ovarian cancer (n=29, 12.9%), sarcoma (n=23, 10.2%) and cervical cancer (n=22, 9.8%). The majority (n=222, 98.6%) reported that their treatment was delayed due to COVID-19. Withholding clinics (n=173, 76.9%), fear of COVID 19 (n=161, 71.6%), lack of chemotherapy drugs (n=90, 40.0 %), delay in CT/MRI scan (n=89, 39.6%), lack of transport facilities (n=68, 30.2%), lockdown condition (n=53, 23.6%), financial issues (n=31, 13.8%) and postponing surgeries (n=16, 7.1%) were the commonly reported reasons found for the delay in treatments. Only 16% (n=36) had sought alternative methods such as faith pacification, seeking ayurvedic treatments and getting temporary treatment from the family doctor to manage the progress of cancer during the COVID-19 period.

Conclusion: The COVID-19 pandemic substantially disrupted cancer management. The study highlights the necessity of appropriate provisions to continue cancer treatment during the COVID-19 pandemic.

Keywords: Cancer patients, Cancer management, Treatment default, Treatment delay, COVID 19 Pandemic

Introduction

Cancer is the 2nd leading cause of death and a significant barrier to life expectancy (Murphy et al., 2018). Globally, 19.3 million new cancer cases and nearly 10 million cancer deaths were reported in 2020 (Sung et al., 2021). According to the WHO statistics for Sri Lanka, in 2016, 23,530 cancer cases were reported and the premature death rate attributed to cancer was 23.4% (WHO, 2020). Further, patients who have cancer or who are on cancer therapy often have a substantial risk of getting an infection, which may be severe or and life threatening (Panghal et al., 2012).

The lifestyle of the global population has been completely changed since the beginning of the pandemic of novel coronavirus 2019 (COVID 19). The World Health Organization declared severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection as a global pandemic on March 11th, 2020 (Song et al., 2020). This is a highly infectious disease transmitted from human to human by respiratory droplets, close contact with diseased patients and, fecal-oral and aerosol contact (Hindson, 2020; Kuderer et al., 2020). The COVID-19 pandemic has an impact on the physical, social, and psychological functioning of individuals and societies (Algahtani et al., 2021). Patients with cancers diagnosed with COVID-19 have been vulnerable to greater morbidity and mortality (Javanmardi et al., 2020).

The infection rate of COVID-19 among patients with cancer was reported to be higher compared to patients without cancers (Yang et al., 2020). The prevalence of death was 21.2% among the COVID-19 patients with cancer in China (Yang et al., 2020). In addition to the higher risk of contamination from the virus, developing COVID-19-related complications are also seen in these patients. The reason for increased risk in cancer patients is attributed to the immunocompromised state due to effects of chemotherapy and supportive medications such as steroids (Kuderer et al., 2020). Frequent treatment and frequent visits to the hospital have also resulted in higher risk (Yang et al., 2020).

During COVID 19 crisis, delivering care for patients with cancer is challenging. Many patients with cancer have struggled to receive treatment due to cancelling or postponing surgeries and other procedures, social distancing, and lockdown measures (Buntzel et al., 2020). Regular monitoring and continuing treatment without delay are essential when managing cancer patients (Hanna et al., 2020). Alterations in usual cancer treatments might adversely impact the quality of life (Ciężyńska et al., 2020) and the mental health well-being of the cancer patients (Chen et al., 2021). There is a paucity of evidence regarding how COVID 19 influences cancer treatment in Sri Lanka. Therefore, this study was aimed to evaluate the impact of the COVID-19 pandemic on management of cancer patients at Apeksha Hospital, Sri Lanka.

