

Impact of Telemedicine on Healthcare Delivery in Gastrointestinal Cancer Patients during the COVID-19 Pandemic

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Abstract

Background: COVID-19 pandemic necessitated to change the normal OPD practises in view of lockdown and to decrease the exposure of patients and health care workers. Hence our institute adopted the telemedicine route to cater to the needs and grievances of patients. In this article we have analysed the impact of telemedicine on gastrointestinal cancer patients in Radiotherapy and Oncology OPD during COVID-19 pandemic.

Methodology: Retrospective data was extracted from the files of the patients who were seen through telemedicine. Time period for this study was kept from 1st September, 2020 to 31st October, 2020. Patients with only gastrointestinal malignancies were enrolled in the study. Patients were called telephonically to get their feedback on the telemedicine experience. Every patient completed a set of questionnaire. Physical OPDs were also running simultaneously with appointments made through telemedicine in order to reduce crowding and maintain social distancing.

Results: In total, data of 157 patients was obtained. Sixty three percent of the patients were from rural background while 37% had urban residence. Median age of the patients was 55 years (range, 13-80 years). Thirty eight percent patients had stage IV, 51.6% had stage III while 8.9% had early-stage malignancies. Sixty percent of the patients had either received or were on radical treatment while 39.5% were taking palliative treatment. Approximately 53% of OPD visits could be avoided with telemedicine. Overall, the experience of telemedicine received an encouraging response with 87.3% of patients responding affirmatively to repeat the telemedicine if given opportunity.

Conclusion: Telemedicine has led to un-interrupted delivery of cancer care, particularly for patients who were on active surveillance and live at remote places from the hospital. Our study demonstrated patient and healthcare staff safety along with the benefits of health care facilities to patients during this period of pandemic, though assessment of long-term impact on patient outcomes and health care systems needs to be done.

Keywords: Cancer; COVID-19; Gastrointestinal; Pandemic; Telemedicine.

Introduction

Telemedicine word is coined from “Tele” which is a Greek word meaning “distance” and “mederi” which is a Latin word meaning to “heal”. Telemedicine is defined as provision of health care services from distance, via real-time communication between the patient and the

healthcare professionals, using electronic modes.^[1] Although the initial response to telemedicine was not much motivating as it was considered

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experimental, but in today's pandemic life, it has become a necessity to bridge the healthcare services for people living at faraway places. It also allays the fears and concerns of patients and caregivers to visit the hospital as they are getting medical care at home. COVID-19 pandemic has changed the whole dynamics of hospital functioning. Amidst lockdown and physical distancing,^[2] the OPD's were shut down or running under restrictions. Moreover, cancer patients are at considerable high risk of COVID -19 infections because of low immunity.^[3] These factors brought telemedicine as the only way to communicate with cancer patients and to continue their treatment, thus overcoming the geographical barriers and making health care accessible to all patients. However, telemedicine has its own challenges. Especially in rural areas where there is scarcity of smart mobiles and internet connection, to reach such areas with telemedicine was a challenge. Despite increase in the mobile internet subscription and usage in the last few years, only 34.45% of the Indian population has access to internet.^[4] Hence in this study we share our departmental experience on telemedicine in terms of patient acceptance and compliance in gastrointestinal cancers.

Materials and Methods

We reviewed the details of gastrointestinal cancer patients from 1st September, 2020 to 31st October, 2020 at Department of Radiotherapy and Oncology at PGIMER, Chandigarh. Patients called the given mobile numbers which were advertised in the public domain by the institute. Appointed doctors attended the calls and listened to the grievances of the patients. 'Whatsapp' medium was used to see various investigation reports of the patients. After assessing the complaints of patients on telephone and investigations on Whatsapp medium, patients were triaged depending on the stage, severity of disease and needs of treatment. The patients who were on active surveillance were advised to continue their follow-up through telemedicine. Patients were encouraged to visit the nearby hospitals or clinics for investigations to avoid travel. Patients requiring physical examination, urgent care and definitive treatment in forms of radiotherapy and chemotherapy were called to OPD with a prior appointment. Later patients were telephoned to know their feedback for this new mode of communication. A fix set of questionnaire was

asked to every patient to bring uniformity. SPSS 25.0 was used to assess the data.

