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Perspectives and View Points

Impact of COVID-19 Pandemic on Cancer Screening in India: Current Situation, Challenges and Way Forwards

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Cancer screening is a highly effective preventive measure that can reduce cancer incidence and mortality. COVID-19 pandemic has severely disrupted the ongoing screening activities for early diagnosis of cancers across the globe and the worst affected are low and middle income countries and India is no exception to it. This disruption to cancer screening services may have a significant impact on patients, health care practitioners, and health systems. Through this paper, we aim to offer a comprehensive view on the impact of COVID-19 on cancer screening in India and offer potential solutions to the problems arising out of the COVID-19 pandemic in cancer screening and prevention.

Introduction

As of August 13, 2021, as per World health Organization (WHO), the COVID-19 pandemic has affected 222 countries and territories, with more than 205 million confirmed cases and more than 4.3 million deaths due to the disease [1]. The ongoing COVID-19 pandemic has resulted in widespread mortality and has exposed the frailties of health-care systems worldwide. National responses have varied from country to country, with restrictions or lockdowns of varying severity were implemented to curb the pandemic, with different outcomes. There are concerns that several areas of health care, such as infant and maternal health, immunization, and non-communicable diseases could have been adversely affected by the pandemic [2, 3]. The reasons for these adverse consequences are multifactorial: health systems have been overwhelmed due to the prioritization of COVID-19 treatment over other diseases and the fear of COVID-19 transmission both among the general public and among the health-care providers has prevented care seeking. These effects are likely to be further compounded by the logistical challenges imposed on patients due to national and regional lockdowns and the economic slowdown and potential loss of wages.

On Jan 30th, 2020, the first case of COVID-19 was reported from India, and as of Aug 14th, 2021, around 32 million people have been infected with 430,254 individuals dying from the disease.1 In response to the pandemic, the Government of India instituted a series of nationwide lockdowns that began on March 24th, 2020, with severe restrictions imposed on inter-state and intra-state travel. Some cancer centers were partially or completely converted to COVID-19 treatment facilities. Data from cancer centers across the world have shown that the provision of oncology services has been considerably reduced during the COVID pandemic [4-6]. Projections from many countries indicate increases in mortality in the next 5–10 years due to delays in diagnosis for several different cancer types [7-9]. In India, around 1·32 million patients are diagnosed with cancer annually [10] and cancer accounts for 8% of all deaths in the country [11]. Considerable disparities exist in cancer care in urban and rural areas [12-14]. Travel restrictions particularly during the first wave of the pandemic in India were likely to have affected access to care, especially for individuals in rural areas who are dependent on urban centres for cancer care. The coronavirus pandemic and the subsequent lockdowns have impacted not only cancer care but also the research in the field. The uncertainty has introduced new risks for cancer patients, disrupting the delivery of cancer treatment and the continuity of research.

Impact of COVID-19 on Cancer Screening in India

The pandemic has led to a challenging and unprecedented situation for those who did not know that they are having cancer or at risk of it. While cancer prevention and screening is integral to personal and population health, the cancer prevention and care sector is experiencing adverse changes due to the COVID-19 pandemic [15, 16]. One of the most severely impacted cancer control and prevention services is cancer screening. Cancer screening utilizes medical tests to identify precancerous lesions before cancer is developed or to detect cancer before it progresses into more advanced stages [17, 18]. Screening is an effective preventive strategy that could substantially reduce cancer incidence and mortality rates in patients [19-22]. Evidence shows that for women of all ages at average risk, screening is linked to an approximate 20% reduction in breast cancer mortality [23]. Studies further indicate that 3 times the deaths resulting from colorectal cancer could be avoided with one third of current costs if colorectal cancer screening rates in people aged 50-70 years is improved to 80% [24]. For the genetically predisposed individual, the benefit of prescribed cancer screening has an even greater impact [25, 26].

COVID-19 has significantly hampered the cancer screening infrastructure [15]. To adjust the provision of health care resources, many cancer agencies have championed the idea of halting cancer screening services to patients [27-29]. In United states (US), it is estimated that as a result of COVID-19, screenings for cancers of the breast, colon, and cervix have dropped by 94%, 86%, and 94% between January 20, 2020, and April 21, 2020, respectively [30].

As per GLOBOCAN 2018, India alone contributed to 1,157,294 (13.2%) of the total cancer cases of the Asian continent (8,750,9321 cases) with more than one-third being oral, breast and cervical cancer cases [31]. India has the highest estimated lip and oral cavity cancer cases worldwide (119,992, 33.8%) and the second-highest number of the breast (162,468, 17.8%) and cervix uteri (96,922, 30.7%) cancers in Asian sub-continent [31]. Not only India has a high cancer burden, the majority (75-80%) of cancer patients have advanced disease (Stage 3-4) at the time of diagnosis owing to lack of screening services in most part of the country. Rural areas of India (where 69% of the total population resides) have an even worse situation, where cancer patients and families have to travel long distances to receive treatment and care at a tertiary care oncology center [32].

The government of India had launched an operational framework for the country’s first national cancer screening program in 2016 under the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS). As per the guidelines, there will be both population and facility based screening for oral, breast, and cervical cancer in people over the age of 30 in 100 districts of India before the program is expanded to other areas of the country [33, 34]. On 19th May 2020, due to the COVID-19 pandemic impact, the Government of India had suspended the population based screening of people above 30 years of age as part of the national program based on the risk associated with oral cavity examination. However, emergency cases requiring a biopsy will be addressed as per the protocol. These were temporary guidelines and subject to revision depending on change in the overall situation [35]. Thereby, the early detection of cancer services were primarily be restricted to out-patient settings in primary, secondary and tertiary care centers.