Methodology

A descriptive cross-sectional study was carried out in Apeksha Hospital from April 2020 to September 2020 to assess the impact of the COVID 19 pandemic on management of cancer patients. The Apeksha Hospital is the only National Hospital in Sri Lanka that is dedicated to treat cancer patients (Patabendige et al., 2021). Ethical approval was obtained from the Ethics Review Committee of KIU (KIU/ERC/20/60) along with the written permissions by the hospital director and the chief nursing officer. Cancer patients seeking treatment from the Apeksha Hospital were invited to take part in the study. Volunteer patients who provided written informed consent were enrolled in the study. Patients who were critically ill or experiencing an acute psychiatric episode were excluded. Data were collected from 225 cancer patients using an interviewer-administered questionnaire which was pretested on a group of 10 cancer patients who sought treatment at Apeksha Hospital. The pretested questionnaire was modified based on the feedback of the participants.

Collected data were entered into a database created using Microsoft Excel 2019. After data cleaning, Excel database was exported into the IBM SPSS version 25. The data were analyzed

using appropriate descriptive statistics. Continuous variables are expressed as mean \pm standard deviation and categorical variables are expressed as frequency and percentage. Salient findings were depicted using frequency distribution tables and bar charts.

Results

A total of 258 patients who sought cancer treatments from Apeksha Hospital, Sri Lanka were invited to participate in the study and 225 participants were enrolled in the study. The response rate was 87% (n=225). Gender, age, ethnicity, marital status, educational level, and employment status were assessed as demographic characteristics. Majority of the participants were Sinhalese (n=193, 85.8%) and females (n=158, 70.2%). The age of the participants ranged from 18 to 80 years and the mean age was 42 ± 14 years. Nearly 83.1% (n=187) of the participants had received education up to senior secondary level. However, 46.2% (n=104) were unemployed. Socio demographic characteristics of the participants were depicted in Table 1.

Table 1: Socio demographic characteristics (N=225)

Demographic characteristics	Frequency	Percentages %
Gender	Female	158 70.2
	Male	67 29.8
Age in years	Young (18 – 25 years)	152 67.6
	Middle-aged (26 – 60 years)	46 20.4
	Elderly (above 61 years)	27 12.0
Ethnicity	Sinhalese	193 85.8
	Tamil	15 6.7
	Muslim	10 4.4
	Burgher	7 3.1
Marital status	Single	151 67.1
	Married	56 24.9
	Divorced	14 6.2
	Widowed	4 1.8
Educational level	Never went to school	7 3.1
	Primary (Up to grade 5)	31 13.8
	Senior secondary (Up to O/L)	88 39.1
	Collegiate (Up to A/L)	65 28.9
	Tertiary (Diploma and above)	34 15.1
Employment status	Unemployed	103 45.8
	Self-employee	27 12.0
	Private sector employee	60 26.7
	Government sector employee	31 13.8
	Retired	4 1.8

Participants' clinical characteristics were assessed to investigate the disease burden. Past medical history of the participants revealed that 26.2% (n=59) of the participants were suffering from diabetes mellitus while 20.0% (n=45) had high blood pressure. The prevalence of Asthma among the participants was 12.9% (n=29) while 3.1% (n=7) of the participants had ischemic heart diseases. Inquiry into surgical history revealed that the participants had undergone mastectomy (n=18, 8.0%), bilateral oophorectomy (n=14, 6.2%), and thyroidectomy (0.9%, n=2) respectively. Few (n=2, 0.9%) of the participants showed food and drug allergy.

The majority (n=162, 72.0%) of the participants had been diagnosed within the last two years while 7.5% (n=17) of the participants included those with five years of survival after the diagnosis. The types of cancers reported by the study participants are shown in Figure 1.

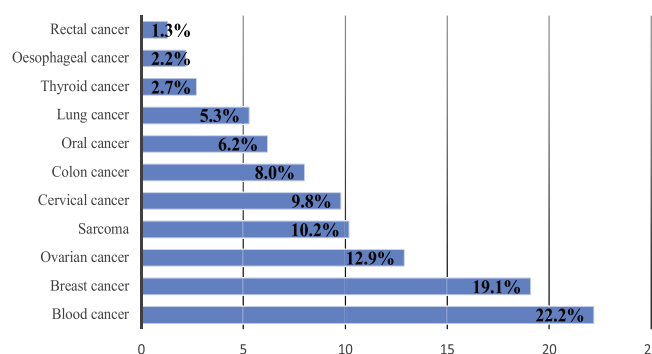


Figure 1: Types of cancer

All the participants received chemotherapy as a part of the treatment plan. Radiation therapy (n=92, 40.9%), surgical treatment (n=60, 26.7%), hormone therapy (n=7, 3.1%), and Iodine therapy (n=7, 3.1%) were the other reported treatments.

