

## Original Research Article

# Utility of telemedicine in COVID-19 pandemic: our experience at a tertiary cancer center in North East India

Ashok Kumar Das<sup>1</sup>, Sumanjit S. Boro<sup>2\*</sup>, Anupam Das<sup>1</sup>,  
Partha Pratim Medhi<sup>3</sup>, Kaberi Kakati<sup>1</sup>, Nizara Baishya<sup>4</sup>,  
Mouchumee Bhattacharyya<sup>3</sup>, Amal Chandra Katak<sup>5</sup>

<sup>1</sup>Department of Head and Neck oncology, Dr B. Borooah Cancer Institute, Guwahati, Assam, India

<sup>2</sup>Department of Plastic Surgery, Dr B. Borooah Cancer Institute, Guwahati, Assam, India

<sup>3</sup>Department of Radiation Oncology, Dr B. Borooah Cancer Institute, Guwahati, Assam, India

<sup>4</sup>Department of Hospital Based Tumor Registry, Dr B. Borooah Cancer Institute, Guwahati, Assam, India

<sup>5</sup>Director, Dr B. Borooah Cancer Institute, Guwahati, Assam, India

**Received:** 03 September 2020

**Revised:** 17 October 2020

**Accepted:** 19 October 2020

### \*Correspondence:

Dr. Sumanjit S. Boro,

E-mail: [sumanjit.boro@yahoo.in](mailto:sumanjit.boro@yahoo.in)

**Copyright:** © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

## ABSTRACT

**Background:** Telemedicine is a very useful tool of communication between the doctor and the patient. The aim of this study was to find out the utility of telemedicine during the lockdown period of COVID-19 pandemic in North East India.

**Methods:** It is a cross sectional study among the cancer patients at our center on follow up or ongoing treatment and analysis of all the data acquired from telephonic conversation with our patients from 30<sup>th</sup> March, 2020 to 3<sup>rd</sup> May, 2020. Have contacted 4181 patients during this period over phone. All phone calls were done by respective department doctors.

**Results:** From the demographic data, we get that 35.4% of patients were at good physical condition, 3.5% with poor general condition, 11.6% patients having ongoing treatment in our institute, 21.1% patients expired, 0.9% patients have nonmalignant diagnosis, 1.4% patients left the institute due to various reasons. Analyzed this data with brain storming sessions amongst the COVID-19 task force doctors and tried to find out solutions of each problem.

**Conclusions:** Telemedicine cannot replace conventional method of in person treatment, but it proved to be a useful tool during the COVID-19 pandemic for patient follow up and treatment of cancer patients.

**Keywords:** COVID-19, Telemedicine, Cancer

## INTRODUCTION

Telemedicine, a term which was first used in the 1970s, literally means “healing at a distance”.<sup>1</sup> World health organization has adopted the following broad description: “The delivery of health care services, where distance is a critical factor, by all health care professionals using information and communication technologies for the exchange of valid information for diagnosis, treatment

and prevention of disease and injuries, research and evaluation, and for the continuing education of health care providers, all in the interests of advancing the health of individuals and their communities”.<sup>2</sup> In India, telemedicine practice guidelines (March 2020) enabling registered medical practitioners to provide healthcare using telemedicine with clear guideline.<sup>3</sup> According to the mode of communication, telemedicine may be video (telemedicine facility, apps, video on chat platforms,

skype/face time etc.), audio (phone, VOIP, apps etc.) and text based (WhatsApp, Google hangouts, Facebook Messenger, Asynchronous like email/fax etc.). Any pandemic or disasters is an enormous challenge for the health workers to provide care in an unfavorable situation. A telemedicine consultation can be conducted without exposing health care provider to the infectious outbreaks or similar situation. Looking at these advantages of telemedicine and objective of providing continuous care to our patients at a tertiary cancer center in North East India, started telephonic consultation of patients who visited hospital in last 6 months and hospital visit was due during the lockdown period of coronavirus pandemic from 30<sup>th</sup> March, 2020. The data obtained from our experience was analyzed and has been presented here.