Results

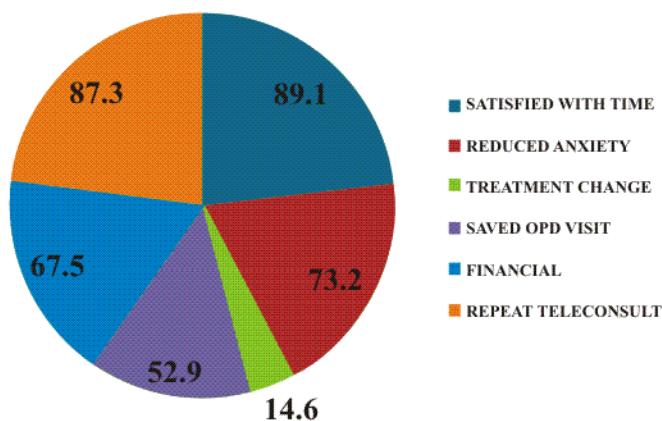
A total of 157 patients were evaluated with median age of 55 years (13-80years). Patient characteristics are described in Table 1. Out of 157, 88 (56.1%) were male and 69 (43.9%) were female. Majority of the patients belonged to rural regions, accounting for 63.1% while only 36.9% were from urban areas. Corresponding to the geographic distribution of the sample population, majority of the patients was illiterate (60.5%). Approximately 38% of the patients had stage IV. Nearly 39.5% of the patients were on palliative treatment while 60.5% patients were on radical treatment. Telemedicine was especially useful for the patients who were on follow up. In total, 42% patients who were on follow up largely benefitted from telemedicine approach. Parameters asked from the patients included time taken to reach the hospital, reduction in anxiety, any change in the line of treatment, whether called to hospital or saved the OPD visit. Telemedicine parameters are enumerated in Table 2. Median time to travel to our hospital was 3.5 hours. Approximately 73.2% agreed to witness reduction in anxiety after conversation through telemedicine. Treatment was changed for only 14.6% patients, rest continued on same treatment lines. Nearly half of the OPD visits have been saved with this practise (52.9%). Considerable number of patients have agreed to be benefitted financially (67.5%). Finally, despite the sample being rural dominant, the response to telemedicine has been overwhelming with 87.3% of patients agreeing to repeat the telemedicine. Figure 1 is showing graphical representation of telemedicine parameters.

Table 1: Patient characteristics

Characteristics	N (%)
Age (in years)	
Median	55
Range	13-80
Sex	
Male	88 (56.1)
Female	69(43.9)
Locality	
Rural	99(63.1)
Urban	58(36.9)
Literacy	
Literate	62(39.5)
Illiterate	95(60.5)
Stage	
I & II	13 (8.2)
III	81 (51.6)
IV	60 (38.2)
Treatment intent	
Radical	95 (60.5)
Palliative	62(39.5)
Type of treatment	
Active	91(58)
Follow up	66(42)

Table 2: Telemedicine parameters

Parameters	N (%)
Median travelling time to hospital	3.5 Hours
Satisfied with time given on telemedicine	140 (89.1)
Reduced anxiety	115 (73.2)
Treatment change	23(14.6)
Saved OPD visit	83(52.9)
Reduced financial stress	106(67.5)
Want to repeat teleconsultation	137(87.3)