On inquiry from the participants about the impact of COVID 19 on their treatment plan, a vast majority (n=222, 98.7%) of the participants claimed that their treatments were delayed due to COVID 19 pandemic. The study further investigated the reasons for the delay in treatments and measures taken to continue the treatment plan. Withholding clinics (n=173, 76.9%), fear of COVID 19 (n=161, 71.6%), lack of chemotherapy drugs (n=90, 40.0%), delay in CT/MRI scan

(n=89, 39.6%), lack of transport facilities (n=68, 30.2%), lockdown condition (n=53, 23.6%), financial issues (n=31, 13.8%) and delay in surgical management (n=16, 7.1%) were among the prominent reasons to delay in treatments. Participants stated that strategies like establishing a helpline, sending reports online, posting the drugs, encouraging private transport and support from the family will be helpful in continuing with treatment.

Most of the participants (n=157, 69.8%) stated that their nutrition level was compromised due to COVID 19. Further investigations on the reasons for this impact revealed that lack of food items due to curfew and lockdown (n=88, 39.1%), decrease in family income (n=85, 37.8%), and inability to get nutritional foods frequently (n=79, 35.1%) were prominent.

The Majority (n=221, 98.2%) stated that they have encountered complications due to delay of treatment during the COVID 19 pandemic. The study further investigated the types of complications experienced by cancer patients due to delay of treatment. Psychological effects (n=221, 98.2%), worsening pain (n=84, 37.3%), and exacerbation of wounds (n=3, 1.3%) were the prominent complaints as perceived by the participants. Stress (n=179, 79.6%), separation anxiety (n=135, 60.0%), depression - like symptoms (n=193, 85.8%) and impending doom (n=109, 48.4%) were the most reported psychological problems. Among the participants, 16.0% (n=36) stated that they were using alternative methods to minimize the complications. Faith pacification (Spiritual performances) (n=20, 8.9%), seeking ayurvedic treatments (n=18, 8.0%) and getting temporary treatment from the family doctor (n=13, 5.8%) were the most reported alternatives.

Small proportion (n=2, 0.9%) of the participants have stated that establishing a helpline, sending reports online, posting the drugs, encouraging private transport, and getting support from the family has been implemented as measures to minimize the delay in treatment due to COVID 19

pandemic.

Delay in treatments was significantly associated with age ($p \leq 0.001$), gender ($p \leq 0.001$), marital status ($p = 0.01$) and employment status of the participants ($p = 0.016$).

Discussion

The study findings depict that majority (70%) of the participants were feminine in gender, but the global cancer statistics 2020 indicates that the incidence rate of cancers was 19% higher in men than in women. The variations can be expected in different regions due to the differences in exposure to risk factors (Sung et al., 2021). Another study in Wuhan, China observed equal distribution of cancers among participants of both genders (Yang et al., 2020). A study done in Canada revealed that health-seeking behavior in females was more prominent when compared to men (Thompson et al., 2016). A study done in three South Asian countries reveals that the women's autonomy in decision making on health care in Sri Lanka is 79.7%, which is a significantly higher value (Senarath & Sepali, 2009). These findings suggest that the health-seeking population in Sri Lanka might consist of a higher proportion of females than males.