**METHODS**

It is a cross-sectional study among follow up cancer patients of a tertiary cancer center in North East India, and data were acquired from telephonic conversation with our patients from 30<sup>th</sup> March, 2020 to 3<sup>rd</sup> May, 2020. enlisted all patients who registered in our hospital in the last 6 months, gathered their contact details from the hospital database and contacted them over telephone. A total of 4181 patients were eventually contacted during the study period which consisted of sample size of this study. All phone calls were made by respective department doctors and information was obtained regarding current treatment and health status of each contacted patient. Based on the response recorded, the patients were put into 6 broad categories according to status of disease and treatment requirement. Details of the criteria of categorization of patients (Table 1).

**Table 1: Different categories of the patients.**

Category	Description
<b>Category 1</b>	Patients alive without major problem, on regular follow up, not requiring urgent medical attention, hence called for hospital visit after the end of lockdown period. Necessary telemedicine support provided as required.
<b>Category 2</b>	Patients with a poor general condition or undergoing best supportive care, not likely to benefit from further hospital treatment. Necessary telemedicine support provided as required.
<b>Category 3</b>	Patients who were on ongoing treatment in the institute, encouraged to visit the hospital and continue treatment as scheduled with proper precaution.
<b>Category 4</b>	Patients with non-malignant diagnosis.
<b>Category 5</b>	Could not been able to reach out over phone.
<b>Category 6</b>	Patients who had left our institute and are continuing treatment elsewhere or taking alternative forms of treatment.

After the first round of calls and categorization of patients, the information was evaluated in brain storming sessions amongst the COVID-19 task force doctors. Special emphasis was given to category 2 and 3 patients and a second round of phone calls were made to them to ensure that their problems have been adequately addressed. The data obtained from this exercise were then analyzed using simple statistical tools.

**RESULTS**

The results of the analysis are depicted in (Table 2). From the telephonic data, found that 35.4% of patients were in good physical condition without any complain, 3.5% with poor general condition having some complaints, 11.6% patients were taking on ongoing treatment either radiotherapy or chemotherapy, in the institute, 21.1% patients expired in last 8 months, 0.9% patients have no malignant disease, 1.4% patients left the institute and treated in other center. Though we keep minimum three or four phone number of the patients, were not been able to reach out about one fourth out patients (26.1%) either because of poor network or no response from the other end. Analyzed this data with brain storming sessions amongst the COVID-19 task force doctors and tried to find out solutions of each problem. Did a second round of phone calls by the same doctor who called earlier for follow up and to give solutions for their problems if it remained unsolved after first call. The purpose of this endeavor was to reduce patient load during the lockdown period of COVID-19 pandemic in the institute. Tried to postpone the visits which can be delayed, at the same time encouraging the patients to come to the hospital who were on active treatment maintaining COVID-19 related precautionary measures set by government. During phone call, each doctor tried to support patient psychologically and also tried to give advisory regarding COVID-19.

**Table 2: Results- proportion of patients in various categories.**

Category with description	No. of patient	% of patients
<b>Category 1 Good physical condition</b>	1480	35.4
<b>Category 2 Poor physical condition/palliative care</b>	146	3.5
<b>Category 3 Treatment Ongoing</b>	485	11.6
<b>Category 4 Deceased</b>	882	21.1
<b>Category 5 Non-malignant diagnosis</b>	38	0.9
<b>Category 6 Treatment elsewhere/ alternative treatment</b>	59	1.4

## DISCUSSION

In a country like India with a huge population of more than 1.36 billion with a doctor patient ratio of 1 for 1,456 Indian citizens, providing in person health care, is a challenge.<sup>4</sup> It is even worse if we look into the scenario in North East India, where communication is added to the above challenges. One of the big advantages of telemedicine for the people in rural India, is to reduce the cost and logistic issues to reach out specialist doctor, as most of the specialist service in India is city based. Telemedicine cut down the financial cost of consultation as well as inconvenience of troublesome travel for obtaining referral services. Telemedicine plays important role for all those patients on regular or routine checkup, particularly in case of cancer treatment. This is of utmost value for safety of health care provider, patients and their attendants or relatives, where there is risk of acquiring and transmitting infection. Situation arising from of natural disaster and pandemic, always create paramount challenge for health care providers to provide health care. Telemedicine plays role of a lifesaving tool to health care providers while reaching out to the sufferer. Avoidable and sometime unnecessary exposure in case of outbreak of contagious disease, can be avoided using telemedicine service. On 11<sup>th</sup> March 2020, the WHO emergency committee declared COVID-19 a global pandemic.<sup>5</sup> In this current situation crisis arising from the COVID-19 pandemic, telemedicine is very handy for health cancer provider in many ways. The COVID-19 pandemic has placed the whole world in a situation that has never happened never before or known before. Outmost efforts were made to stop transmission and spread of virus by maintaining social distancing, closure of public places and most of the countries are now in complete lockdown situation. Different health care specialist has used telemedicine in different field to continue care while maintaining social distance and keeping patients and high-risk persons in safe premises of their home in the lockdown period.