**Figure 1:** Graphical representation of telemedicine parameters

Discussion

Appropriate patient selection is integral for an effective tele-oncology service. Patient selection depends on various factors including the doctor's experience, preferences of the patient and complexity of cases.^[5] The European Society for Medical Oncology (ESMO) advises that patients on oral medication be shifted to tele-oncology services for consultation and continuation of treatment. It also encourages the use of telephone and web-technology for toxicity evaluation, dose adaptation and supportive care recommendation.^[6] Tiered approach of cancer care delivery should be preferred. High priority should be given to patients with life-threatening conditions or patients whose treatment is likely to result in survival and quality of life benefits while cured and on follow up patients should be given low priority and non-critical patients should be put on medium priority where hospital visits can be curtailed by use of telemedicine. Covid-19 pandemic has hampered the routine patient care in hospitals. Government has laid down guidelines for implementing

telemedicine service in order to reduce the Covid-19 spread risks.^[7] Although this study was performed to assess the change in practice protocols due to Covid-19 pandemic, our data revealed an overwhelming response from patients for this service. It saved the hospital as well as patients' resources. The combination of audio-visual modes has helped clinicians to give adequate care to patients. In our study, nearly 87% patients were satisfied with the experience and want to repeat the telemedicine. Moreover, it allows the clinicians to filter off the patients who really need physical examination to avoid futile OPD visits and restricts the footfall in OPD's. This will reduce the waiting time period at hospitals and will also lessen the financial burden on families of the patients as it saves the cost of travel.^[8] Nearly 52% patients have been treated satisfactory on telemedicine and their OPD visit got deferred. This service also saved the clinician time as the telemedicine calls were shorter than the usual face to face appointments. Majority of the patients were satisfied considering the fact that they were adequately listened and counselled on telephone. It reduced the unnecessary visits and waiting period at the hospital.

Treatment through telemedicine is known to benefit patients with chronic pain.^[9] There are mixed results with regard to symptom management with telemedicine. In a systematic review of internet based interventions for patients with chronic pain by Buhrman et al., results were in line with the effects of cognitive behavioural therapy in face to face trials. For both pain interference/disability effects were modest with internet based therapy.^[10] Tailored web based interventions failed to prove to be more effective than standardized Web-based interventions in terms of pain intensity, pain-related disability, anxiety, and depression.^[11] In a randomized controlled trial comparing weekly teleconsultation in addition to usual palliative care, the total distress score was significantly higher in the former group. Patients in the weekly teleconsultation group received more attention leading to higher awareness of symptoms thus leading to more precise registration of symptom burden.^[12]

The drawbacks of teleconsultation are inability to examine the patient physically, difficulty in

breaking bad news and not being able to provide caring and healing touch which cancer care patients usually require.^[13] To counter this, patients were called to OPD on appointment basis for physical examination, starting treatment and palliative care when needed. Hence when telemedicine works in coordination with routine OPD, the efficacy improves.

Due to fear of contracting the infection, most patients prefer to travel in the private vehicles and use of public transportation has also plummeted. This has led to increase in the cost of travel. In our study the median time to travel to our hospital was 3.5 hours, which got saved with telemedicine. Besides time, patients were also benefitted financially as they saved the travel cost.

Looking at the role of telemedicine beyond Covid-19, it should be followed in regular practice besides routine OPD. Patients who are on oral medication or active surveillance can be effectively managed via telemedicine. Taking into account the huge population of our nation and already choked and overburdened OPDs of government run centres, telemedicine is a blessing in disguise. Telemedicine can really increase the output of centres if effectively coordinated with routine OPD culture.

Conclusion

Telemedicine is an emerging tool in this modern era. Majority of the patients agreed to the use of telemedicine service as an alternative tool to face to face clinical visits wherever feasible. The benefits include reduction in travel time and transportation cost, reduction of financial burden on patient and healthcare services, increased access of health care services to remote areas, reduction in the waiting time for patients in OPD's, curtailing the risk of hospital-based infections and Covid-19 infection in immunocompromised cancer patients. Physical consultations are definitely the gold standard for patient care but in future we need to explore the role of telemedicine in coordination with routine care.

Conflict of Interest

The authors declare no conflicts of interest in the preparation of the manuscript or during the study.

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