Findings of this study show blood cancer (22.2%), breast cancer (19.1%), ovarian cancer (12.9%), and sarcoma (10.2%) as the most prevalent types of cancer among the study population. The global cancer statistics 2020 reported that 58.3% of cancer deaths worldwide occurred in Asia which illustrates the cancer disease burden in Asia which further elaborates the estimated prevalence of cancer types which are different to the finding of this study. Lung (11.4%), colorectal (10.0%), prostate (7.3%) and stomach (5.6%) cancers are the most prevalent type of cancers according to the global cancer statistics 2020 (Sung et al., 2021). According to a study in Wuhan, China, the commonest cancer types are lung cancer (19.2%) followed by breast cancer (17.3%) and rectal cancer (15.4%) (Yang et al., 2020). The national cancer prevention programme in Sri Lanka reveals that the commonest types of cancers in Sri Lanka

are breast cancers, oral cancers, thyroid cancers, and lung cancers in 2015. Although blood cancers are less common among the population, the severity of the cancer and the increased case fatality ratio may have resulted in hospitalizing the patients for treatments even during the COVID 19 pandemic which in return created controversial distribution of cancer types among the study participants.

Almost all the participants (99%) in the current study states that their treatments were delayed due to the COVID 19 pandemic. A study done by Xia et al. (2020) also confirmed that COVID 19 outbreak can delay treatments and increase the risk among cancer patients due to the inability to receive medical services. Another study in California reveals that 65% of the participants had experienced changes in their treatment plan resulting in a delay in treatment (Wu et al., 2021). The reason for the delay in treatments in almost all the patients in Sri Lankan population may have resulted from poor planning and lack of preparedness to face a problematic situation like COVID 19 pandemic. Withholding clinics, fear of COVID-19, scarcity of chemotherapy drugs, delay in CT/MRI scan, lack of transport facilities, lockdown condition, financial issues and delay in surgical management were the common reasons to delay treatments as identified in this study. An Italian study reveals that fear of contacting the infection, flu-like syndrome, quarantine, living in red areas, and displacement problems due to closure of the region and province borders were the reasons that resulted in defaulting or delaying the treatment plan (Quaquarini et al., 2020). A study done in the UK shows that a 3 to 6 months delay in the treatment process may result in a 10% to 30 % reduction in the 10 years survival of cancer patients (Sud et al., 2020). It has been stated that strategies like establishing a helpline, sending reports online, posting the drugs, encouraging private transport, and support from the family as measures to minimize the delay in treatment. A study done by Hollander & Carr (2020) indicates the importance of telemedicine to continue the treatment plan without a delay. Therefore, it is vital to take prompt actions to continue treatments among cancer patients during

COVID 19 pandemic.

Majority of the participants in the current study stated that their nutritional level had an impact due to various reasons such as lack of food items due to curfew and lockdown, decrease in family income, and inability to get nutritional foods frequently. A study done in Italy by Lobascio et al. (2020) indicates that a dramatic worsening of nutritional status can be observed in cancer patients due to possible delayed clinical assistance and difficulties in procuring nutritionally adequate quality food as a lock-down repercussion.

As far as the complications are concerned, more serious complications are reported among cancer patients in Wuhan, China. Liver injury, acute respiratory distress syndrome (ARDS), sepsis, myocardial injury, renal insufficiency, and multiple organ dysfunction syndromes were among the complications. A systematic review was done in December 2019 also states that COVID – 19 can modulate severe complications in 33% of cancer patients (Addeo, Obeid, & Friedlaender, 2020).

The findings of the current study reveal complications such as depression-like symptoms, impending doom, worsening pain, and exacerbation of wounds. However, the current study did not refer to secondary clinical data of the patients, therefore the comparison between the two studies may not be compatible. The nature of the reported complications may also be influenced by the age of the population. A study conducted by Xia et al. (2020) also states that older age can be associated with worse outcomes in cancer patients during COVID 19 pandemic.

Conclusion

According to the key findings of this study, the COVID-19 pandemic substantially delayed cancer treatment and it may result in negative consequences among cancer patients physically and psychologically. Only a limited number of participants had taken action for treatment disruption. Instantaneous actions are essential for patients with cancer to continue their treatment regimen while managing complications.

Telemedicine and appropriate treatment opportunities may be required for cancer patients during the pandemic to minimize exposure to an unsafe environment. In addition, it is vital to strengthen guidelines on managing cancer patients during the COVID-19 pandemic in Sri Lanka.

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