Treatment of cancer is regarded as an emergency, but because of the radical nature of the treatment, we are all skeptical about the compromised immune status of the diagnosed and treated patients, particularly with chemotherapy. They are neither able to reach cancer hospital due to lock down situation, nor its safe for them to come out of their homes. In this complex situation telemedicine plays an important role for us to reach out to our cancer patients staying at home and identify those that are in need of urgent clinical evaluation while at the same time counselling the rest to stay indoors. In our study, we used telephone as it is convenient and fast, unlimited reach, and there is no separate or additional infrastructural requirement. We were able to reach out more than 3000 patients during the month of April 2020. Moreover, in most of the rural areas of India, internet use is an issue because of network and complexity of use. Hence video call is a very clumsy alternative to telephone. Though we keep minimum three or four phone

number of our patients, we were not been able to reach out about one fourth out patients either because of poor network or no response from the other end. At first our main purpose was to educate our patients regarding the safety during COVID-19 pandemic period regarding social distancing, hand hygiene and use of mask. Also, they were asked for any COVID-19 symptoms of like cough, fever, and travel or contact history. Secondly, we were able to cut down hospital visit for many patients on regular follow up as regular periodic follow up is must for cancer treatment to detect recurrences and or second primary. Those who were on palliative treatment or palliative care, specific advices were given from palliative department for pain relief and home delivery of medicine were done through Government medicine delivery system in most possible situation. Another advantage of this demographic follows up was mental boost up of the cancer patients after talking to their treating physician in difficult situation, as fear of death is much more with cancer than COVID-19 for them. Patients already suffering with diabetes and cardiovascular disease and older age group, are mostly suffering the most severe and critical consequences of SARS COV 2 outbreak.<sup>6</sup> Age is a definite risk factor for cancer development and cancer patient who are immunosuppressed due to cancer and anticancer treatment, are more susceptible to corona infections as compared to normal healthy individual.<sup>7</sup> Lang and colleagues concluded that the risk of SARS-CoV-2 infection was higher in patients with cancer who deteriorated more rapidly in the clinic and had a higher risk of severe events including the necessity for admission to the ICU or death.<sup>8</sup> In such a situation, it is advisable that cancer patients should not come out of their home as far as possible and telemedicine is one of the best ways to reach out to these patients. Lambertini et al advocate the need for telephone contact report to replace in- person follow-up visits to be included within the patient's clinical notes.<sup>9</sup> A reason for skepticism while utilizing telemedicine, especially in oncology, could be the expectation of lower patient satisfaction due to absence of face to face interaction. Also, it is expected that clinicians might be reluctant towards telemedicine as they might think that lack of physical examination might interfere with optimum treatment. However, a recent study by Smrke et al has shown that telemedicine for oncology consultations was associated with high levels of patient satisfaction with most clinicians considering it a revolutionary and practice changing approach.<sup>10</sup> As we are now living in the era of technology and social media, therefore should use telemedicine where ever possible.

Another area of utmost concern is the well-being of the health care workforce for every well-functioning health system at the time of COVID-19 pandemic. At this situation, medical healthcare providers are under tremendous workload pressure along with increased total health expenditures. Non availability of personal protective equipment (PPE) and its cost factor poses a real challenge to the management of almost all health

care center during this pandemic. According to the China's national health commission, more than 3300 healthcare workers had been infected and at least 22 have died. Unfortunately, in Iran, at least 40 healthcare workers have died because of COVID-19 infection and dozens have reportedly been put under observation after experiencing signs and symptoms of COVID-19 infection.<sup>10</sup> Another aspect of this situation is the psychological distress among healthcare workers. It is because of long work hours, sleep disturbances, debilitating fatigue when need to work with PPE, and the risk of getting infection and put their family at risk of a life-threatening condition. Anticipating quarantine or isolation because of exposure to COVID-19 patient, most of the hospitals start working with reserve group of health care provider, working in shift. Because of this way there will be shortage of doctor, nurse and other auxiliary workers, which eventually will pose serious concerns about the quality of health care delivery system. This situation emphasizes the need of using telemedicine, where consultation can be obtained from specialist using telemedicine from people quarantined at home or other designated places after exposure to COVID-19.