Even before COVID-19 pandemic, population-based screening was confined to only few geographical regions in India due to various reasons including infrastructure and manpower constraints. Majority of cancer patients in India are diagnosed only when they visit hospital out-patient settings with early signs and symptoms [36]. Therefore, it is necessary that early detection services should be kept functional at out-patient settings so that at least the patients coming to hospitals with early signs and symptoms can be diagnosed as early as possible.

Opportunities and Solutions

With the advances in science and technology, the application of telemedicine in cancer care and management have gained momentum [37-39]. Telemedicine, literally means “healing at a distance” [40], could be understood as the delivery of health care services aiming to advance personal and population health [41]. Telemedicine allows timely, accessible, and cost-effective health care delivery to patients, which qualifies itself a practical solution to the COVID-19–induced constraints such as social distancing and self-isolation [42-44]. Telemedicine tools such as virtual reality devices have been found to be useful for training health care practitioners [45]. As virtual reality can offer remote yet realistic training experiences, it facilitates training for health care professionals in a time when social isolation is the norm. Telemedicine has been shown to be effective in underserved geographically remote populations. Emerging technologies such as artificial intelligence (AI) also have great potential in facilitating cancer screening [40]. On a higher-technological state, using a deep learning technique, researchers found that AI can help identify faces of patients with cancer from those without [46]. This promising finding, not currently in use, suggests that AI-based telemedicine tools have the future potential to assist patients and health care practitioners with cancer screening and improve screening accuracy.

While promising telemedicine opportunities are present, to successfully implement telemedicine in cancer care and primary care, education and training should be made available to both patients and health care practitioners [39]. Research conducted by Stanford University shows that 47% of physicians and 73% of medical students surveyed indicated that they are considering taking additional courses to better prepare for innovations in health care (e.g.; data science, AI) [47]. While it is of vital importance to update college curricula to reflect health care needs identified in practice [48, 49], it is important to understand that telemedicine education and training should be considered as a long-term investment, rather than a short-term experiment. In other words, as technology advances, telemedicine education and training programs should also be updated regularly and frequently to ensure health care practitioners are up to date with telemedicine opportunities for the benefits of self and patients [50, 51].

b) Leveraging Social Media to Boost Cancer Screening

In addition to boosting health care professionals’ core competence with respect to telemedicine, health systems should also consider adopting integrated marketing campaigns, such as social media campaigns, to increase screening awareness and adoption rates in patients. Social media campaigns could be understood as the use of social media platforms to deliver persuasive communication strategies to the target audience in order to change their attitudes and behavior to improve health. One key advantage of social media campaigns is that as persuasive strategies adopted in these campaigns are evidence-based and tailored to the target audience, [52, 53] they often yield desirable campaign outcomes [54-56].

Social media campaigns may be extremely useful for promoting cancer screening services to at-risk populations. Compared to integrated marketing campaigns distributed via traditional media platforms, social media campaigns can be distributed remotely with limited costs and therefore have the added advantages of cost-effectiveness and scalability [52, 53]. This advantage might be more pronounced in the era of COVID-19; since lockdowns and social distancing measures have limited people’s ability to physically disseminate campaign messages, campaign mechanisms that can virtually distribute promotional information are desired. Evidence suggests that social media campaigns are effective in raising cancer screening awareness in the target audience [57-59]. Promising findings show that social media campaigns on lung cancer screening using Google and Facebook to reach at-risk populations yielded click-through rates above the industry standard [58]. These insights suggest that health care professionals can consider using social media campaigns to reach at-risk populations, such as marginalized communities with pronounced needs to be screened

for cancer, to further address the widening cancer disparities exacerbated by COVID-19.

In conclusion, the systemic disruption and tragedy that COVID-19 has brought to patients, practitioners, and health care systems globally is a window of opportunity for innovative solutions' in the field of cancer screening and prevention. Cancer prevention professionals need to innovate in the current changed environment in order to continue reducing the burden of cancers and sufferings arising out of them in communities. We need agile short-term plans tailored to the current COVID-19 situation as well as long-term plans that account for the capricious, costly, and deadly nature of cancer and its intersection with other widespread health problems, such as viral infections similar to the current pandemic. We offer some post–COVID-19 screening recommendations as follows:

• Breast cancer screening

• Educating the community through various channels on how to perform a "breast self-examination"

• Cervical cancer screening

• Visual inspection under acetic acid)(VIA)+/- Pap smears at the health facilities following COVID guidelines

• Oral cancer screening

• To be conducted by the health worker only if PPE kits are available at the health facility. Education through various medias and channels on how to self-examine the oral cavity and identify any "abnormal lesion"

• General solutions:

• Proactive outreach to patients due for screening or population at risk of cancer

• Social media communication to patients about risks of cancer and safety of screening procedures

• Initial assessment and results follow-up via telemedicine appointment

• Masking precautions (patient, clinician, and staff)

• Social distancing precautions wherever possible

Contentment is not a choice in the current situation, and health care professionals must diligently work together with other stakeholders and across disciplines to find solutions to ensure patients, providers, and health systems have the necessary tools and means to screen for cancer in the new changed scenario.

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