The study is not without its limitations. One of the major drawbacks was that could not reach out to a quarter of patients via telephone and thus these patients remained unknown. Also, could not advice those cancer patients who had co-morbidities like diabetes, hypertension etc. on management of these disease conditions or suggest advice on ongoing medications. As oncologist, this was beyond our area of expertise and hence asked patients to consult their respective specialist doctors for these conditions. Lastly, didn't have a questionnaire or tracking system to assess to what level patients actually benefitted from our efforts and also how many patients complied to given advice on teleconsultation.

Totally agreed that telemedicine cannot replace in person patient care, but it is the call of the pandemic situation where lots more can be achieved by using telemedicine. We should put our effort to monitor the patients at home as much as possible with regular contacts by telephone, electronic text transmission, email or smartphone apps.

## CONCLUSION

In the era of technology and people's acceptance of social media, though telemedicine can't replace conventional method of treatment, it proved to be a useful tool during COVID-19 pandemic to triage cancer patients, providing constrained hospital medical resources to the ones who needed it the most without compromising the safety of the patients as well as the health care providers.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

## REFERENCES

1. Strehle EM, Shabde N. One hundred years of telemedicine: does this new technology have a place in paediatrics? Arch Disease Childhood. 2006;91(12):956-59.
2. WHO. A health telematics policy in support of WHO's Health-For-All strategy for global health development: report of the WHO group consultation on health telematics, 11-16 December, Geneva, 1997. Geneva, World Health Organization, 1998. Available at: <https://apps.who.int/iris/handle/10665/63857>. Accessed on 12<sup>th</sup> August 2020.
3. Telemedicine Practice Guidelines- MoHFW. Available at: <https://www.mohfw.gov.in/pdf/Telemedicine.pdf>. Accessed on 2020 October 13.
4. Associated Press. Doctor-patient ratio in India less than WHO-prescribed norm of 1:1000: Govt. The Economic Times. 2019 Nov 20. Available at: <https://health.economictimes.indiatimes.com/news/industry/doctor-patient-ratio-in-india-less-than-who-prescribed-norm-of-11000-govt/72135237>. Accessed on 2020 October 13.
5. WHO Director-General's Opening Remarks at the Media Briefing on COVID-19; 11 March, 2020. Available at: <https://www.who.int/dg/speeches/detail/who-director-general-s-openingremarks-at-the-media-briefing-on-covid-19-11-march-2020>. Accessed on 2020 October 13.
6. Murthy S, Gomersall CD, Fowler RA. Care for critically ill patients with COVID-19. JAMA 2020;323(15):1499-1500.
7. Kamboj M, Sepkowitz KA. Nosocomial infections in patients with cancer. Lancet Oncol. 2009;10:589-97.
8. Liang W, Guan W, Chen R, Wang W, Li J, Xu K et al. Cancer patients in SARS-CoV-2 infection: a nationwide analysis in China. Lancet Oncol. 2020;21(3):335-7.
9. Lambertini M, Toss A, Passaro A, Criscitiello C, Cremolini C, Cardone C et al. Cancer care during the spread of coronavirus disease 2019 (COVID-19) in Italy: young oncologists' perspective. ESMO Open. 2020;5: e000759.
10. Smrke A, Younger E, Wilson R, Husson O, Farag S, Merry E et al. Telemedicine during the COVID-19 pandemic: Im-pact on care for rare cancers. JCO GO. 2020;6:1046-51.
11. Moazzami B, Khorasani NR, Moghadam AD, Farokhi E, Rezaei N. COVID-19 and telemedicine: Immediate action required for maintaining healthcare providers wellbeing. J Clin Virol. 2020;126:104345.

**Cite this article as:** Das AK, Boro SS, Das A, Medhi PP, Kakati K, Baishya N, et al. Utility of telemedicine in COVID-19 pandemic: our experience at a tertiary cancer center in North East India. Int J Res Med Sci 2020;8:4027-30.